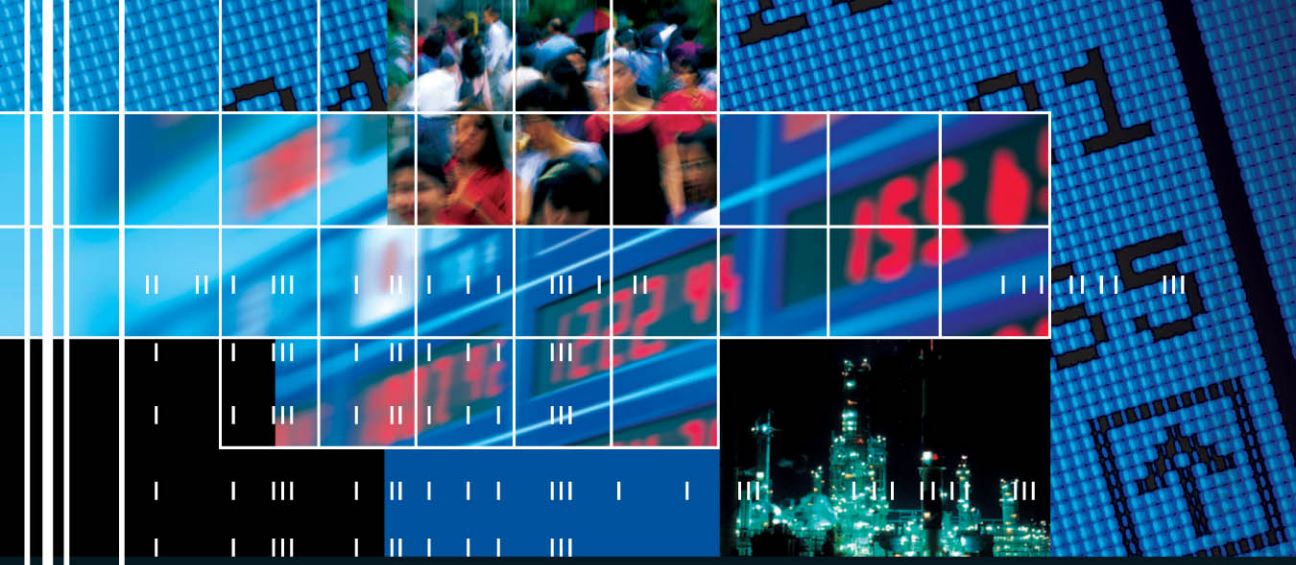

Regional Public Goods

From Theory to Practice

Antoni Estevadeordal
Brian Frantz
Tam Robert Nguyen
Editors

Inter-American Development Bank

ADB
Asian Development Bank

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From its very inception, the project received strong support from the three agencies. This support required a great deal of inter-agency cooperation. Indeed, this collaborative effort significantly contributed to the successful organization of an international conference in Washington, D.C. in November 2002. This project would have not been possible without the financial backing and support provided by the Integration and Regional Programs Department through its Institute for the Integration of Latin America and the Caribbean (INTAL), the Japan Program, and the Sustainable Development Department of the IDB; the Regional and Sustainable Development Department and the Strategy and Policy Department of the ADB; and the Bureau for Policy and Program Coordination of USAID.

We want to thank several people for their special efforts to make this project possible. From the IDB, Nohra Rey de Marulanda, Carlos M. Jarque, Robert Devlin, Peter Kalil, and Juan José Taccone; from the ADB, Shoji Nishimoto, Cedric Saldanha, Karti Sandilya, Jak Jabes, Clay Wescott, Armin Bauer, Patricia Moser, and Cheong Hwan-Oh; and from USAID, Patrick Cronin, Emmy Simmons, Norm Nicholson, Bill McCormick, and John Becker. We also thank Yvonne Behrens, Cindy Bolettino, Najja Bracey, Leticia Cazares, Sherry Kennedy, Akiko Oncken, and Martha Skinner, as well as the Protocol and External Relations Departments of the IDB for their support in the organization and promotion of the November conference.

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Finally, this comprehensive publication would not be possible without the active involvement of the conference participants, who not only provided their ideas and insights, but also contributed conceptual, technical and cross-regional experience papers.

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Preface

This book is based on a conference entitled "Regional Public Goods and Regional Development Assistance," jointly sponsored by the Integration and Regional Programs Department of the Inter-American Development Bank (IDB) and the Regional and Sustainable Development Department of the Asian Development Bank (ADB), with the support of the United States Agency for International Development (USAID). The conference, held on November 6-7, 2002, was conceived under the IDB-ADB Partnership Agreement signed in Chile on March 17, 2001 at the 42nd Annual Meeting of the IDB as part of efforts by the Bank's Japan Program to foster the transfer of knowledge between Asia and Latin America and the Caribbean.

The goal of the conference was to critically re-examine the manner in which transboundary development challenges are being managed, especially where there is unprecedented potential for rapid spillovers, both positive and negative. Leading scholars, policymakers, representatives from civil society, and development practitioners convened to (i) revive debate and constructive dialogue on the provision of public goods at the regional levels, and on how it can contribute to the effectiveness of aid; (ii) more effectively understand the conceptual boundaries between providing national, regional and global public goods in the context of aid and development; and (iii) present actual project experiences that clearly illustrate the provision of public goods that can be supported by regional development assistance.

In their respective regions, the IDB and ADB help their member countries formulate and strengthen regional cooperation frameworks to accelerate economic growth and reduce poverty, as well as contain negative externalities such as pollution, financial contagion and communicable diseases. Such externalities are inherently cross-border in nature and sometimes lay beyond the control of individual countries. This makes cooperative management an all-the-more compelling policy response. Collective benefits produced by shared policy interventions, including regional trade agreements and infrastructure networks or macroeconomic stability, are examples of regional public goods with positive externalities for countries within a defined region or subregion. Such goods can have several benefits. First, through cooperative action, individual countries can access public goods at reduced cost. This is particularly relevant to developing countries, which are often hard-pressed for public resources to supply goods at the national level. Second, providing regional public goods generates trust that leads to shared initiatives between countries that can serve as building blocks for future collaboration. Third, public goods enable regions to incorporate economies of scale and enhance individual country efforts to produce national goods. Fourth, regional public goods can support national efforts to more fully inte-

grate in the global economy. Perhaps more importantly, these goods encourage beneficiary countries to be more open and better prepared to align their national priorities with universal development goals—such as transparent multilateral trade rules or protection of natural resources—whose attainment is often complicated by domestic political exigencies and collective action problems at the international level.

The first section of this book discusses the conceptual frameworks for understanding how the supply of regional public goods can enhance the effectiveness of aid and national development performance. A historical perspective of regional development banks and the evolution of their strategies and programs illustrates how development assistance can play an important role in the provision of regional public goods. The second section examines selected thematic issues, including trade and integration, infrastructure development, economic policy coordination, protection of health and the environment, and the production of knowledge. These chapters outline the regional public goods that most likely will contribute to positive development performance by individual countries. The final section describes development assistance programs that have helped engender regional public goods.

This publication is intended to broaden the discussion on strategic and operational issues related to the provision of regional public goods, and in doing so support efforts to improve regional development assistance. Both agencies wish to express their gratitude to the authors and conference participants for their contributions, which made this publication possible.

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Introduction

Antoni Estevadeordal, Brian Frantz and Tam Robert Nguyen

While development assistance is largely country-focused, increasing attention has been given in recent years to the adverse impact of globalization and integration processes on national development policies. Issues in this regard include trans-national corruption, communicable diseases, pollution, and financial crises. There are, of course, positive effects as well, such as increased trade, transport mobility and transactions. It would seem unrealistic to presume that these development challenges and opportunities can be effectively addressed solely on a national basis. Country-focused assistance is as fundamentally important as ever, but a sensible mix of development assistance that supports the supply of both national and regional public goods can accelerate developing country efforts to achieve national development goals.

The conceptual boundaries of providing public goods require some rethinking, especially in the context of aid and development. First, the potential benefits of many so-called "global public goods" such as clean air are actually "regional" in nature, and a promising way to supply such goods may lie in regional solutions. Second, from a pragmatic point of view, the provision of regional public goods may present fewer challenges to overcome, such as reduced transaction costs associated with multi-country coordination or achieving consensus and agreement on priorities, compared to the provision of many global public goods.

Reorienting perspectives towards regional approaches, especially within the development community, requires examining actual experiences in which development assistance was integral to providing regional public goods. Empirical evidence indicates that donors have been supporting the provision of global public goods for many years. Therefore, an underlying issue is not whether donors should fund global public goods, but how those goods should be funded to multiply their effectiveness. The conference upon which this book is based—"Regional Public Goods and Regional Development Assistance," sponsored by the Inter-American Development Bank (IDB), the Asian Development Bank (ADB) and the U.S. Agency for International Development—offered an occasion to present a number of instances where development assistance was creatively used to support regional public goods provision. Those examples, cited in chapters throughout this book, draw attention to the particular need for retooling the support process through enhanced financial products and technical services that better manage the positive and negative outcomes of integration processes, and that facilitate and sustain the supply of regional public goods.

The first section of this book discusses conceptual frameworks for understanding how the supply of regional public goods can enhance the effectiveness of aid and national development performance. A historical perspective on regional development banks and their strategies and programs illustrates how development assistance can play an important role in the provision of regional public goods. The second section examines selected thematic issues, including trade and integration, infrastructure development, economic policy coordination, protection of health and the environment, and the production of knowledge. It also outlines the regional public goods that are most likely to contribute to positive development performance in particular countries. The final section identifies and describes experiences where development assistance was used to help engender regional public goods.

Role of Regional Institutions and Development Assistance

Todd Sandler and Ravi Kanbur offer complementary arguments for strengthening regional institutions to provide, protect and preserve regional public goods. The concept of public goods is discussed along with its regional dimensions, including scope relative to national and global public goods; classic properties of non-rivalry of benefits and non-excludability of non-payers; and aggregator technology in which individual contributions to a public good coalesce to form that good's overall level. These properties have important implications for the way regional goods are most efficiently financed and, consequently, the role of development assistance in the process. The first and most obvious implication is the need to support cross-border activities whose externalities are regional in scope, implying a fundamental division of tasks between regional and global institutions. Yet, such a division is limited in practice, and there is often overlap, especially in connection with country-specific operations. Another area where regional institutions should have a comparative advantage is in the enforcement of conditionality. Under certain circumstances, a neutral, trusted partner is needed to deliver "tough" messages to individual member countries, and such messages may be better received if they are delivered by a peer group member. Clay Wescott and Nohra Rey de Marulanda offer comprehensive overviews of how the ADB and IDB, respectively, have supported regional cooperation, integration and regional public goods. By focusing on the costs and benefits of multi-country investment programs, Ramesh Adhikari and John Weiss provide an analytical approach to gauge the optimal provision of public goods that can be supplied through regional development assistance.

National Policies and Regional Consequences: Governance, Finance and Trade

While governance may seem to be an inherently national issue characterized by the relationship between the state and its citizenry, Roberto Nogueira suggests a possible role for regional institutions to help strengthen governance. Whereas deepening integration between countries may require new ways of addressing development challenges and opportunities, the decision to participate in regional integration is rooted in national political processes. However, in some cases, the policies and actions of one country can result in negative cross-border externalities. Regional institutions can support regional cooperation forums and networks that provide collective monitoring and dialogue, and moreover, such forums can apply "peer pressure" in specific cases where negative externalities impact the region as a whole.

Charles Wyplosz and P.B. Rana highlight the importance of institutions in supporting regional integration processes and macroeconomic policy coordination, either through ongoing, high-level dialogues, or through the transfer of specific responsibilities to these institutions. For example, the Asian financial crisis and the subsequent regional contagion led to the creation of the surveillance process of the Association of Southeast Asian Nations (ASEAN), which is based on the principles of peer review, cooperation and mutual support. Supported by the ADB, the initiative monitors macroeconomic indicators and includes capacity building and training to strengthen policy-making among ASEAN member countries. Another example is the Chiang Mai Initiative, where the ASEAN+3 Finance Ministers, comprising ASEAN, the People's Republic China, Japan, and the Republic of Korea, reached an agreement to expand the existing ASEAN Swap Arrangement and create a network of bilateral swap and repurchase agreement facilities among participating countries. Essentially, the agreement provides short-term financial assistance in the form of swaps to countries requiring balance-of-payments or short-term liquidity support.

Robert Devlin and Antoni Estevadeordal provide a novel framework to account for this increasing interest in regionalism at a time when some important global initiatives are in a stand-by mode, or face important challenges in terms of their goals in the immediate future. The chapter goes beyond the traditional textbook explanations of economic integration, which are heavily influenced by the development of the European model of integration. The traditional thinking on regional integration has been mostly restricted to a linear-stages approach where a group of countries form a simple free trade agreement and then progressively move towards deeper forms of economic integration. In this context, other forms of cooperation are for the most part ancillary aspects to this process. However, in recent times regional integration agreements have become a key instrument

to respond to and manage the increasingly autonomous globalization process and technological changes by including other forms of cooperation as an integral part of this process. This increase, in turn, has created a demand for the provision of regional public goods in a variety of areas. Optimal provision of such goods, due to their "public good" characteristics, requires formal frameworks for regional cooperation. The chapter argues that incentives for cooperation in providing regional public goods are greater when there are economic incentives and commercial interests in place, such as through the implementation of trade and integration agreements. In this framework, trade integration and cooperation are endogenous components and integral parts of the same process.

Regional Approaches to Developing Infrastructure, Producing Knowledge, and Protecting Health and the Environment

Matt Kahn, Carlos Rufin, Michael Kremer, Jessica Leino and Martin Carnoy each make reference to the "free-rider" problem in their analysis of the provision of regional public goods, thereby strengthening the argument for regional development assistance and the role of regional institutions. Essential features associated with these institutions—particularly their governance structure, financial products, technical services, and capacity to coordinate participating countries, build consensus, and validate and disseminate data and information—position these institutions more effectively to facilitate the supply of public goods at regional levels.

Infrastructure networks are associated with "club goods," in which a defined number of participating countries, such as a subregion, will benefit from spillovers. Expanded or improved physical infrastructure (i.e., transport links and telecommunications) can significantly increase cross-border trade and transactions. Regional institutions, particularly regional development banks, have played key roles in developing physical infrastructure, producing network externalities among participating countries as a result. First, regional development banks can assist small, disadvantaged economies to effectively integrate into the network. A weak link in the grouping can adversely affect the performance of the entire network by creating, for example, bottlenecks to network traffic. Second, regional development banks can convene and coordinate stakeholder meetings to build consensus on priorities, secure country commitments, or facilitate agreements on cross-border standards and policies. This crucial activity helps to formulate the policies and protocols (i.e., "software") to operationalize the physical aspects of trans-boundary infrastructure networks. Three, regional development banks can commission research and feasibility studies, and provide access to data and information to better inform decision-making processes among participating countries. Finally, these institutions can

finance infrastructure projects as well as mobilize additional sources of private sector or donor funding. By having the attributes of neutrality as well as sufficient technical and financial capacity, a regional development bank can help overcome the "free-rider" impasse closely associated with efficient and equitable provision of regional public goods.

In certain circumstances, "regionalizing" the production of knowledge can be a practical approach to developing and maintaining a scientific research base in a developing country context. To start with, economies of scale can be developed. There are certain advantages to establishing a single regional scientific center that pools resources rather than maintaining several weaker, fragmented centers within individual countries. This can be especially cost-effective in cases where the number of students is low, and the cost for recruiting and retaining high-quality instructors is high. Moreover, by diffusing knowledge production to more than one country, the associated political risk among lenders is reduced. Next, external economies can be created. Enhanced learning is likely to occur where a critical mass of knowledge producers, consumers and users are located in one defined area. This results in an environment where cooperation is more conducive to knowledge production producing positive spillovers. Also, this reduces the possibility for knowledge "outside" the region to replace local knowledge (i.e., "diseconomies"). Indeed, there is a difference between social scientific research and "breakthrough" research, since the latter can, in some cases, be confined to national security issues and therefore protected by national policies. In cases where individual countries are unwilling to shoulder the costs for regionalizing knowledge that would otherwise benefit non-paying countries, regional development banks are in a unique position to support cooperative frameworks that facilitate knowledge production and dissemination, in addition to capacity building and training. For example, given the remoteness of island states in the Pacific or Caribbean, the regionalization of knowledge can be a cost-effective and efficient means to generate scientific research and new product development, or to strengthen national scientific capacities (i.e., doctors) through high-quality training and instruction.

Communicable diseases and environmental pollution—which can be thought of as regional public "bads"—are trans-boundary issues that may require regional approaches, not only to contain their spread, but also to coordinate appropriate responses to prevent their recurrence. Health knowledge, for example, is generally confined to national policies and experiences. However, when there is increased spread of risk and infection among neighboring countries, regional development assistance can support regional evaluation studies and present evidence to policy-makers and the public at large that shows the effectiveness of certain health initiatives. This is especially helpful when individual countries may be unwilling to internalize such costs. Furthermore, through various subsidy or incentive programs that target private producers, regional development assistance can advance life-saving research and vaccine development, as well as ensure access to those prod-

ucts by developing countries. For example, on a concessional basis, loans can be provided to enable member countries to purchase suitable amounts of vaccine when available. In situations where one country may not be willing to commit to a purchase, owing to the incentive to "free-ride," a purchase commitment can be offered by regional development assistance as an incentive for private producers to undertake development of the vaccine.

Additional contributions by Anneke Jessen, Juan José Taccone, Ennio Rodriguez, Juan Carlos Navarro, Mario Bronfman, Joseph Hunt, Ozias Tungwarara, and Kazu Sakai and Tam Nguyen further demonstrate how the regional supply of public goods in trade and integration, health and education, governance, and policy coordination can improve the national development performance of individual countries.

Findings

National ownership of regional approaches is a precondition for success. While the principle of subsidiarity suggests that political authority for the provision of regional public good should correspond to the region covered by its spillovers, the decision to participate in providing the goods will be based on national development strategies, and thus on the internal political processes of the potentially affected countries. Certainly, institutions charged with the provision of regional public goods rely on the support of member states for their legitimacy. If states are unwilling to envisage a role for regional cooperation to promote national development, it is unlikely that regional public goods will be supplied at optimal levels. Further work is therefore needed to better understand certain development challenges and regional implications, and how these challenges can be addressed more effectively. Perhaps more convincing research, both in quantitative and qualitative terms, would help encourage individual countries to consider mainstreaming regional dimensions into their national development strategies.

Trade integration is often the first step towards meaningful integration that results in the provision of regional public goods. Individual countries can be supplied public goods at a reduced cost through collective actions. This is particularly relevant to developing countries, which are often hard-pressed for public resources to supply goods at the national level. Many of the case studies in this book focus on regional public goods that are supplied by countries that previously have entered into some form of trade cooperation arrangement. This was the case in Europe. However, most studies that explore the benefits of regional trade agreements ignore this potential. Rather, more attention is given to the efficiency gains or losses associated with such agreements. As a result, a number of criticisms have been leveled against regional trade agreements due to their possible "trade diverting" effects and consequent contribution to inequity in national develop-

ment. A fairer test of their value would be to take into account the extent to which they have encouraged deeper integration, and moreover, generated regional public goods regarded as important to the development of member states.

Better differentiation is needed in the activities supported by regional and global institutions. It is widely agreed that there is no "one-size-fits-all" collection of policies or institutions that will guarantee successful development performance. Better cooperation between multilateral institutions could improve the understanding of comparative advantage between regional and global institutions. It can also help prevent the kind of overlap frequently observed in country programming. In many cases, it would be expected, and indeed desirable, that regional and global institutions approach development challenges from different perspectives that reflect the collective experience of each institution and its member countries.

Donor organizations lack the instruments needed to support the provision of regional public goods. In general, donors have been conditioned to operate on a country-by-country basis, but the instruments to support the provision of regional public goods—and possibly the overall approach to allocating assistance—are likely to be quite different than those used to support traditional, country-focused operations. This may seem to contradict the first conclusion that the provision of regional public goods depends on national strategies that assign a role to regional approaches in achieving their desired results. However, once countries make the decision to pursue regional approaches to advance national goals, donors should be better equipped to support that effort with enhanced financial products and services. This will better position donors to respond accordingly. The case studies in this book show that institutions have been able to structure assistance programs to support the provision of regional public goods in the absence of appropriate instruments. Nevertheless, such a situation makes the optimal delivery of development assistance, already a complicated endeavor, even more difficult. Greater efforts, therefore, should be directed toward developing new aid instruments that encourage donor support for the provision of regional public goods.

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PART I

Conceptual Framework for Regional Public Goods Provision through Development Assistance

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CHAPTER 1

Demand and Institutions for Regional Public Goods

Todd Sandler, University of Southern California

Today more than ever, there is heightened interest in transnational public goods—that is, goods that benefit two or more nations. This is due in part to the endorsement by the international community of the Millennium Development Goals to increase universal primary education, eradicate extreme poverty, ensure environmental sustainability, and promote new technologies.

A number of factors have given rise to an increase in the amount of transnational public goods worldwide and to the growing interest in them by both developed and developing countries. First, there are greater cross-border flows associated with globalization that involve a myriad of transnational public goods. Second, augmented trade and capital flows have created the need to support transnational public goods that foster international market and financial exchanges. Third, the growing pace of technological change constantly produces new public goods, with both positive and negative international consequences. Fourth, the fragmentation of nations is associated with national public goods becoming transnational ones. Fifth, as the world acquires greater capability to monitor the natural and social environment, there is an enhanced awareness of transnational public goods. Finally, efforts to increase foreign assistance focus attention on supporting transnational public goods that promote economic and social development.

However, in a globalized world, transnational public goods need the requisite infrastructure that facilitates market exchange, such as rules governing shipping on the high seas, financial and accounting standards, contract law, and enforcement of property rights (Sandler, 2002a). In addition, the movement of transnational public goods prompts concern about market failures, which occurs when providers do not equate the requisite marginal benefits of public goods with the associated marginal costs. While movement of transnational public goods cannot be equated across the board with market failures, there is a need for better understanding of the properties of these goods and their implications for efficiency (Arce and Sandler, 2002; Sandler, 1997, 1998). Scarce resources to correct allocation concerns must be channeled to where the inefficiency associated with transnational public goods warrants intervention.

There has been increased support for transnational public goods in recent years as part of the process of reforming foreign assistance. Although estimates will vary widely until researchers agree on the precise measurement of assistance directed towards public goods, diverse studies find that more aid is either financing such goods directly or preparing countries to absorb them. The World Bank (2001, pp. 110-13) estimates that $5 billion is directly spent each year to support the provision of transnational public goods, and another $11 billion is spent annually on complementary activities that enable less-developed countries to absorb these goods. Hewitt, Morrissey and te Velde (2002, Tables 5.1-5.2) provide evidence that the financing of both national and transnational public goods grew from just over 16 percent of official foreign assistance in the early 1980s to almost 40 percent in the latter 1990s. Raffer (1999) estimates that such support varies from 20 to 40 percent of official foreign assistance, depending on the definition of public goods assistance applied. In its recommendation for reforming aid, the United Nations (2001) calls for increased support of transnational public goods in health and other key sectors, and cautions that this support must be complemented by traditional assistance to alleviate poverty.

Much of the attention on public goods has been at the national and global levels. With the rise of regional entities—such as the Andean Community (AC), Central American Common Market (CACM), European Union (EU), North American Free Trade Association (NAFTA), Southern Cone Common Market (Mercosur), and the Group of Temperate Southern Hemispheric Countries on Environment (Valdivia)—there is growing demand for regional public goods whose benefits influence a well-defined region (Devlin and Estevadeordal, 2001). Regional goods represent a class of public goods that lie in between national and global goods in terms of their range of spillovers. For health, environment, financial stability, infrastructure and security, regional public goods are becoming an increasingly important component of development (Cook and Sachs, 1999; Arce and Sandler, 2002). Despite growing demand for these goods in the developing world, regional public goods receive relatively little attention and inadequate support, in part because most developing countries have inadequate capacity to provide sufficient quantities of such goods, and because the international community is not accustomed to providing such support.

This chapter examines the nature and level of support for regional public goods for development. In so doing, the chapter makes the case for strengthening the capacity of regional institutions such as the Inter-American Development Bank (IDB) and the Asian Development Bank (ADB) to underwrite effective demand for these goods. To date, there has been too much reliance on global institutions to fund regional public goods, and as a result, national and global public goods have been favored over regional ones. Better sup-

port of regional public goods can represent an important intermediary step towards increased movement of global public goods.

The first section of the chapter examines how regional public goods are distinguished from national and global public goods in terms of demand and financing. The chapter then explores the essential properties of regional goods that bolster or detract from their support, and addresses the importance of foreign assistance in underwriting regional goods. This is followed by analysis of the role of institutions—an essential ingredient for understanding the demand and support for regional public goods. Part of this role hinges on the jurisdictional assignment—that is, decision-making at the global or regional level—of the so-called subsidiarity issue, which is subtle and involves a number of opposing considerations. Finally, the chapter looks at the need for regional institutions.

How Regional Public Goods Differ from National and Global Goods

Regional public goods differ from national and global ones in terms of the location of those who benefit from such goods. The beneficiaries of regional goods extend beyond a single nation but do not extend worldwide. For this study, region refers to a natural locational distinction that extends beyond an area within the confines of a single nation. A region is a territorial subsystem that may be geological (based on mountain ranges, forests, watersheds, or other features); geoclimatic; geographical in terms of continental placement (e.g., South America's Southern Cone or the Three Gorges area of north Asia); cultural (based on language or other shared identity); or political (e.g., political or economic system or membership in a customs union or security alliance). Contiguity is neither necessary nor sufficient for the benefit or cost spillovers from regional public goods. Portugal and Brazil, for example, exchange regional public goods based on a common language and other cultural ties.

For developing countries, there are a number of institutional and collective factors that make the movement of regional public goods more problematic than national or global ones. First, providers are better able to control and monitor the beneficiaries of national goods when compared with beneficiaries of regional goods, since the latter may lack a specific political identity. Second, the absence of identifiable beneficiaries of regional goods limits the ability of the supplier of those goods to offer collateral to back up loans or to account for loan or grant disbursements. Third, spillovers from many regional public goods in developing areas do not directly benefit provider countries as do global goods, as in the cases of curbing sulfur emissions (which can travel from Asia to North America), limiting the spread of infectious diseases, or eliminating security threats.

Fourth, the absence of a dominant nation in some developing regions may result in a lack of the leadership necessary to facilitate the movement of regional goods (Arce, 2001; Arce and Sandler, 2002). Fifth, competitive forces between regional providers may inhibit movement of regional goods (Cook and Sachs, 1999). Sixth, nongeographical barriers, such as language, geology or trade bloc membership, may hamper the provision of and demand for regional goods more than national or global goods. Seventh, providers of all kinds—ranging from nations to nonprofit institutions, charitable foundations and nongovernmental organizations—may traditionally rely on multilateral institutions such as the World Bank, the UNDP or the World Health Organization to fund national and global goods, whereas this tradition is less ingrained in providers that go through comparable regional institutions that are weaker and have less capacity than their global counterparts.

The evidence is clear on this acquired culture to support public goods either through loans or grants to nations or through donations to global multilaterals (Cook and Sachs, 2001; World Bank, 2001). From 1996-98, nations from the Organization for Economic Cooperation and Development (OECD) gave almost 30 percent of aid for national public goods and less than 9 percent for transnational goods (Hewitt, Morrissey and te Velde, 2002, p. 126-7). There is even a marked bias among the regional development banks towards funding national public goods over transnational goods. From 1996-98, the ADB and IDB allocated 47 percent and 69 percent of their respective aid portfolios to national public goods and just under 7 percent and 2 percent, respectively, to transnational goods (Hewitt, Morrissey and te Velde, 2002; World Bank, 2001, Chapter 5). The existing infrastructure and network of global multilaterals to receive and disburse such funds provides them with a clear advantage over their regional counterparts.

How efficiently will regional public goods be supplied relative to national and global goods given the differences between them? If nations must independently provide the public good without support from other institutions, there is little disagreement in the literature that regional goods will generally be provided less efficiently and fare much worse. When a nation determines its demand for a regional public good by equating the good's benefits with its associated additional cost of provision, it accounts only for the additional benefits that a regional public good confers on its own residents. Thus, benefits derived by other nations in the same region are not taken into account by the provider of a purely public regional good.

The relative efficiency of regional and global goods is more controversial. Barrett (2002, p. 56) characterizes global public goods as posing more significant problems in terms of efficiency, supply and cooperation than regional goods. Ferroni and Mody (2002) prescribe to Barrett's view, based on the standard collective action prediction of Olson (1965) that a greater number of benefit recipients is positively correlated with the extent of suboptimality (see also Sandler, 1992). Both Barrett and Ferroni and Mody do

not account for some significant factors that can counter the conventional wisdom concerning group size and thus work against regional cooperation for regional goods while supporting global cooperation for global goods. These include the habit of supporting global multilaterals, the presence of regional rivalries, the absence of donor spillovers, and the enhanced institutional capacity of global multilaterals.

There are, however, other positive inducements to contribute to regional public goods that attenuate their inefficient provision relative to global goods. For example, regional countries have a greater spatial and cultural propinquity that can limit uncertainty and bolster contributions and efficiency. Next, the new regionalism and the emphasis on common markets and enhanced integration can provide an infrastructure to coordinate the provision of regional goods. Also, many regional goods have characteristics of "publicness" that can foster less suboptimal provision.

Properties that Support or Detract from Regional Public Goods

The two classic properties of "publicness" concern what are called the non-rivalry of benefits and nonexcludability of nonpayers. The benefits of a regional public good constitute a non-rivalry when the consumption of the good's benefit by one nation in no way detracts from the consumption opportunities still available to other regional nations. Like magic, the benefits of the regional good can be consumed again and again by additional users. For example, the cleansing of a lake gives non-rival benefits to all shoreline countries. Similarly, finding a cure for a disease such as river blindness or AIDS, or adopting sound standards of financial practices, provides non-rival benefits. The same is true for curbing the spread of an infectious disease, forestalling the dispersion of a pest, or developing an improved treatment regime for a disease.

With completely non-rival benefits, there is no added cost of extending consumption to additional users, so it is inefficient to exclude such users, even if the means for exclusion is costless. If, therefore, support for a non-rival, excludable public good (e.g., a pay-per-view program) is publicly available, then the program should be free to all and financed through the public coffers. This recommendation does not follow when extending usage has a "hook-up" cost, which may involve educating the user or providing the requisite infrastructure.

The benefits of the public good represent a partial rivalry when one user's consumption of it detracts from the quality or quantity of benefits available to others. Crowding or congestion is a likely manifestation of this reduced quality or rivalry, and can result in longer queues for medical treatment, longer response time for disaster relief teams, or reduced surveillance of disease outbreaks.

The second classic property of publicness involves the inability of the provider of the public good to exclude potential users from the good's benefits. Nonexcludability of benefits applies if, once a regional good is produced, its benefits are received by payers and non-payers alike. For nonexcludable benefits, it is prohibitively expensive to limit or direct the distribution of the spillovers. Examples of nonexcludable regional public goods include cleansing a lake, curbing an AIDS epidemic, instituting sound financial practices, forestalling the spread of a regional pest, or curbing a region-specific disease or discovering an effective treatment for it. When a regional public good has nonexcludable benefits, users have a strong incentive to hide their true desire for the good. Why reveal a preference for a regional good by supporting its provision if its benefits will be freely available? Thus, free riding results.

A regional good is purely public provided that its benefits are both completely non-rival and nonexcludable. Insofar as the various regional goods mentioned in the previous paragraph have non-rival and nonexcludable benefits, they represent purely public goods with a regional dispersion of benefits. Often, pure public goods are characterized as having a collective action problem, where no country is properly motivated to provide the goods, so that some form of government provision or outside intervention is required (Olson, 1965; Sandler, 1992, 1998).

A regional good is impurely public when one country's use of it reduces the benefits available for others (partially rival), or where the good's benefits can be limited, at an exclusion cost, to those countries that pay for it (partially exclusive). Impure regional goods come in many forms: benefits can be partially non-rival or partially excludable. For example, since treatment of patients is subject to crowding and exclusion, it is impurely public based on both of the classic properties of publicness. Because vigilance directed to one area of a region reduces vigilance elsewhere, surveillance of disease outbreaks is impurely public owing to partial rivalry. The same is true of uncovering intelligence on political instabilities in a region or ensuring proper sterilization procedures in regional hospitals. Agricultural research findings are impure owing to some, but imperfect, exclusion when disseminating such findings.

Clubs and Joint Products

Regional "club" goods include transnational parks, power grids (e.g., the Central American Electrical Interconnection System—SIEPAC), regional airport networks, regional transportation infrastructure (e.g., canals, highways), satellite launch facilities, and biohazard laboratories. For regional club goods, exclusion is relatively costless and use can be readily tracked—e.g., the number of visits, the amount of kilowatts transmitted, or the number of flights. A toll per unit of utilization is levied to "internalize" the crowding

externality imposed on the members from another unit of utilization (e.g., a visit) (Buchanan, 1965; Cornes and Sandler, 1996). Highway crowding cost can, for instance, be computed by the value of time lost from a longer commute as traffic increases. Although all users pay the same toll per use, members whose preference for the regional club good is greater will use that good more often and pay more in total tolls. Thus, preferences are revealed. There is no necessary inefficiency in excluding a user whose tastes for the regional club good are insufficient to support a toll equal to the marginal crowding cost that results from a visit. Potential users exclude themselves by not paying the user fees.

Regional club goods cannot only finance provision through these tolls, but can also foster efficient allocation of resources. The toll applies a "benefit principle," where agents sort themselves into clubs according to their derived benefits. Although clubs can address efficiency and financing for a variety of regional club goods, equity may be a concern, since many less-developed countries may not be able to afford membership in, say, a satellite communication network (e.g., INTELSAT).

Another important class of impure public goods consists of joint products, in which a single activity gives rise to two or more outputs whose publicness characteristics may differ (Cornes and Sandler, 1984; Sandler and Hartley, 2001). For example, the preservation of a rain forest fosters biodiversity (a global pure public good), maintains watersheds (an impure regional public good), influences microclimates (a pure regional public good), and provides for ecotourism (a regional club good). Other examples of joint product activities include eliminating terrorist threats, preventing natural disasters, supplying Internet connectivity, providing peacekeeping forces, and engaging in bioprospecting. The prevention of natural disasters results in joint products because it limits potential disruption to the whole region (a pure public good), while curtailing the country-specific damage to those countries that experience a catastrophe. Internet connectivity provides a regional public good through a network externality that expands with the number of linked users, while providing commercial, educational and other user-specific benefits.

The extent of suboptimality for joint product activities hinges on the ratio of excludable benefits to total benefits (i.e., excludable plus nonexcludable benefits) associated with the activities. As this ratio approaches one, benefits allow markets and clubs to facilitate preference revelation, and, in so doing, to allocate resources efficiently without government intervention. When, however, this ratio approaches zero, so that all benefits are purely public or impurely public (but nonexcludable), then the activity is considered to be undersupplied. An exclusion ratio near one reflects the establishment of property rights that permits markets or a quasi-market structure, such as clubs, to allocate resources based on tastes. Even when the ratio is not near one, allocative efficiency may result when nation-specific benefits are complementary to the jointly produced benefits from the regional public good (Cornes and Sandler, 1994). This follows because a nation

must acquire the bundled regional public good activity if it is to receive the nation-specific benefit. The greater the spillover of the complementary benefit, the more the nation wants the private jointly produced benefit.

Aggregator Technology

A third dimension of publicness introduced by Hirshleifer (1983) and Cornes and Sandler (1984) involves how individual contributions combine to form the overall level of the public good available to the consumer. This so-called aggregator technology is essential to understanding efficiency of regional public goods in terms of provision. First, the need for policy intervention (e.g., foreign assistance) hinges on the incentives to contribute that are embodied by alternative aggregator technologies. Second, this publicness dimension can be used to further subdivide the four classes of regional public goods—pure public, impure public, club, and joint product—for a more complete typology. Third, the proper institutional arrangement for providing regional public goods is dependent on this more complete typology.

Although there are myriad aggregator technologies, only the six most important ones are presented here. By far, the most studied technology is "summation," where the sum of the contributors' provision equals the aggregate level of provision. In cleansing a shared lake, the amount of pollution removed (or reduced) by each country determines the aggregate abatement. Similarly, the overall level of treatment of HIV/AIDS patients depends on the sum of the patients treated. The size of a transnational park or rain forest equals the total number of hectares set aside. When the aggregator technology is summation, each agent's provision is a perfect substitute for that of others. This perfect substitutability not only reinforces free-riding incentives and suboptimal provision, but it also limits policy options, because government contributions, financed from taxes assigned to current contributors, can reduce their contributions on a dollar-for-dollar basis.

A second aggregator technology is "weighted sum," for which alternative weights are applied to countries' efforts prior to aggregating them in order to ascertain an overall level of the regional public good. When curbing the spread of AIDS, alternative culture-based practices mean that the same preventive efforts may have different impacts depending on the nation instituting them. In the case of reducing acid rain, a weighted-sum aggregator applies because the emitter's location and intervening meteorological factors determine which downwind countries receive less acid rain from abatement efforts of others (Murdoch, Sandler and Vijverberg, 2002). Additional examples of weighted-sum aggregators involve power grids (because transmission distance can lose electricity) and eliminating a transnational terrorist threat (owing to spatial considerations). With weighted sum, pro-

vision is no longer perfectly substitutable among supplying nations. If a country derives a lion's share of the benefits from its own efforts to supply a regional public good, then incentives are supportive of action. Moreover, the reduced substitutability limits public provision crowding out private actions.

The "weakest link" represents a third aggregator technology where the smallest contribution fixes the effective regional public good level for the entire region. When implementing financial practices, the country that institutes the poorest standards may determine the overall level of financial stability for the region. Overall preparedness and early action stemming from surveillance of disease outbreaks are only as effective as the least effective effort within a region. In an airport hub-spoke network, the least well-functioning airport (or air traffic control system) can determine the reliability of the entire network. Network regional public goods often adhere to a weakest link aggregator. When preventing and mitigating natural disasters, the least impressive effort in a region may set the standards of success for the entire system. Incentives—such as where nations match the smallest contributions, provided that they have the financial capacity to do so—generally provide support for nations to supply and finance weakest link regional public goods. Free riding is not such a concern, because there are no gains to a nation from sitting back and providing nothing. The real issue is that of capacity: do nations have the means to raise the weakest link regional public good to an acceptable standard?

A less extreme form of weakest link is a "weaker link" regional public good, for which the smallest contribution has the greatest impact on overall provision, followed by the second smallest, and so on (Arce and Sandler, 2002; Sandler, 1998). Examples of weaker link situations include forestalling the spread of pests, maintaining the sterilization of regional hospitals, providing transportation infrastructure, and fostering Internet connectivity. In weaker link situations, there is an incentive to contribute beyond the smallest contribution, because larger-than-the-smallest contributions to the regional public good have some additional benefits. Consequently, matching behavior is somewhat attenuated. Provision of weaker-link regional public goods is expected to be either efficient or undersupplied to some extent, owing to capacity concerns or a coordination problem involving who does more.

Another relevant aggregator technology is "best shot," in which the largest contribution solely determines the overall level of a regional public good. Quantities supplied below the largest level for best-shot regional goods add nothing. For example, once a cure for a tropical disease is discovered, it is discovered for everyone, and there is no need for additional cures. Other examples include geoclimatic-specific agricultural research findings, a satellite launch facility, and regional peacekeeping. In the case of research, the greatest effort is the most apt to make the breakthrough. A single satellite launch site on the

equator can serve an entire region's needs for reaching geosynchronous orbit. Best-shot regional public goods raise a capacity concern, because efforts for some may have to be pooled to surpass required thresholds. Even if capacity and pooling are not issues, coordination is needed as to which nation or institution supplies the best-shot regional good.

"Better-shot" regional public goods represent a less stark form of best-shot ones, insofar as contributions less than the largest may still add to the total amount of the good. For better-shot regional public goods, the largest provision has the greatest impact on aggregate supply, followed by the second largest provision, and so on. Unlike best-shot regional public goods, there may be multiple suppliers of better-shot goods, as even second-best efforts may further the overall level. A treatment regime for a regional disease may abide by better shot, because less desirable regimes may be effective for patients who cannot tolerate the best treatment. Other instances where second- or third-best efforts may foster the aggregate level of the regional public good include uncovering intelligence of political instabilities, establishing a biohazard laboratory for isolating microbes, and engaging in bioprospecting for new medicines. For example, a second-best biohazard laboratory may still be a useful backup when the best facility is contaminated or overused.

A Typology of Regional Public Goods and their Financial Prognosis

Table 1.1 presents a single typology for regional public goods that incorporates the three essential properties of publicness. The two classic properties are used to distinguish the four classes of goods listed in the columns. Each of these is further subdivided by the six aggregation technologies, given in the rows. An example of a regional public good is displayed for each of the 24 categories.

Not all regional public goods are created equal in terms of their prognosis for efficient provision without directed intervention by multilateral institutions or other entities such as donor nations, charitable foundations, or partnerships. Factors that support financing and provision of regional public goods include exclusion when combined with partial rivalry. For such goods, clubs can form and operate efficiently for most aggregation technologies. The prognosis for independent provision is also promising for weakest-link regional goods if countries have sufficient means to provide an acceptable level. Similarly, if capacity can be achieved either through coordination, pooling or the existence of a dominant nation, then best-shot and better-shot regional public goods can be provided. Weighted-sum regional public goods are expected to be supplied by nations within a region when there are strong country-specific motivating benefits. Finally, joint product regional public goods with a sizable share of excludable benefits can be financed at the national level for similar reasons.

Table 1.1. Regional Public Goods: Typology and Examples

Aggregation technology	Pure public good	Impure public good	Club	Joint products
Summation: Overall level of public good equals the sum of countries' contributions	Cleansing a lake	Treatment of HIV/AIDS patients	Transnational park	Preserving the rain forest
Weighted sum: Overall level of public good equals a differentially weighted sum of the countries' contributions	Curbing the spread of AIDS	Reducing acid rain	Power grid	Eliminating transnational terrorist threat
Weakest link: Smallest contribution determines the good's aggregate level	Implementation of international standards for financial practices	Surveillance of disease outbreaks	Airport hub-spoke network	Prevention and mitigation of natural disasters
Weaker link: Smallest contribution has the greatest influence on the good's aggregate level, followed by the second smallest contribution, and so on	Forestalling the spread of an agricultural pest	Maintenance of sterilization	Transportation infrastructure	Internet connectivity
Best shot: Largest contribution determines the good's aggregate level	Curing a disease	Agricultural research findings	Satellite launch facility	Regional peacekeeping
Better shot: Largest contribution has the greatest influence on the good's aggregate level, followed by the second largest contribution, and so on	Discovering effective treatment	Uncovering intelligence on political instabilities	Biohazard facility	Bioprospecting

The factors that support the financing and provision of regional public goods, along with some of the underlying reasons for their success, are listed below.

- Exclusion when combined with partial rivalry
  - Club arrangement
  - Per-unit toll that internalizes the crowding externality
  - Each member pays the same per-unit toll
  - Total tolls differ among members based on revealed use
  - Efficiency achieved, but equity still a concern.
- Some contribution aggregators promoting the right incentives
  - Weakest link and weaker link can limit free riding, but raise capacity and comparative advantage issues
  - Best shot and better shot raise capacity and coordination issues.

- Weighted sum with significant contributor-specific payoffs
  - Such payoffs and excludable benefits create a privatizing influence analogous to the establishment of property rights
  - Limits the degree of substitutability, and hence publicness, derived from the contribution of others
  - Joint products with a large share of excludable benefits
  - As share of excludable benefits approaches one, markets and club-like structures can achieve efficiency, but equity is a concern
  - Presence of excludable outputs can limit substitutability derived from the contributions of others
  - Technical change can alter the share of excludable benefits.

Foreign Assistance and Regional Public Goods

Foreign assistance to alleviate poverty and foster development can take many different forms, including traditional aid to address hunger and other basic human needs. Increasingly, the international community is gaining an awareness of the need to channel assistance to support transnational public goods, both in terms of core activities to provide these goods and complementary activities to establish absorption capacity in recipient countries (Kaul, Grunberg and Stern, 1999; Sandler, 1997; World Bank, 2001). Within the category of transnational goods, additional assistance is required to support regional goods. Clearly, roadways and waterways that connect a region are essential for commerce in developing areas. Moreover, healthcare, disease eradication and pest control must take a regional perspective, since microbes and pests transverse political borders. These regional public goods and others such as political stability and sound financial practices are needed for regions to attract foreign direct investment, a crucial source of savings to underwrite economic growth.

When deciding which regional public goods to support, donors and institutions must anticipate those goods that are underprovided and direct their assistance to them. As such, nonexcludable regional public goods that abide by a summation technology and possess few nation-specific benefits are where support is essential. For regional club goods, aid should support club-related charges when less-developed countries cannot afford them. For weakest-link and weaker-link regional public goods, foreign assistance involves a capacity issue, where some poor nations in a region cannot meet acceptable provision standards and must be given the means to do so. On occasion, this requires supplying the requisite level of the good through an in-kind provision on the recipient's

soil (Vicary and Sandler, 2002). If the donor has a cost advantage, then supplying the weakest-link regional public good abroad is particularly attractive.

The requisite coordination for weakest-link and weaker-link regional public goods can be supplied by the regional trade blocs as they assume the broader vision of a customs union. These same trading blocs can coordinate or pool efforts to provide best-shot and better-shot regional public goods. Regional development banks can channel support for such pooling through loans and grants. For loans, regional customs unions can organize their membership to collectively provide the requisite collateral. Regional development banks also can form symbiotic relationships with these customs unions regarding the financing and provision of regional public goods. As customs unions mature, economies of scope can result as these unions lower the per-unit provision cost of regional public goods by employing their common decision-making mechanism to provide multiple regional goods.

The two-way relationship between regional public goods and development must be recognized. On the one hand, these goods are needed to bolster development, because regional along with national goods constitute the requisite infrastructure for the operation of markets. For example, a public finance system is needed at both the national and regional levels to pay for these public goods. On the other hand, development is a necessary prerequisite for developing countries to be able to absorb these regional public goods.

Institutions and Regional Public Goods

The new institutional economics teaches that institutions matter when transactions are costly. Institutions serve to reduce uncertainty, thereby fostering stable and reliable decision-making structures that economize on transaction costs (North, 1990). By providing the rules of the game and, thus, a set of constraints, institutions govern diverse interactions among participants. Alternative institutional arrangements can serve an allocative role in the provision of regional public goods when incentives are perverse for independent provision at the national level. To minimize the underlying transaction cost of institutions, the optimal choice would be uncomplicated structures that limit unnecessary rules (i.e., constraints). When exclusion can be practiced, clubs represent an elementary and relatively costless institutional structure, as members reveal their preferences through use.

If exclusion is impossible, alternative institutional arrangements can reduce coordinating activities to provide regional public goods through repeated interactions, which allow agents to learn one another's preferences, thus limiting asymmetric information and saving on transaction cost. Repeated interactions also stress the importance of reputation, which further enhances information gathering at a low transaction cost. Institu-

tions at the relevant regional level can further curb transaction costs by drawing on cultural similarities and informal constraints (i.e., shared norms and values, if applicable). For regional public goods, the use of regional trade blocs can take advantage of many of these cost savings and should figure prominently in any institutional provision of these goods. Such regional blocs are in a position to aggregate the demand for regional goods among their members. As mentioned earlier, additional financial backing for regional public goods can come from the regional development banks.

Jurisdictional Assignment: Subsidiarity

The principle of subsidiarity derives, in large part, from the notion of fiscal equivalence (Olson, 1969), for which the jurisdictional assignment is made to coincide with the public good's range of spillovers. This correspondence of political (decision-making) jurisdiction to the economic domain of spillovers means that those who benefit from the public good decide the quantity of good provided. The intention is to equate the appropriate sum of derived marginal benefits to the marginal cost of the public good, thereby achieving an efficient allocation of resources. When pushed to its full implementation, subsidiarity implies that a global public good should be allocated by a global multilateral institution, a transnational public good by a network of regional institutions (e.g., regional customs unions), and a regional public good by a single regional organization or jurisdiction. As a consequence, there would be separate (tailored) jurisdictional bodies to allocate each transnational public good, so the constituency would precisely match the spillover range of the good. In practice, this extreme is not realized, because there are some counterarguments to subsidiarity.

The ability to match the gainers from a public good with those who must decide its quantity is the efficiency justification for subsidiarity. There are also two institution-based arguments for subsidiarity that derive from North's (1990) view of institutions. First, by choosing the most localized jurisdiction possible, and by not resorting to broader global multilaterals for decision-making, transaction costs are reduced by limiting participants, drawing on shared culture, and fostering repeated interactions. Second, localized benefits and common values promote the evolution of regional institutions, so that they adapt more rapidly to changing circumstances.

Obviously, there must be detracting factors to subsidiarity given that global and regional multilaterals finance a variety of public goods whose spillover and political domains do not coincide. There are at least four factors that could potentially detract from subsidiarity. First, economies of scale (i.e., reduced unit cost from larger production runs) may

favor institutions with greater geographical reach that provide regional public goods to multiple regions. When the reduced cost from scale economies more than covers any loss in efficiency from non-coincidence between the political and economic domains, the use of a global multilateral is warranted. Second, economies of scope can justify a single institution providing multiple regional public goods with nonoverlapping spillover ranges. Scope economies arise when the cost of providing two or more regional goods by the same institution is less expensive than supplying them by separate institutions. These economies stem from common costs associated with the use of common inputs (e.g., communication network, administrative staff). If these cost savings outweigh the associated lost efficiency from non-coincidence, then bundling regional public goods in the same regional institution or global multilateral is desirable. Third, the appropriate regional institution may have insufficient capacity or leadership by a dominant nation to assume responsibility for some regional goods. This capacity can be easily strengthened with support and funds from regional development banks, the World Bank, or other donors. The maturation of regional trade blocs and customs unions also will alleviate this concern by providing the regional development banks stronger institutional partners with which to work. Fourth, best-shot and better-shot regional public goods may require pooling to attain requisite thresholds, when applicable. For those instances where sufficient capacity is needed, the enhanced ability to attract funds may take precedence over matching spillover range and jurisdictional authority.

The supporting and detracting factors with respect to the principle of subsidiarity can thus be listed as follows:

- Supporting factors for subsidiarity
  - Matching economic and political domain promotes efficiency, where the sum of marginal benefits among recipients equals marginal cost.
  - Transaction costs are reduced by limiting participants, augmenting repeated interactions, and curtailing asymmetric information.
  - Localized benefits promote the evolution of institutions from shared culture, norms and values.

- Detracting factors for subsidiarity
  - Economies of scale from reduced unit cost favor serving a larger community.
  - Economies of scope from reduced unit cost endorse providing two or more public goods in the same jurisdiction.
  - The appropriate subsidiary institution may have insufficient capacity, which can be rectified with support from regional development banks and other donors.
  - Best-shot and better-shot technology favors pooling.

Because of opposing influences, a judgment needs to be made on a case-by-case basis when identifying at what jurisdictional level a regional public good should be provided. Most regions are, however, sufficiently large that economies of scale are exhausted, which limits this opposing influence on subsidiarity.

Need For Stronger Regional Institutions

In practice, there are further considerations that counter some of the opposing influences on applying subsidiarity and, in so doing, favor a greater role by regional development banks and trade blocs in financing regional public goods. Like their global counterparts, regional development banks can achieve some economies of scope by supporting multiple regional public goods. The capacity issue for regional development banks can be readily addressed if mission creep at the World Bank and other global multilaterals is recognized, so that activities regarding some regional public goods are reallocated to the appropriate institution at the regional level. Mission creep is associated with wasteful transaction costs and diseconomies of scale. An increased reliance on regional development banks requires a changing culture among donors of all kinds so that they view these regional banks as having an operational advantage over global institutions with regard to regional public goods. Even when pooling of resources is necessary for a "threshold" best-shot, regional public good, the World Bank, the International Monetary Fund and a myriad of smaller donors can support the efforts of the regional development banks to amass the necessary funding if the activity primarily benefits the bank's assigned region.

Another institutional consideration has to do with the role of the regional customs unions that have been maturing in recent years throughout Latin America and elsewhere. These trade blocs can achieve economies of scope with respect to regional public goods, and can also support complementary activities through redistribution to poorer members. In the European Union, regional infrastructure such as roadways, airports and pollution monitoring stations has been supported in this way. Regional customs unions can tax members to raise the requisite revenue or provide the collateral to cover loans. Furthermore, these trade blocs can form partnerships with the regional development banks to achieve synergy, pool resources, and exercise their comparative institutional advantage. The presence of many trade blocs allows for a better application of subsidiarity to the subregional level, so that regional public goods that only benefit, say, Andean countries, can be supplied by the Andean Community, with possible financial assistance from the regional development institution, in this case the Inter-American Development Bank.

These regional institutions possess the necessary infrastructure—everything from meeting places to membership ties, rules, and communication channels—to form rela-

tively low-cost linkages to provide regional public goods. The growth of these regional collectives has coincided with the increased awareness of transnational public goods in terms of the Millennium Development Goals and other needs. In practice, these regional institutions can channel money to augment the effective demand for regional public goods in the developing world, much like their counterparts such as NATO and the European Union in the developed world.

The use of networks that link regional institutions is an essential innovation that fosters more optimal provision of global public goods at reasonable transaction costs. That is, regional institutions can perform an intermediary function by addressing the provision problem of some global public goods at the regional level. These regional institutions can then be joined in global networks that tailor the global goods to regional needs, while accounting for the interregional externalities through the global linkage. Examples include the Global Environment Facility (GEF) for supporting environmentally-oriented projects, and the Consultative Group for International Agricultural Research (CGIAR) for promoting agricultural knowledge in the developing world. The formation of these networks provides yet another rationale for strengthening regional institutions. There are numerous global public goods—including food safety, labor standards, financial practices, and pollution monitoring—that can be provided by linked regional institutions. As such, donors concerned with global public goods should understand the essential role that regional institutions can play in their provision.

Conclusions

Given the new interest in funding transnational public goods to promote development, aid earmarked for regional public goods is sure to expand in size and importance, especially since most transnational goods generate regional, rather than more widely dispersed, benefit spillovers. This is true of efforts to alleviate or eradicate many diseases, pollutants, political instabilities, financial upheavals, disasters, and agricultural pests. A regional perspective on aid and public goods is therefore essential if support for transnational public goods is to foster development.

This chapter has examined how best to support regional public goods through foreign assistance. A number of basic messages follow from the analysis. First, differences among regional public goods along three dimensions—non-rivalry of benefits, exclusion of non-payers, and the technology of aggregation—must be well understood if foreign assistance is to be directed to just those regional public goods that need a boost. For example, voluntary groups of nations can provide regional club goods without outside intervention, so that aid is better spent by helping poor countries in a region pay the fees for

such clubs, or in supporting other regional public goods. When significant country-specific gains are associated with an activity yielding regional public good benefits, recipient countries are motivated to contribute (if they have the means), thereby limiting aid requirements for the activity. For regional public goods abiding by weakest-link and weaker-link aggregator technologies, the issue is not motivation but capacity to provide the goods, so that poorer nations may need financial assistance. Second, the new regionalism places some regional institutions—especially regional trade blocs financed by regional development banks—in a position to assume a greater role in providing regional public goods. This role includes raising collateral for loans, providing regional public goods for their membership, and forming partnerships with other supporters (e.g., charitable foundations, NGOs). Third, there is a need to augment the capacity of regional development banks to ensure a proper division of labor between these banks and their global counterparts. For this division, the principle of subsidiarity applies whenever economies of scale and scope can be exhausted at the regional level. Fourth, owing to institutional considerations, regional public goods face some collective action problems that are not relevant to national and global public goods. In particular, regional rivalries and the absence of a leader nation can inhibit the provision of regional public goods in developing areas. An appreciation of such obstacles allows the donor community to ascertain the demand for regional public goods and the need for funding.

Institutional considerations are important for understanding and addressing the allocation problem related to regional public goods. Reliance on the proper institutional arrangement can limit transaction costs by curtailing uncertainty and decision-making costs. Partnerships between the regional trade blocs and regional development banks can address financing shortfalls for regional public goods. If these banks are to participate sufficiently in providing regional public goods, their capacity must be strengthened. Networks of subregional institutions (e.g., Mercosur, Andean Community) and regional development banks can address provision problems whose benefit spillovers include more than one subregion or region.

This is certainly not the last word on regional public goods and development assistance. To further knowledge and best practices about these goods, better empirical exercises are needed to take stock of how much is being spent on regional goods and by whom (i.e., regional development banks, the World Bank, charitable foundations). Another future research direction involves a fuller study of institutional design regarding partnerships, the regional development banks, and networks that support regional public goods. What institutional innovations are needed? To devise the best institutional arrangements for regional institutions, more study is required of current institutional arrangements regarding power grids, trade blocs, and partnerships that are in use in Latin America and Asia.

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CHAPTER 2

Regional versus International Financial Institutions

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There are many levels of groupings of nations on the international institutional landscape. Groups of countries that share borders often have semi-permanent cooperation agreements on immigration and customs, and on the institutions that implement those agreements. Other groupings of countries come together to advance an ethnic, geographical or cultural identity—such as the Organization of American States (OAS), French-speaking nations, Muslim countries, or Arab states. Other groupings have very specific functional purposes—such as NATO or the regional development banks for Asia, Africa and Latin America and the Caribbean. At the highest level of aggregation, global institutions such as the United Nations, the World Bank and the International Monetary Fund count on the membership of virtually every nation in the world.

This chapter focuses on a particular type of grouping—regional financial institutions—that is relatively large in terms of country coverage without being global, and that deploys primarily financial instruments to advance its objectives. These institutions include the Inter-American Development Bank (IDB), African Development Bank (AfDB), Asian Development Bank (ADB), and European Bank of Reconstruction and Development (EBRD). A key feature of these institutions is that they have both rich and poor countries as members, the former as donors of financial resources, the latter as recipients. In other words, these institutions are intended as vehicles of development assistance. Some specialized UN agencies such as the United Nations Development Programme are also vehicles for transferring resources to poor countries, but they do so only through grants and do not have loan instruments. To some extent, regional financial institutions are smaller-scale versions of international financial institutions, most notably the World Bank. The operations of the regional and international financial institutions overlap in many countries, raising questions of duplication of effort and even unhealthy competition for "development business." These tensions are immediately apparent to those with ground-level experience with development assistance.

What exactly is the rationale for the coexistence of regional and international financial institutions, especially in a world in which development assistance resources are increasingly scarce? While grouping together can have definite scale and cost advantages, a large and heterogeneous grouping can also make some tasks more difficult, such as arriving at a decision. The optimal size must be determined by where exactly the marginal costs and benefits of size balance out, which will in turn depend on the specifics of the particular socioeconomic situation. Taking the perspective of costs and benefits, and of scale and scope, will help us understand and assess the groupings of regional and international financial institutions, particularly when, as seems often to be the case, both are engaged in the same activity.

If there is a rationale behind the current mix of regional and international financial institutions, is it as good as it gets, or could it be better? After all, just as individuals participate in a bewildering number and variety of groups ranging from households to nation states—not surprising, given the range of costs and benefits involved in carrying out different activities—so do nation states also participate in many different types of groupings, as discussed above. But could these groupings be more effective, and if so, what specific reforms are needed to move in that direction? These are the questions that are addressed in this chapter.

Discussion must be based on a given premise, which is the desire of wealthy countries to transfer resources and knowledge to poorer ones. Whether this desire stems from altruism or from concern that the poverty of others will eventually have negative consequences for the rich is another question entirely. The question here is, given that desire, what is the best way to transfer resources and knowledge, and is the current configuration of regional and international financial institutions optimal?

Obviously, the foreign policy interests of the wealthier countries are never fully divorced from the concerns that they express and the manner in which they support (such as through tied assistance) regional and international financial institutions. That said, the logical starting point for examining these institutions is to lay out the advantages and disadvantages of *alternative* institutional arrangements for delivering official development assistance, most notably bilateral assistance. The advantage of this form of assistance is that it enables the taxpayers of donor countries, in principle, to closely scrutinize the assistance their country provides. The disadvantages, however, flow from this very same feature—domestic political processes and distributional struggles can influence the nature and composition of development assistance. This is seen most clearly in the various pressures that come to bear on a government to tie its aid to purchases from its own suppliers.

A powerful advantage of donor countries pooling their development assistance resources is that it enables them to benefit from economies of scale and scope. At the simplest level, the capacity to evaluate assistance programs can be centralized and the costs

shared. Hence, in principle, a pooling of resources in a wealthy donors' club like the European Union should have considerable cost advantages. However, pooling of countries in turn introduces the problem of differences in preferences of the different members as to how the resources should be used. Whatever consensus is reached, it will always be unsatisfactory to some of the donor countries. The cost advantages, therefore, have to be balanced against this disadvantage. Faced with the costs and benefits of the two alternatives—going it alone or pooling—a rational response by a donor country is to diversify by channeling some development assistance through bilateral mechanisms and some together with other donor countries.

This argument does not as yet provide a rationale for regional financial institutions, since it discusses groupings of donors, not groupings of recipients. What are the costs and benefits of placing recipients into groups that are defined by geographical region? The clearest argument in favor of such groupings comes from a consideration of cross-border externalities and multi-country public goods. Cross-border externalities have been subject to considerable analysis in recent years, so suffice it to say here that when development in one country has an impact on other countries, and that impact is not mediated by classical competitive markets, the presence of such an externality can lead to suboptimal policy outcomes for the group of countries encompassed by that externality. Thus, there are gains to be had for all countries by developing a mechanism that coordinates policies and actions, with compensation as needed. Such mechanisms satisfy the classical economic definition of a public good between the relevant countries, and it is well established that such public goods will be undersupplied.

The link between cross-border externalities, multi-country public goods, and development assistance becomes clear if all or some of the countries encompassed by the externality are poor, and the proposed mechanism will benefit them. Since the objective of development assistance is to improve the lot of poor countries, if these conditions are met, then it follows that mechanisms that address such cross-border externalities have a natural claim on aid resources. These mechanisms are far from costless, but using donor resources to finance them is a legitimate way to employ such aid financing.

However, by definition, the use of resources in this way requires groups of countries encompassed by externalities to come together. Let us consider a progression of groupings, starting with neighboring countries at one extreme, and gradually expanding to include all countries in the world for externalities that are truly global in nature. If setting up these country groupings were entirely costless, then a separate one could be set up for each externality and dealt with separately. But it is very likely that there will be economies of scale and scope. If the fixed cost of setting up institutions is large, there is an argument for grouping together the groups themselves. One criterion for such grouping is the likelihood of the occurrence of cross-country externalities across the different groups. Given

the high likelihood that geographical proximity is a key determinant of certain types of physical externalities (water table, forest cover, migration, civil war, transportation, smuggling, etc.), it does seem that a regional grouping is a good initial cut.

Of course, the regional cut is not appropriate in some cases. For truly global phenomena like global warming, financial contagion, spread of infectious diseases, or conflict, a global grouping is needed. To the extent that these phenomena affect the well-being of poor countries, and coordination could improve their lot, global mechanisms and institutions for addressing these problems also have a claim on aid resources. And there may be yet other types of externalities where neither regional nor global groupings are appropriate—the producers of a single commodity like coffee come to mind.

The above argument suggests a division of labor—regional externalities to be dealt with by regional institutions, global externalities by global ones. Put another way, regional financial institutions to supply regional public goods, and international financial institutions to supply global public goods. Of course, the division is not clear-cut, since there are sometimes spillovers from a regional phenomenon to the global setting. But even a cursory examination of the operations of the World Bank and the regional development banks, and granted that such operations are a small part of the operations of these institutions, suggests there is no division of labor in addressing cross-border externalities. The World Bank is more often than not involved in the supply of what are region-specific, multi-country public goods, with either no involvement or overlapping involvement of the relevant regional development banks. The evidence presented here strongly suggests that the World Bank should reduce its role in such activities and the regional development banks should increase theirs. To the extent that there is lack of capacity in the regional development banks to undertake these activities, this is an argument for the donor community to strengthen that capacity, perhaps even using some of the resources currently devoted to World Bank activities. Such specialization would enable the World Bank to focus on its comparative advantage—global externalities.

Country-specific Operations

Addressing cross-country externalities involving poor countries is indeed a legitimate claim on aid resources, and the perspective developed here suggests a framework for examining the division of labor between the World Bank and the regional development banks. Yet the vast proportion of the operations and budgets of these institutions are conventional country-specific operations, with little regard to multi-country dimensions. It is here that the overlap between the World Bank and its regional counterparts is most apparent. A typical operation, whether it be in Africa, Asia, Latin America or Eastern Eu-

rope, involves not only the World Bank and the respective regional development bank, but often such entities as the European Union and a host of bilaterals as well. What can possibly be the rationale for such overlap?

Technical expertise on development issues has both a local and a general dimension. Lessons learnt across a range of projects in different circumstances can be synthesized to develop general principles and guidelines, but then the translation of these general principles into specific action requires local knowledge. The combination of the two is what produces the best outcome. Were it costless, the synthesis across countries would best cover as wide a range of experiences as possible. But the introduction of a cost factor might suggest a narrowing of the scope to a small range of experiences. A natural route to narrowing is to focus on experiences within a region. Regardless of whether one accepts this argument, it should be clear that it is wasteful for both the World Bank and each of the regional development banks to carry out regional syntheses on a particular development issue. Yet this is exactly what happens.

While there is at least an argument for a fully global perspective on development knowledge and experience, it is not clear how exactly this translates to financing, which is fungible. Unless, of course the argument is made that without financing projects each institution would not have a seat at the table and therefore not build up its experience. But this seems a stretch. What prevails at the moment is overlapping involvement of the World Bank and the respective regional development bank in a large number of country-specific operations within a region.

A clearer rationale for having both the World Bank and regional development banks involved financially in the same country operation is that each bank reflects, in some way, different donor preferences. These are institutions comprising different groupings of countries, and therefore reflect some aggregation of these countries' preferences on different dimensions of the development agenda. For any given donor country, therefore, its own preferences are perhaps best approximated by diversifying its resources between a number of different development agencies. This is, of course the benign view of the matter. There is a less benign view that sees wealthy countries as using the multilateral financial institutions as instruments of their foreign policy. Each regional institution is then seen as the vehicle for the interests of particular wealthy countries that have historically dominated the landscape in those regions, perhaps by virtue of a colonial legacy.

The "different preferences" view of multiple institutional involvement in the same project in the same country is, in principle, an attractive rationale, but it depends very much on these preferences being articulated and understood. For example, if one bank particularly favored one theory of development or, within a broad universal consensus, emphasized this or that aspect somewhat more or somewhat less, then it would be in the interests of donors, and beneficiaries, to have both agencies present and "competing."

However, the problem is that there is little such differentiation. Broad objectives and even more specific instrumentalities are similar across the institutions involved, with the result that projects often become turf battles, with such coordination as there is generally in the form of simply carving out market share. A clear statement of the comparative advantage of each regional development bank vis-à-vis the World Bank, subject to the line of questioning developed above, would be a good start in strengthening the rationale for multiple involvement and identifying duplication of effort.

Conditionality and Ownership

There is one generic issue for which a clear case could be made for potentially different comparative advantages of regional versus global institutions. Conditionality, as practiced in particular by the Bretton-Woods institutions, has been strongly criticized for being externally imposed on an unwilling and resentful population—and this is just economic conditionality. As the development dialogue broadens from the purely economic to include aspects of governance and democracy, tensions between donors and beneficiaries are bound to increase as different interpretations are given of these concepts and their implementation.

The premise here is that it is not conditionality per se that is the issue, but rather its nature and implementation. For example, most nongovernmental organizations (North and South) would like to see stronger conditionality on governments to spend more on the social sectors. It is not conditionality per se that they object to, but its content. For much of the middle and upper classes in beneficiary countries, it is not necessarily economic conditionality that jars so much as the perceived "imperial" mechanisms by which they are implemented. The wait for an International Monetary Fund/World Bank mission to pronounce on a country's performance brings to mind recent eras of direct and indirect political domination by foreign powers. In this atmosphere, there is no benefit of doubt allowed for beneficiaries, and even policies that would otherwise be accepted become the subject of vehement discourse, not because of the policies themselves but because of the mechanisms for their implementation and monitoring. Even for governments convinced that such policies are necessary and willing to take the domestic political heat, there is irritation at the detail in the conditionalities, and at the lack of appreciation of the time needed for implementation.

There will always be implicit or explicit conditionality in a donor-beneficiary relationship. No donor will write a blank check, and there will always be differing views—both between donor and recipient, and between the donors themselves—as to what constitutes an appropriate development strategy and proper use of donor resources. The task

should be to fashion mechanisms that reduce these tensions and that do not themselves become obstacles to reaching agreement on use of resources. And it is well to recognize up front that in these matters, perception is as important as reality.

Perhaps the problem can be best posed in terms of a government that needs to be delivered a "tough" message about its policies, regardless of whether those policies are about economic, social or governance issues. Of course, the best messenger for such a message is the population itself, through the ballot box. But sometimes the population itself is behind these policies, so this tough message may have to be delivered from outside the country. One way to do this is by establishing and implementing conditionality in the transfer of resources from donors. The question can then be asked—who should this messenger be?

An examination of the recent New Partnership for African Development (NEPAD) initiative in Africa highlights some of the issues involved. A central feature of NEPAD that sets it apart from the many previous Africa-wide initiatives coming from the continent is its focus on governance and democracy as key building blocks to reduce poverty and foster development. Equally important is the philosophy of "mutual monitoring" to ensure that common standards are met and followed in these (and other) areas. It is understandable why donors have welcomed this initiative, as it has long been recognized that conditionality applied in the past through the Bretton-Woods institutions has not worked. The doubts and suspicions sown in the past negatively impact any reforms of conditionality through processes that emphasize "ownership." The standard criticism of the Poverty Reduction Strategy Paper process, for example, is that the content of the papers is influenced little by the dialogue surrounding it. Whatever the truth of this criticism, the point is that any process emanating from international financial institutions is often viewed as tainted, and for that reason is less effective than it might otherwise have been. In this context, alternative mechanisms for developing and monitoring conditionality need to be explored.

The theory behind NEPAD presumably is that Africans and African governments are more likely to accept criticism from other Africans than from people outside the region. There is certainly some truth to this, and it applies more generally to other regions as well. But this is obviously too simple a characterization. A counter-argument is that neighbors might be less likely to criticize each other, for a host of reasons. The reluctance of African leaders to criticize Robert Mugabe in Zimbabwe is often cited as evidence for this position, and some donor countries have indeed made Zimbabwe the first litmus test for the workability of the NEPAD mechanisms. This in turn has led many in Africa to criticize NEPAD as simply a tool for donor interests. At the other extreme, however, there is concern that localized monitoring mechanisms may fall prey to the intense ethnic and other rivalries that exist between neighbors, and may actually destabilize the region rather than bring it under an overarching cooperative frame. By this argument, then, there is something to be said for having an outsider deliver those tough messages.

The central problem of the World Bank and the International Monetary Fund delivering these messages to individual countries, and making their funding conditional on them, is that these institutions are widely perceived to follow the interests of the G-7 countries. As long as this perception persists, there will be resistance and resentment against the involvement of these institutions. To the extent that regional financial institutions suffer less from this perception—because of their governance structures or because of a perceived greater understanding of region-specific issues—these institutions can play an important and perhaps even a lead role in developing conditionality and monitoring its implementation.

Following the thread of this argument, in an ideal scenario the international financial institutions would only get involved if a true outsider was needed, perhaps with the framework of an "appeal" process whereby a country could turn to the international institution as a higher, more independent, authority. But for this to happen, the international financial institutions would have to be restructured to earn this standing. Reform of their governance structures would certainly be key, and until such a restructuring takes place, there is an argument for allowing them to take the lead in interacting with a beneficiary country in developing and monitoring donor conditionality.

Conclusions

The broad arguments developed in this chapter point to five specific policy conclusions regarding the division of labor between regional and international financial institutions, as well as what both types of institutions should be doing to improve their effectiveness.

First, the responsibility and resources for region-specific public goods should be increasingly shifted to regional financial institutions. To the extent that they do not have the capacity to deliver these goods just yet, a purposeful program to strengthen their capacity to do so should be developed, using resources currently directed to the World Bank. The specific case of the African Development Bank (AfDB) comes to mind. In the long run, financing of multi-country projects within Africa should devolve from the World Bank to the AfDB, yet the AfDB clearly does not yet have the capacity to do this. Donors should divert resources to the AfDB to help it build up this capacity, while continuing to use the World Bank's current capacity for a given time period, perhaps the next decade. The World Bank would then revert to a more limited role, such as providing global syntheses of experiences across regions.

Second, truly global issues such as greenhouse gases, financial contagion, and the spread of disease, should stay the purview of global institutions. Indeed, the capacity of global financial institutions to address and fund responses to these issues should be

strengthened, in partnership with other relevant global agencies such as the World Health Organization or the United Nations Environment Programme.

Third, in country-specific operations there should be a presumption in favor of donor resources flowing through regional financial institutions rather than through the World Bank. This does not necessarily mean the end of the country operations of the World Bank. Certainly in the short to medium term (extending for a decade or more), the capacity of the regional institutions to take on this greater role will have to be strengthened. However, even in the long run there would be a significant financing role for the World Bank, particularly if it offered a more global perspective on development strategies that was clearly defined and differentiated from that of the regional institutions.

Fourth, there should be a presumption that regional rather than international financial institutions should take the lead role in interacting with a government in developing and monitoring conditionality. The logic of the argument applies both to the World Bank and the International Monetary Fund, although in this chapter it is directed primarily to a division of labor between the World Bank and the regional development banks. Again, this does not mean that there is no place for the World Bank. In the long run, it could play an important role as a trusted and independent entity outside the region, capable of transcending interregional rivalries and tensions. But in order for this role to be possible, the World Bank's governance structure would have to be changed to make it more independent of G-7 interests.

Fifth, the regional financial institutions should apply the same tests to themselves vis-à-vis subregional financial institutions as is being proposed here between international and regional institutions. That is, the regional institutions must ask which roles and responsibilities are best devolved to them, and whether the instruments they have are best for the tasks at hand.

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CHAPTER 3

Methodological Framework for Economic Analysis of Regional Projects

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Large multi-country projects increasingly are promoted as subregional[1] efforts that involve governments, public and private investors, and regional and international development agencies. Critical to such projects is not only a reasonable return on investment, but also the equitable distribution of project costs and benefits among all the participants and beneficiaries.

The methodologies and practices of project economic analysis—particularly cost-benefit analysis—tend to focus on the allocative efficiency and to a certain extent the income distribution effects of national projects (see ADB, 1997, and Curry and Weiss, 2000). Identifying project costs and benefits and analyzing their implications for participants such as government, equity holders, labor and financiers in a single country framework is straightforward and well documented. However, the methodologies are largely silent about cost-benefit analysis in a multi-country or subregional framework, and they fail to sufficiently address issues relating to project risks and sensitivity, such as foreign exchange depreciation and changes in relative prices of goods and primary factor inputs.

As with subregional economic integration, where common policies are implemented, the costs and benefits of projects carried out under a regional or subregional economic grouping can in fact be identified and analyzed.

Typically subregional projects involve two or more countries, and economic analysis of subregional projects in a cost-benefit framework is complicated by multi-country participation. It is, however, possible to extend the conventional cost-benefit analysis from a single country (i.e., national economy) framework to a multi-country (i.e., subregional economy) framework. The analysis can be undertaken in various stages examining all kinds of financial and economic effects and their distribution among the participating countries within a subregion. For example, financial and economic net present

[1] The terms "regional" and "subregional" are often used interchangeably. However, the ADB typically uses regional to refer to the Asia Pacific region as a whole, whereas subregional refers to specific subregions—that is, groups of countries or parts thereof—within the Asia Pacific region.

value (NPV) and internal rate of return (IRR) at national as well as subregional levels are estimated. To ensure equitable distribution of project net benefits, particularly where there is a significant discrepancy in net benefits between the national and subregional level, necessary compensatory arrangements can also be developed.

Because of the nature of the projects and the difference in the level of economic development, overall development impact may not be commensurate with apportioned financial costs to each participating country. In some cases, investments may be attracted towards relatively more developed locations within a subregion, as investors prefer locations with bigger markets and better social and economic infrastructure. Consequently, this would influence the direction of benefit flows, resulting in a lopsided contribution to subregional economic development and welfare.

Subregional projects can cover diverse sectors ranging from agriculture to energy, transport and telecommunications, environment and natural resources, human resource development and tourism, with marketed as well as non-marketed outputs. Some subregional initiatives may entail policy reforms and adjustments at the country level (e.g., cross-border trade and investment, human resource development and regional tourism development). Many subregional projects will involve policy decisions at the country level, which will also require government decrees or legislative changes regarding, for example, duties and taxes, tariff and toll setting, foreign investment regulations, public and private partnerships, and financing arrangements including external borrowing.

Because of the complexities of multi-country involvement and implementation, analysis of financial, economic and distribution effects should begin at the design stage of subregional projects. This would avoid possible differences of opinion later between participating countries regarding such issues as the lack of equitable distribution of net economic benefits and compensatory arrangements. This raises two major questions: i) What should be the appropriate methodological framework for an economic analysis of subregional projects; and ii) What should be the main basis for ensuring a reasonably equitable distribution of benefits among participating countries.

Methodological Framework

Economic analysis of projects financed by the Asian Development Bank (ADB) follows guidelines based on the perspective that only costs and benefits to the national economy in which a project is located should be included in an appraisal.[2] Thus, the IRR shows the return on national resources committed to the project and the NPV captures the change in national income for the economy. In a subregional context, however, it is necessary to

[2] For further reading on the basic principles of economic analysis of projects, see ADB (1997), Curry and Weiss (2000) and Powers (1981).

modify this approach by estimating the project's net economic benefit (i.e., NPVs, IRRs) not only to the participating country but to the subregion as a whole. The subregional NPV gives the total change in real income for the group of participating countries, which must equal the sum of the national economic NPVs.

Further, the analysis of income distribution as a result of a project involves disaggregating the income change or identifying income flows created within a country into gains or losses to particular groups and project participants. This is critical information, because it can reveal, for example, the impact of a project on the government budget, on targeted low-income groups or less developed regions, and on project financiers. The application of economic analysis at the subregional level can be seen as a simplified extension of this approach. Once economic NPVs at both the country and subregional levels have been determined, the procedures for national income distribution analysis set out for a single country framework can be followed to show how the income changes are allocated within the countries involved.

Economic Rationale

The key element of subregional cooperation is that it aims to generate benefits for the participating countries that would not be available if they were to act independently by investing the same funds in national projects. Subregional projects should contribute to development by efficiently harnessing the natural, human and financial resources of the subregion. Through collaboration between countries, comparative advantage within the subregion can be exploited and growth accelerated. Gains in national income in participating countries should in turn contribute to wider social development.

A subregional or multi-country project is usually owned by more than one country and by multiple domestic and foreign private sector investors, and it may be a commercial project where output is marketed. There may also be subregional projects with non-marketed output, such as a watershed protection or road project where benefits include cost savings and induced economic activities across the border (and in which roads are not subject to tolls). Such projects usually do not attract private sector participation, except under some special arrangements.

In a subregional project, changes in economic benefits or additional income may come from financial flows, externalities such as cost savings and induced economic activities across borders, or adjustments for price distortions in factor and commodity markets. The mechanisms for creating such benefits will vary between projects, but will be based on a variant of one or more of the following effects:

- Generation of additional funds through the attraction of external funding that would not be forthcoming for nationally-based projects;

- Capture of economies of scale and efficiency gains from subregional specialization, as larger enterprises selling in a subregional rather than a national market can produce at lower unit costs; and
- Creation of potentially broad effects that cross the boundaries of individual countries, such as the generation of new trade between countries with more efficient subregional specialization due to transport or telecommunications projects, the impact of decisions on environmental issues taken at subregional level, and the improvement in health conditions due to cross-border controls on communicable diseases.

Demand Analysis and Least-cost Solutions

Accurate demand studies are a precondition for the success of any project. In the case of subregional projects the only difference lies in the scope of the market, which crosses national boundaries. For example, power exports from countries well endowed with energy might be transferred to those with an energy scarcity, or telecommunications networks in a subregional project might cover several countries. Any national differences in consumer tastes, market expansion or government regulation must be allowed for, so it is important to establish separate projections for individual markets. Under the definition used here, benefits from a subregional project, such as economies of scale, cannot be obtained by exporting to the world market, but only through sales to the subregional market. This is likely to be the case primarily with utility projects, such as power, telecommunications and roads that can be traded subregionally, but whose physical characteristics prevent large-scale extraregional sales.

In terms of a macroeconomic and institutional framework, subregional projects must be assessed within the context not of a single national market, but the markets of all participating countries. Establishing this framework in several countries is more demanding than in a single country, requiring careful assessment of how the project will relate to expected conditions within the subregion. Policy reforms can have important effects on the performance of projects, and where countries liberalize their markets at a different pace this must be allowed for in predicting project outcomes. The involvement of donors in large subregional projects may increase the pace of change, as dialogue on policies relating to proposed subregional initiatives may also serve to initiate further reform. The involvement of several countries, perhaps at different stages of development but with their economies closely linked, may also increase the risk of project failure. For example, a downturn in one market due to loss of confidence and outward capital flows may spread to markets of other countries in the subregion.

Once a project concept has been developed and its market quantified, it is essential to establish that the project is the least-cost means of achieving the particular objectives desired. The techniques for carrying out least-cost analysis, such as identifying the equalizing discount rate, are well documented (ADB, 1997). Several features of subregional projects, however, should be noted. First, using a technique such as the equalizing discount rate—defined as the rate at which two cost streams from project alternatives become equal—requires having alternatives with equal benefits. For some subregional projects this may be no more difficult than for any other type of project—alternative power stations with different technology, or roads with different design, for example, are easily comparable. More complex are situations that involve broader definitions of project alternatives. For example, if a project involves establishing a subregional university, alternative country locations could be compared but benefits in terms of students served from different participating countries would vary depending on the location of the university.

A second technical point involving least-cost analysis and subregional projects is that the application of the equalizing discount rate technique—and also a comparison of the present value of costs from project alternatives—requires the use of a test discount rate. Economic evaluations by the ADB normally use an economic discount rate of 12 percent as a means of rationing funds between competing uses. This is a useful practical procedure, although in principle one would expect the opportunity cost of funds (which is the normal basis for the discount rate) to vary between countries. If different participating countries involved in a subregional project choose to apply different discount rates, least-cost analysis and use of the NPV and IRR indicators would be undermined. For consistent calculations, there is a need to agree on a single discount rate for comparisons of both costs from alternatives and costs and benefits. For most purposes, with exceptions discussed below, the use of a test rate of 12 percent is adequate.

Project-specific Finance

A new project financed within a subregional framework may bring in additional foreign funding; that is, the funds made available to the countries collectively for this subregional collaboration may be incremental to the level of foreign capital inflows that they would otherwise receive. For the countries involved, there will be a benefit associated with the incremental funding given directly by a possible concessional element in such funds. This is the difference between the discounted value of inflows, when the foreign funds are received, and the discounted value of outflows, when the funds are repaid. The level and the form of outflows will differ between the different possible types of additional foreign capital flows.

Once foreign investors are involved, however, the issue of taxes, whether on profits, trade or local goods, becomes highly relevant. Although taxes are a transfer from a national point of view, tax payments by foreigners are a means of retaining project income within an economy and are thus a national benefit. Hence it becomes necessary to consider the implications of alternative tax packages both for the level of foreign investment inflows and for the outflows from after-tax income. The indirect benefit from additional foreign funds arises when they are associated with technology and managerial skills that would not be available with the alternative funds open to a project, principally local private or public capital. These indirect benefits are implicit in the net benefits that the operations of the project generate, and therefore do not need to be accounted for separately.

Externalities and Price Distortions

Many infrastructure projects—even those with a marketed output and thus by definition a commercial dimension—also create external effects. Road projects are an example, since even where tolls are used they will probably not capture all benefits. Under this scenario, a project's financial revenue, and thus returns to investors, will not fully reflect all benefits, and if one wishes to allocate these between countries direct information must be collected on the location of project beneficiaries. Hence, in the road example one would need to know how vehicle owners, consumers and producers in different countries in the subregion are affected by a collaborative project spanning more than one country. A similar argument applies on the cost side where externalities, such as harmful environmental effects, are spread across countries. By definition, these will not show up in financial analysis, so they cannot be apportioned on the basis of the financial costs of the project, which reinforces reliance on economic analysis.

Marketed output may be sold in a distorted market so that the price paid, for example, by power users or telephone consumers may not reflect the true value of the resource or service to the economy. As the ADB (1997) makes clear, benefits from this type of project may be either incremental, in which case the normal procedure is to value them in terms of the willingness of users to pay, or nonincremental, in which case benefits are valued at costs saved. A subregional issue arises where the ratio between the economic value of project output and its financial price or tariff differs between countries. Hence, if power, for example, is scarce in one country and less scarce in another, the financial revenue for the project collected from sales in the two countries as a means of allocating country benefits cannot be used, even if the power tariff is the same in both countries. We will have to study the degree of price distortion for power and use an estimate of the economic value of output in the two countries for the process of country allocation.

Further, there is the possibility that a project has both external effects and operates in distorted markets. Distortions can affect a project on the input as well as the output side. For example, some countries still suffer macroeconomic distortions that affect markets, such as those for foreign exchange and labor. These must be corrected by using national economic parameters such as a shadow exchange rate factor (SERF) a standard conversion factor (SCF), and a labor conversion factor. Where, for example, the degree of foreign exchange distortion differs between countries, the real national economic costs will be distributed unequally, even if foreign exchange costs are shared equally between participating countries.

Project Income Distribution Analysis

Putting the methodological framework developed here into operation requires that the income changes for different economies from a subregional project be estimated at two stages. First, it is necessary to establish who gains and loses from the operations of the project valued at financial prices. At this stage, the financing structure of the project (that is, its loan and equity mix) must be identified, and income flows to equity investors and lenders must be estimated. Any project-specific finance with a concessional element, in the sense that capital inflows exceed outflows, will be a benefit for the countries concerned.

At the second stage, it is necessary to consider how the externalities and price distortions associated with the project alter the allocation of income from that derived from the financial calculations. In the presence of externalities and distortions, financial prices by definition do not give the full economic picture, and some groups must gain where economic costs are below financial costs and similarly where economic benefits exceed benefits at financial prices. Correspondingly, someone must lose where economic costs exceed financial costs and where economic benefits are below benefits at financial prices. Hence, the analysis at this stage picks up the gainers and losers from externalities and price distortions.

Pricing and Compensatory Arrangements

Where subregional projects are essentially commercial, so that most benefits are marketed and externalities are of minor importance (for example, power and telecommunications projects), the prices charged for intraregional sales will affect both economic efficiency and the distribution of benefits between participating countries. From the point of view of efficient use of subregional resources such as hydropower, prices should be set at the long-run marginal cost of supply. Where distortions in production are important, mar-

ginal costs should be economic, not financial costs. If unit costs fall with output due to economies of scale, there may be a need to introduce a type of two-part tariff to allow the supplier to earn a normal profit on capital. This type of issue is now well understood, and the principles of marginal cost pricing have been examined extensively in the context of public utility sectors. However, the tariff charged for such projects also determines the distribution of benefits between participating countries. In a monopolistic situation without public regulation, there will be a tendency for suppliers to exploit their market power and charge a rate that generates above-normal profits. Hence, to ensure an equitable subregional distribution where a monopoly is involved, there is a strong case for anti-monopoly controls on a subregional basis. Where the problem is of monopsony, with a dominant buyer rather than supplier, there may also need to be monitoring of the charges for subregional sales to ensure that any adverse effects on suppliers are either avoided or compensated.

Where projects have strong externalities, as in the case of road or water resource schemes, benefits by definition will not be captured by the projects themselves and regional cost sharing will be an important issue. A road project will create benefits through cost savings on normal traffic and through induced production associated with generated traffic. While costs may be allocated between countries on the basis of the location of the road, these benefits may be unequally distributed between the participating countries and may bear little relation to the cost allocation of the road. Similarly, for water management projects, most benefits in the form of soil conservation or forest protection may be located downstream, largely outside the country where the project is located. In such cases there is a need to quantify total benefits to participating countries, and to ensure that individual countries in which projects with strong externalities are located are not disadvantaged. The difference between the total subregional NPV and IRR, and the NPVs and IRRs for each participating country, will give the distributional assessment of a project. If the initial arrangements suggest that there is a significant imbalance in net benefits between countries, consideration will have to be given to ways to improve this situation. The NPV figures will show the income changes for participating countries, and thus any net losses that may require compensation. The NPVs for gaining countries will show the maximum they themselves could contribute to a compensation fund to ensure that the project goes ahead.

Project Risk and Uncertainty

All projects have an element of uncertainty concerning their costs and benefits, but subregional projects may be subject to a greater degree of uncertainty because they involve several project participants and may serve several markets. Further, they may be prone to

greater delays than other projects because of the difficulty of coordinating the different parties involved.

The simplest technique for dealing with uncertainty and the consequent risk of project failure is sensitivity analysis, which shows the impact on the project NPV and IRR when key project parameters are varied independently. More sophisticated techniques involving probability analysis and random numbers can now be applied easily with the development of computer software, but they are not yet part of standard appraisal practice, and at this stage need not be considered for application to subregional projects.[3]

Since several countries may be involved in a subregional project, it is necessary to convert costs and benefits in different countries into a common currency. Unless there are good reasons for using another currency, this common currency will normally be the U.S. dollar. However, this can create risk for subregional projects, particularly unfavorable exchange rate fluctuations or exchange rate risk. Revenues may be paid in one or more regional currency rather than in a single international currency like the U.S. dollar. Hence, even if payments in a regional currency rise in line with inflation in the country concerned, they may still decline in real terms if the country's real exchange rate depreciates relative to international currencies. Those receiving payments in the currency involved will experience a decline in purchasing power to buy goods on the international market. Given the instability in nominal and real exchange rates in many countries in recent years, it is important that this aspect of project risk be assessed in both financial and economic appraisals.

Economic Analysis of Subregional Projects

To be considered acceptable, a subregional project requires a higher economic NPV than that obtainable from its alternatives, such as separate national investments in the same field, as well as a positive economic NPV at an economic discount rate (e.g., 12 percent) or an economic IRR above the economic discount rate (e.g., 12 percent). Also, where appropriate, financial returns must be acceptable to private investors, and where public funds are involved, there must be returns that are sufficient to ensure financial sustainability. Finally, there must be an acceptable distribution of project benefits between the participating countries, derived from individual country analysis of the economic NPV and IRR, or, where necessary, compensatory arrangements to ensure that no country is worse off with the project.

These principles can be summarized as series of steps, illustrated below with data taken from the appraisals of two actual ADB projects with subregional characteristics.

[3] See Rayner, Lagman-Martin and Ward (2002) for a discussion on integrating risks into the ADB's economic analysis of projects.

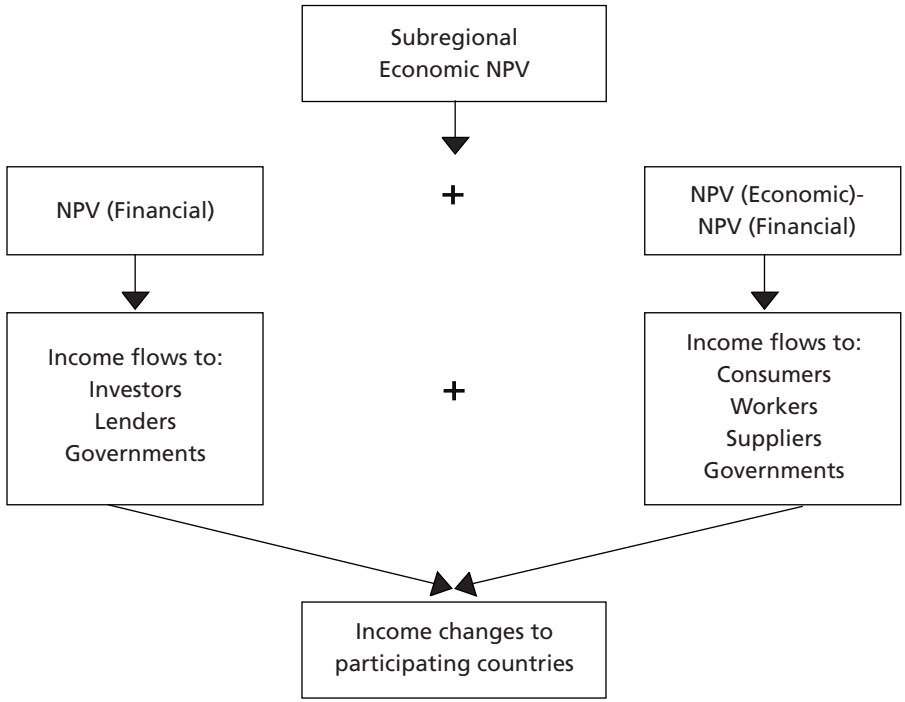
To apply subregional economic analysis, the economic NPV and IRR of the project is required for the individual participating countries, and aggregated for the subregion as a whole. The recommended steps are to:

- Identify the market for the project, both within and outside the subregion;
- Establish the financing plan for the project and identify if any of the funds are project-specific;
- For commercial projects, estimate the financial NPV (e.g., a 12 percent discount rate) and IRR in constant U.S. dollars, and show how the income of different groups and countries is affected;
- Estimate the benefit of project-specific finance as the difference between the present value of the inflow of funds and the present value of the outflow under the terms specified;
- For non-commercial projects and for commercial projects with significant side effects, quantify and value the external effects (e.g., environmental impacts and consumer surplus);
- Allow for any important market distortions by applying national conversion factors to adjust financial values relating to expenditure in a country to economic prices (e.g., the SERF and a conversion factor for important inputs);
- Where financial analysis has been carried out, adjust the financial NPV and IRR to obtain the corresponding economic NPV and IRR;
- For non-commercial projects, compare economic benefits (externalities) directly with economic costs to obtain the economic NPV and IRR;
- Allocate the economic NPV between participating countries and show the gainers and losers; and
- Consider whether compensation arrangements are required to offset any loss to any of the participating countries.

The distribution of net project benefits among all project participants, including governments, the private sector, and project financiers, figures strongly in a subregional economic analysis. Figure 3.1 depicts key components of a subregional project income flow analysis. The key steps in a subregional economic analysis are summarized in the following paragraphs.

Step 1. Financial return to total capital. The financial NPV of a project should be calculated as a return to total capital before deduction of the profit tax. This requires the project NPV and IRR to total capital with outputs and inputs valued at financial prices. For non-commercial projects with no financial revenue, all financial data will be costs.

Figure 3.1. Subregional Project Income Distribution Analysis



Step 2. Financial flows from financing arrangements. Including the project's anticipated financing arrangements in the analysis will allow for a separation between income to equity investors, lenders and government through taxation on profits. NPV and IRR indicators can be calculated for the different parties involved. Groups from the subregion and from outside can be identified at this stage, and income gains to the latter must be excluded from the subregional economic NPV.

Step 3. Project-specific concessional finance. Any project-specific concessional funds that would not have come to the subregion without the project should be identified. The net benefit that the project generates, measured as the difference between the present value of the inflow of funds to the subregion and the present value of the outflow from the subregion, should be added as a project benefit to give a new NPV and IRR for the subregion. Beneficiaries of these funds within the subregion should be identified. Project-specific finance from the private sector is already covered in Step 1, since foreign equity investment and commercial loans normally can be treated as available only for individual projects.

Step 4. Economic adjustments. Any externalities and market distortions must be allowed for either by including external benefits or costs not reflected in the financial evaluation or by applying conversion factors to financial price data. These adjustments reflect real income changes that are not measured by the financial NPV and IRR data, and these must be allocated to different groups in the subregion. An economic NPV and IRR must be calculated, with the economic NPV showing the total change in real income within the subregion.

Step 5. Sensitivity analysis. Where appropriate, sensitivity tests can be carried out to establish how changes in key parameters such as real exchange rates affect the results.

The application of these financial and economic procedures to two actual ADB projects—a commercial project exporting power, and a non-commercial (or externality) road project linking two major cities of neighboring countries—is demonstrated in the sections that follow.

Commercial Power Project

Step 1. Financial return to total capital. The financial NPV and IRR are calculated by comparing financial revenue from power sales with investment and operating costs at financial prices measured in constant U.S. dollars. The financial NPV (at 12 percent) is $98.25 million, and the financial IRR is 19 percent.

Step 2. Financial flows from financing arrangements. The investors involved are a nonregional foreign investor (FOR), the national electricity authority (NEA), and a private sector company from the importing country (IP). The lenders to the project are the ADB, foreign suppliers of export credit, and a foreign commercial bank. The financial NPV to total capital is distributed as shown in Table 3.1.

Step 3. Project-specific concessional finance. Here it is assumed that 75 percent of the ADB funds to Country B are project-specific and would not have come to the country in the absence of the project (Table 3.2). The concessional or grant element in this funding is a gain to Country B.

Step 4. Economic adjustments. The only economic adjustment is that the financial charge at which power is exported from Country B to Country A does not reflect economic value in Country A (given by a combination of cost savings and willingness to pay). The financial revenue from the power sale thus understates its economic worth. The difference between the financial revenue and the economic value of power sales is a gain to the power sector in Country A, and will be shared between power consumers and the power supplier (Table 3.3).

Step 5. Sensitivity analysis. The test here is for the impact of exchange rate changes. We allow for a 10 percent real depreciation of the currency of Country A (Table 3.4). This

Table 3.1. Distribution of Net Present Values in terms of Financial Flow Benefit to Different Groups

(In millions of dollars)

		Subregion	
	Total capital	**Gain to Country A**	**Gain to Country B**
Investors			
NEA[1]	41.07		41.07
FOR[2]	12.31		
IP[3]	12.31	12.31	
Government[4]	29.16		29.16
Creditors			
Export credit[5]	0.60		
Commercial credit	2.81		
Total	**98.25**	**12.31**	**70.23**

[1] Difference in gains between the discounted after-tax profits going to NEA and the discounted value of its equity investment.
[2] Difference in gains between the discounted after-tax profits going to FOR and the discounted value of its equity investment.
[3] Difference in gains between the discounted after-tax profits going to IP and the discounted value of its equity investment.
[4] Government of Country B gains discounted value of profits tax and royalty payments, plus the difference between the present value of the ADB credit of $8.5 million loaned to the project by the government and the present value of repayments by the project.
[5] Creditors gain the difference between the discounted loan interest and principal payments and the discounted value of their loan inflow. As they are foreign creditors, this is not a subregional gain.

has two main effects. Fifty percent of the revenue to Country B is assumed to be paid in Country A's currency, and this declines in terms of constant dollars. In addition, most of the economic value of power in Country A is measured initially in national currency and thus will be worth less in dollars. Thus, both investors and consumers lose to some extent by the real exchange rate change. Nonetheless, returns remain high.

Table 3.2. Distribution of Net Present Values in terms of Concessional Financial Benefits to Different Groups

(In millions of dollars)

		Subregion	
	Total capital	**Gain to Country A**	**Gain to Country B**
Investors			
NEA	41.07		41.07
FOR	12.31		
IP	12.31	12.31	
Government	29.16		29.16
Creditors			
Export credit	0.60		
Commercial credit	2.81		
ADB loan[1]	26.25		26.25
Total	**124.51**	**12.31**	**96.48**

[1] For the project-specific funds, the gain to Country B is the difference between the discounted value of the loan inflow and the discounted value of the associated service charge of 1 percent and outflows in principal and interest payments.

Table 3.3. Distribution of Net Present Values in terms of Economic Adjustment to Different Groups

(In millions of dollars)

		Subregion	
	Total capital	**Gain to Country A**	**Gain to Country B**
Investors			
NEA	41.07		41.07
FOR	12.31		
IP	12.31	12.31	
Government	29.16		29.16
Creditors			
Export credit	0.60		
Commercial credit	2.81		
ADB loan	26.25		26.25
Power sector[1]	92.63	92.63	
Total	**217.14**	**104.94**	**96.48**
EIRR		48%	39%

[1] Assuming power tariffs in Country A reflect the financial charge for power imports, consumers in that country will gain the difference between the discounted value of their willingness to pay for incremental power sales and the discounted financial revenue to the project from incremental sales. The power supplier will gain the difference between the discounted value of its without-project cost for nonincremental sales and the discounted financial revenue to the project from nonincremental sales.

Table 3.4. Sensitivity Analysis: Present Values to Different Groups

(In millions of dollars)

		Subregion	
	Total capital	**Gain to Country A**	**Gain to Country B**
Investors[1]			
NEA	33.55		33.55
FOR	12.31		
IP	9.80	9.80	
Government[2]	27.40		27.40
Creditors[3]			
Export credit	0.60		
Commercial credit	2.81		
ADB loan	26.25		26.25
Power sector[4]	69.77	69.77	
Total	**182.49**	**79.57**	**87.2**
EIRR	27%	41%	37%

[1] Investors' returns decline, since the national currency portion of financial revenue is worth less in dollars.

[2] Government profits tax and royalty income declines with fall in dollar value of revenue.

[3] Payments to creditors are unaffected.

[4] The power sector in Country A gains less than previously because the economic value of incremental consumption is in the national currency, which is now worth less in dollars. The net gain is the difference between the discounted economic and financial values of power sales. Both now decline in terms of dollars, but the former declines more than the latter, because only 50 percent of revenue to the project is in Country A currency.

Non-commercial Highway Project

Step 1. Financial return to total capital. As a non-commercial project, this project has no financial revenue. Its costs are borne by the two countries. Since all financial flows to the project are costs and all benefits are external, there is no financial IRR. The financial NPV (at 12 percent) is $73.94 million.

Step 2. Financing arrangements. Both governments finance their portion of the project from their own resources. The gain (discounted value of investment and operating costs) to Country A is $17.36 million, and the gain to Country B is $56.58 million.

Step 3. Project-specific concessional finance. It is assumed that even if both governments fund the project from concessional sources, these are not project-specific, so they would have been available to the country without this project. Hence there is no extra information to add at this stage.

Step 4. Economic adjustments. Here the benefits from the project in the two countries are included (Table 3.5). These are savings in vehicle operating costs for normal and diverted traffic, the net value of induced agricultural production, and the net value of mining operations stimulated by the road. These benefits are shown first before any adjustment for a premium on foreign exchange, and then when shadow exchange conversion factors (SERFs) of more than 1.0 are used for both countries.

Table 3.5. Distribution of Benefits Related to Economic Adjustments to Participating Countries
(In millions of dollars)

	Project	Gain to Country A	Gain to Country B
Investment/Operating costs	–73.94	–17.36	–56.58
Benefits			
Vehicle operating cost savings[1]	149.66	27.97	121.69
Mine[2]	2.52	2.52	
Rice[3]	4.75	4.75	
Timber[4]	3.33		3.33
Total net benefits	86.32	17.88	68.44
Foreign exchange adjustment[5]	3.41	3.19	0.22
Total net benefits	**89.73**	**21.07**	**68.66**
EIRR	18%	14%	24%

[1] Discounted value of vehicle operating cost savings.
[2] Discounted value of benefits from mine in Country A minus discounted investment and operating cost.
[3] Discounted value of rice minus discounted cost of rice imports from Country B.
[4] Discounted value of timber minus discounted cost of timber imports from Country A.
[5] Traded content of economic benefits and costs is adjusted by shadow exchange conversion factors of 1.1 in Country B and 1.25 in Country A.

Step 5. Sensitivity analysis. Vehicle operating cost savings are the major benefit. The sensitivity analysis tests how far these have to fall before the project becomes marginal in one of the two countries. With a 50 percent reduction in vehicle operating cost savings, the project becomes marginal. Net benefits are $8.67 million, with a gain to Country A of $4.81 million and a gain to Country B of $3.86 million. The total EIRR is 12.6 percent: 12.6 percent for Country A and 12.8 percent for Country B.

Conclusions

The economic analysis of a subregional project should estimate the return on total investment at the level of the individual participating countries as well as at the subregional level. At the same time, it must estimate the distribution of net benefits between participating countries. This requires an economic NPV and IRR for each country individually. The subregional economic NPV will be the sum of the economic NPVs for the countries involved. In addition, to ensure the financial sustainability of commercially-oriented projects, financial indicators (particularly the financial NPV to total capital invested and the NPV and IRR to equity) should also be calculated. Such financial indicators will be useful to project cofinanciers, including the private sector.

The starting point for calculations would be the return to the total capital in a project, which should be expressed as a financial NPV and IRR to total capital. Once the financing arrangements are allowed for, the return to total capital can be disaggregated into returns to investors, lenders and the government. The location of these groups allows us to identify country effects within the subregion. Project-specific finance must be identified and its financial inflows compared with its financial outflows.

For subregional projects operating in distorted markets, it is important to establish the extent to which financial tariffs diverge from economic values in the different countries. The distribution of cost savings between producers, traders and consumers is a key issue for regional distribution, which will normally require empirical research. Some environmental effects will be difficult to allocate between countries, and these may require national contingent valuation surveys. For road, port and rail projects that cross national boundaries, it is desirable to quantify the value of incremental production created by the transport project rather than just use half the vehicle operating cost savings as the net benefit for generated traffic.

To adjust for national price distortions, national conversion factors should be used in subregional economic analysis of projects. A domestic price system of economic analy-

sis in constant U.S. dollars is recommended.[4] If this is applied, the important national conversion factors will be the shadow exchange rate factor and conversion factors for unskilled and skilled labor. A standard 12 percent discount rate can be applied for all subregional projects involving funding from the Asian Development Bank.

Additional considerations for economic analysis of subregional projects include the following:

- For commercial projects operating in largely non-distorted markets, the subregional distributional dimension will be determined primarily by financing issues that determine profit-sharing between countries;
- Where small countries receive more concessional finance than they otherwise would due to a subregional project, this benefit must be included in the analysis;
- Where externalities are the main or sole form of benefit, it is essential to identify the country distribution of benefits, even if only approximately;
- Subregional economic efficiency requires long-run marginal cost pricing for commercial projects;
- Monopoly and monopsony pricing should be avoided by subregional regulations; and
- Serious imbalances in net benefits for participating countries should be avoided either by changes in pricing, financial compensation arrangements, or other arrangements acceptable to all participating countries.

The methodological framework presented in this chapter is directed not only to project decision-making by investors and financiers, but also towards enhancing the understanding of participating countries about the likely costs and benefits of subregional projects—thereby helping their decision-making as well. The methodological framework will also strengthen the capacity within multilateral development institutions, facilitating their catalytic role in regional economic cooperation by fostering the development and implementation of subregional projects.

[4] A world price system of economic analysis may also be used, as long as consistency is maintained both conceptually and methodologically. See Curry and Weiss (2000).

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CHAPTER 4

Regional Public Goods in Latin America

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Since its inception, the Inter-American Development Bank (IDB) has supported regional programs as a reflection of a long tradition of regional integration and cooperation in Latin America and the Caribbean. The Agreement Establishing the IDB (1959) gives the Bank a mandate to "contribute to the acceleration of the process of economic and social development of the regional developing member countries, individually and collectively." The agreement also stipulates that one of the Bank's functions is to "cooperate with the member countries to orient their development policies toward better utilization of their resources, in a manner consistent with the objectives of making their economies more complementary and of fostering the orderly development of their foreign trade." Based on this mandate, the IDB has consistently designed organizational structures and implemented operational procedures to support these regionally oriented objectives.

The Bank's historical initiatives to advance regional cooperation can be linked to projects ranging from subregional integration schemes to regional infrastructure development, research networks and policy dialogues. The IDB is the only multilateral financial institution that finances such projects on such a significant regional scale. The Bank's ongoing commitment to regional issues is also evidenced by the inclusion of regional integration as one of the four priority areas of its institutional strategy.

Since the mid-1980s, a "new regionalism" has emerged throughout Latin America that differs from initiatives of the 1960s and 1970s. Countries have pursued this new regionalism as an additional policy tool for managing the challenges of globalization. The defining difference between the prevailing approach to regionalism and earlier approaches is the policy environment. In effect, the new regionalism was inserted into a framework of policy reform that promotes open, competitive and private market-based economies in a modern democratic institutional setting. Perhaps the most dramatic change was the gradual shift during the 1990s from the traditional intra-regional focus for integration ("South-South") to growing interest in inter-regional ("North-South") agreements. This would have been politically inconceivable before the new policy framework that emerged in Latin America.

The main objectives of the new regionalism are generally considered to be to:

- Strengthen structural economic reforms and contribute to economic transformation;
- Promote reciprocal liberalization that can provide new opportunities to compete more effectively in a global economy and attract foreign direct investment;
- Foster geopolitical objectives among a group of like-minded countries and establish a regional safety net for fragile democracies;
- Generate demands for additional regional economic cooperation to exploit more fully the advantages of a regional market.

Supporting these regional efforts has grown in importance to include not only processes conducive to regional and subregional agreements, but also the promotion of trade and nontrade cooperation, as well as the fostering of regional dialogue concerning key policy areas.

There has been growing demand in Latin America for the provision of regional public goods, which are particularly important to address such issues as cross-border environmental problems, inadequate transnational infrastructure networks, and diseases that move across borders, as well as to promote research networks and establish regional regulatory frameworks and standards in different economic policy-making areas. These transnational challenges can serve to enhance national strategies by providing a framework for a more regional approach in which the provision of regional public goods may offer a promising alternative to global public goods. However, the provision of pure public goods remains a challenge because of the characteristics of such goods, particularly their "non-rivalry" and "nonexcludability" (see Chapter 1).

In addition to the traditional problems associated with development programs designed at the country level, critical issues confronting donor institutions that support regional-level projects include difficulties associated with multi-country financing, the evaluation of costs and benefits at a regional scale, the simultaneous mobilization of political will in several countries, and the ability to effectively and clearly communicate benefits to regional stakeholders.

This chapter provides a comprehensive account of the IDB's experiences with regional programs and projects, including the Bank's important role in supporting processes of collective action; creating national and regional capacities; reducing regional imbalances in knowledge and technology accumulation; offering financial assistance to the less developed countries to ensure an equal playing field; ensuring complementarities between national and regional priorities; and fostering policy dialogue at the regional level.

These efforts have helped to counter the negative incentives that limit the demand for (and supply) of regional public goods by attempting to resolve the exclusion of less

developed countries, harnessing the experience of more developed countries in favor of collective initiatives, and providing leadership for regional programs that alleviate problems related to international competition. The Bank's efforts over the years have helped to consolidate regional networks by strengthening subregional and regional organizations that pertain to the public and private sectors as well as civil society. These networks are important partners on regional issues because they bring together the Bank's technical expertise that has been gained from a range of regional development projects with the local knowledge of national and subregional organizations.

The IDB's historical support of regional programs has its best expression in the instruments currently employed by the institution to continue this effort. These include (i) a regional technical cooperation program; (ii) a central department—the Integration and Regional Programs Department—fully dedicated to regional issues and to fulfilling the Bank's mandates in this area; (iii) support for the Institute for the Integration of Latin America and the Caribbean (INTAL), based in Buenos Aires, which promotes regional programs in the field; and (iv) a formal regional programming process to mainstream regional priorities into the Bank's operational pipeline and to complement country programming. Taking into account the Bank's experience in dealing with regional projects, the IDB in 2004 approved an initiative specifically for nonreimbursable financing of regional public goods with non-rivalry and nonexcludability characteristics (IDB, 2004). This decision places the IDB in the forefront of this issue among multilateral institutions.

Regional Technical Cooperation Program

The regional technical cooperation program has operated since the IDB was founded and has enabled the institution to amass considerable experience in proactive, creative and innovative activities in response to development problems in member countries. It has been the most important mechanism used by the Bank to promote the collective action plans needed to provide and finance regional initiatives. Over the years, the regional technical cooperation program has supported an array of regional programs that have served to test or consolidate collective efforts for the benefit of all. It has also served as a vehicle to disseminate know-how and learning processes and to share successful experiences among all of the countries in the region.

The experience that the IDB has accrued over its years of operations has positioned it as the appropriate institution to provide or finance regional public goods within its sphere of action. These advantages include knowledge of the region's socioeconomic and political conditions, public and private institutions, and the status of reforms undertaken in the different countries; credibility and legitimacy as an institution to operate as a cat-

alyst and facilitator of processes of change for which coordination to support collective action is required; institutional capacity to respond to crises; and the experience and ability to monitor, mobilize and manage resources contributed by other sources to advance the region's development.

The Bank has developed a varied portfolio of regional technical cooperation provided to organizations involved with regional integration as well as for initiatives aimed at increasing regional cooperation. These initiatives include border integration studies and plans of action; strengthening technical and financial subregional institutions; social programs in education, health and the environment; and training and support for integration processes and the negotiation of free trade agreements.

Many of the objectives and characteristics of regional technical cooperation are conducive to generating regional public goods because such cooperation:

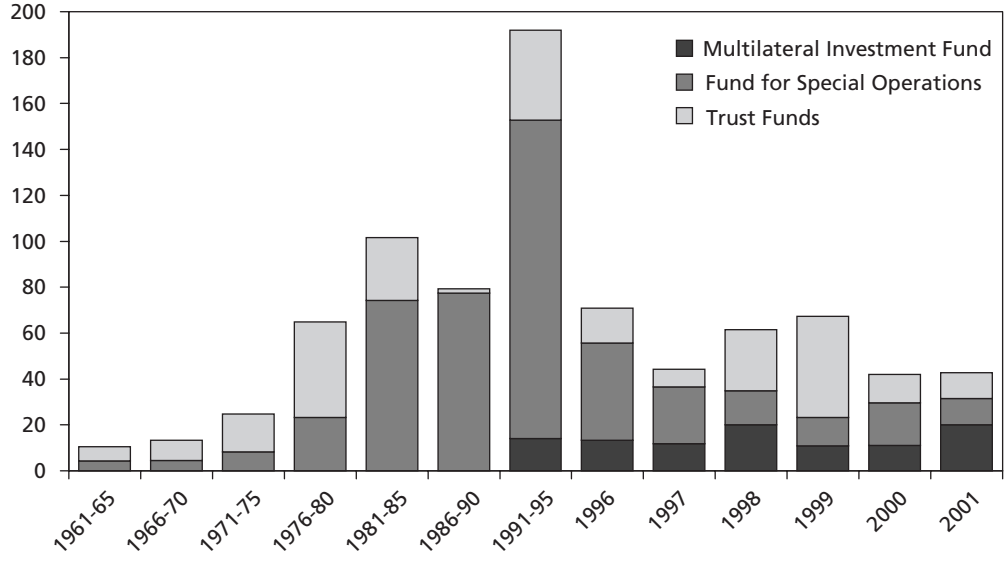
- Helps pass on practical experience and specialized expertise critical for economic and social development of the countries of the region;
- Provides support for the region's economic and physical integration processes;
- Assists in training, institutional development and research to attain economies of scale;
- Facilitates the transfer or creation of knowledge, skills, technology and experiences that countries need to attain their development aims and goals.

In addition, the requirements that have been established for financing regional technical cooperation stipulate that such operations must:

- Be intrinsically regional in nature by supporting, for example, multinational trade or environmental, economic or physical integration initiatives;
- Allow for the Bank's operational aims to be fulfilled, and complement or sponsor national efforts through such initiatives as providing resources to develop new methodological approaches applicable to national operations, or by enabling economies of scale in staff development or training activities;
- Promote the national, subregional and regional development and consolidation of institutions capable of contributing to the long-term growth of areas or sectors that are of priority for the region's development;
- Develop innovative approaches in keeping with the region's changing social and economic priorities.

Total regional technical cooperation financing with resources drawn from the Bank's Fund for Special Operations (FSO) from 1961 to August 2002 amounted to more than

Figure 4.1. IDB Financing for Regional Technical Cooperation, 1961-2001
(In millions of dollars)



$466 million at current prices. In addition, the IDB has financed numerous operations using funds under administration, and its approvals have reached close to $330 million in dollar equivalents. Figure 4.1 shows that after peaking at over $180 million over the 1991-95 period, the Bank's financial contribution for regional technical cooperation declined to almost $40 million annually starting in 2000. This decline, mainly in the Bank's untied resources (FSO), has taken place precisely when regional activities have accelerated.

From the regional viewpoint, the IDB's technical cooperation funding has been fundamental to creating the necessary basic institutional conditions to enable governments to define and approve regional projects that would otherwise have had no access to international financing.

The IDB's regional technical cooperation evolves in direct relation to new areas of concern that open up as a result of both regional and global priorities for resource allocation. Currently, these programs address not only issues considered to be of basic importance for economic and social development, but also such issues as drug problems, public safety, the evolving role of the state, and the environment.

Although all projects in the regional technical cooperation program involve some sort of regional collective action, only a portion of them pass the test of non-rivalry and nonexcludability and can thus be rigorously considered regional public goods. Nevertheless, the IDB's regional technical cooperation has over time provided some regional pub-

lic goods and paved the way for a more deliberate provision of these goods, particularly with the approval of the 2004 initiative. Different types of programs that have been provided through the Bank's regional technical cooperation—some of which are public goods—are discussed below.

Generating and Transferring Development Expertise

It is widely recognized that generating and transferring development expertise contributes to the creation and provision of regional public goods. The eminently public nature of development expertise is reflected in the fact that it is not possible for a scientific or academic community or the public or private sector to take advantage of this good while keeping other potential users from using or profiting from it. Given the opportunistic behavior of individual nations in the provision of public goods, international assistance or cooperation is essential to ensure that such goods are widely produced and disseminated in Latin America, as well as shared more equitably among countries.

The IDB has made a significant contribution towards generating and disseminating this public good—development expertise—with economies of scale in the region. Through this contribution, the Bank enhances social welfare and sustainable development by supporting such public goods as macroeconomic and financial stability, reduction of extreme poverty, environmental conservation, and sustainable governance.

Preparing and Disseminating Innovative Project Evaluation Methodologies

One important regional good supported by the IDB has been the preparation and dissemination of innovative project evaluation methodologies adapted to the particular developmental characteristics of the countries of Latin America. Evaluation methodologies have covered such areas as environmental impact, energy planning, macroeconomic analysis, natural resource management, and social investment. Dissemination of these methodologies has contributed toward developing a common language for project evaluation in both the national and regional spheres.

Under the Inter-American Program of Applied Macroeconomics (PIMA), the IDB since 1990 has been helping relatively less-developed countries with insufficient markets improve their capacity to design and execute economic policies. The Pontifical Catholic University of Chile conceived the PIMA and has implemented three such programs under agreements with the Bank. Among the project's many benefits has been the training of 250 public sector professionals in key areas of macroeconomic policy design and implementation. The curriculum has been tailored to meet the challenges faced by these countries both in terms of social development and rapid economic globalization.

Another example of support for a knowledge-based regional public good was the assistance provided to the University of the Andes under the IDB's Training and Research Program on Resource Allocation and Project Evaluation. For a 12-year period starting in 1985, this program fostered research and trained human resources in methodological tools for socioeconomic evaluation and for the formulation and evaluation of resource allocation policies for social investment, natural resource and environmental projects. Training was provided to more than 800 professionals and teachers, most of them from relatively less developed countries, and advanced training to university professors had a multiplier effect on dissemination of the program's content.

Basic and Applied Research

Research applied to knowledge-based development is an impure regional public good that the IDB has boosted through its regional technical cooperation. An example is the creation and strengthening of the Latin American Research Network. Some 240 research organizations and 50 projects in the network have been financed through the program, producing a two-fold benefit. First, the institutional capacity of a critical mass of Latin American universities and research centers has been reinforced. Second, research has advanced in areas such as state reform, income distribution, employment, social services, and fiscal or macroeconomic policy. The many comparative studies that have resulted from the project also are used to help formulate, coordinate and promote a sense of ownership of development policies in the region. In addition, the research capacity developed in centers affiliated with the network enhanced national investment activities.

Working with several multilateral and bilateral organizations, the IDB has for many years supported the Agricultural Research and Natural Resource Program, which forms part of the system of international and regional agricultural research centers. This program has had a direct impact on the Latin American agricultural sector, particularly with regard to productivity, natural resource management, and the reduction of rural poverty. It is a good example of the complementary nature of regional public goods and sustained national economic development objectives.

Since 1998, the Bank also has provided support to the Regional Agricultural Technology Fund (FONTAGRO), a research consortium set up to give continuity and institutional and financial sustainability to the regional agricultural research programs described above. Financed by contributions from countries in the region, FONTAGRO aims to increase agricultural productivity and reduce rural poverty, and as such is an example of an institution created to promote regional public goods. As FONTAGRO supports programs in the region through competitive bidding, it also serves as an alternative financing mechanism ("common pool") based on regional collaboration. The Bank's direct in-

tervention as the Fund's legal representative and coordinator draws attention to the institution's special comparative advantage in providing regional public goods.

Innovation and Transfer of Technology

Another type of knowledge-based regional goods is the promotion of innovation, best practices and feedback aimed at improving the design and implementation of regional or national development policies and practices. IDB-financed regional technical cooperation operations have served to examine and introduce innovative issues of interest for the region's development, such as gender, justice, indigenous affairs, violence, the disabled population, and street children. It is important to note that the beneficiaries of these operations were given a voice in resource allocation decisions. The operations have also helped to prepare applied research or develop new methodological approaches for disseminating knowledge among many of the region's public and private institutions and employees; design financial sustainability mechanisms for organizations responsible for developing a given subject area; develop training methodologies; and establish alternative ways of disseminating results.

An example of an operation that offers important innovative and learning elements is the Bank's support for the Secretariat of the Indigenous Peoples Fund. The Fund was created in 1993 through a multilateral agreement among 20 countries. The Bank's initial operation supported the establishment and start-up of the fund, and at present, the Bank manages the fund's resources and delivers the income generated by its capital (endowment funding), thereby validating the principle of subsidiarity. This regional technical cooperation operation has been innovative in that it has supported the establishment of an entity that is self-sustaining through its own capital; coordinated dialogue on interests and commitments between governments, indigenous organizations and international entities; and created a network of actors (indigenous people, governments, and academicians) using a regional approach to what is a critical issue in Latin America. The last two aspects highlight the way the IDB has been developing horizontal networks and alliances that, among other responsibilities, shape, negotiate and manage regional technical cooperation grant and loan operations.

The Indigenous Peoples Fund is an example of an IDB institutional practice aimed at generating a sense of ownership (and with it, sustainability) of the regional development agenda. The common denominator is the participation of the agents and beneficiaries involved through mechanisms that give them a voice in decision-making at all levels of these initiatives. To sustain collective endeavors over time, there must be coordinated participation with state and non-state actors (including civil society and the private sector). Their integration into these operations is essential to establishing the priority importance of producing regional public goods and facilitating timely access to them.

Promoting Regional and Subregional Integration

Regional integration has been a central element of IDB operations since the institution was established, and the issue has taken on even more importance over the past decade because of the region's move towards regional and subregional integration as a response to globalization. There has been a proliferation of agreements and processes that promote collective action as a means of addressing common regional development problems. The Bank's regional technical cooperation program has facilitated this process in a number of areas that support the generation of regional public goods.

Strengthening Institutions

Regional technical cooperation has contributed significantly towards the promotion of regional integration by establishing or strengthening regional or subregional institutions that generate regional public goods. These include the Central American Bank for Economic Integration (CABEI), the Institute for Latin American and Caribbean Integration (INTAL), the Permanent Secretariat of the General Treaty of Central American Economic Integration (SIECA) and the Inter-American Institute for Cooperation on Agriculture (IICA). These integration institutions have been reinforced by cooperation mechanisms that recruit them as executor agencies of IDB regional technical cooperation operations, promote their participation in negotiations, and involve them in the coordination of integration strategies and even the granting of loans.

INTAL is a particularly notable example of the IDB's contribution to strengthening regional or subregional integration institutions in Latin America. INTAL was founded in 1964 as a permanent Bank unit to promote and consolidate Latin American integration processes in the hemispheric, regional, subregional and bilateral spheres. INTAL concentrates on providing technical assistance through training, support for the research network, and advisory services on integration and international trade issues; forums on policy and integration, with broad participation by the public and private sectors, labor and NGOs; and the dissemination of knowledge through databases and publications on integration and trade.

Coordinating and Negotiating Hemispheric or Subregional Integration and Trade Systems and Standards

In its capacity as a regional bank, the IDB has financed a series of regional technical cooperation operations that are expressions of intermediate public goods. These operations aim to:

- Improve the definition, coordination and harmonization of public policies and negotiations involving hemispheric, regional or subregional integration, as well as trade systems and standards;
- Reinforce the capacity of the Bank's member countries to negotiate and implement international and regional agreements;
- Create spaces for negotiating and coordinating priorities, programs, projects and resource mobilization through such initiatives as regional consultative groups.

The Bank's support in these areas has been key to enabling countries of the region, particularly the relatively less developed ones, to define shared integration and trade agendas, and to negotiate, implement and evaluate the progress of trade agreements. These countries need to strengthen their institutional resources and capacity to handle the increasingly complex negotiation processes involving the terms and conditions of trade and integration agreements and treaties, which are impure public goods of a club type—that is, they are partly competitive among the member countries, and it is possible to exclude nonmembers from them. In order to maintain an equitable supply of this type of regional public good, it is critical to recognize the heterogeneous nature of national development and the need to bring the provision of regional public goods up to an acceptable level for all nations. The IDB's role has been to support collective action by reducing imbalances in knowledge and progressively financing activities that enable all eligible countries to become part of the integration processes.

These same principles are the basis for regional technical cooperation operations that promote the various international integration and trade systems, such as the World Trade Organization, the Free Trade Area of the Americas (FTAA), and subregional integration systems such as Mercosur, the Andean Community, the Central American Common Market and CARICOM. These technical cooperation activities are an example of regional public goods with the "weakest link" type of technological aggregation properties (see Chapter 1).

An example of this kind of intermediate regional public good provided through regional technical cooperation is the IDB-financed Program for the Development and Integration of Central America (PREDICT), implemented in the mid-1990s. Key program activities include the following:

- Formulation, harmonization and coordination of economic and social policies (in such areas as economic modernization, poverty alleviation, and social reform) designed to help Central American countries improve their international competitiveness and attract new investment;

- Reinforcement of the institutional capacity of each of the regional integration secretariats, as well as the formation and consolidation of a regional consultative group;
- Launching of a process of convergence toward a monetary union in Central America;
- Fostering of a Central American free trade area and common market.

Other subregional initiatives that are examples of regional public goods and supported by IDB regional technical cooperation include the South American Regional Infrastructure Integration Initiative and the Puebla-Panama Plan, both discussed later in this chapter.

Strengthening National Capacity

The provision of regional public goods should not only be given priority in each country involved, but should also be supplemented at the national level by public policies that take advantage of the benefits (or reduce the cost of negative externalities) of multinational or regional efforts. This means building up institutional capacity and financial resources that are lacking in many countries of the region, particularly the relatively less developed countries. To this end, IDB regional technical cooperation has financed the training of public employees, advisory services, preparation of studies, and seminars, forums and dialogues on key development policy issues.

The IDB's Inter-American Institute for Social Development (INDES) is an example of a regional good that has made a critical contribution to the development of national institutional capacity to design and manage social initiatives in the region. INDES was established in 1994 to support training of a critical mass of professionals responsible for designing and managing social projects. It provides grant funding for regional training courses. Regional-level training sponsored by INDES is supplemented by national programs in several countries.

Platform for Regional Dialogue and Consultation

The regional technical cooperation program has served as a catalyst for establishing the Bank as a regional forum for dialogue and consultation on development policy issues. A factor that often impedes collective action at the regional level is the lack of shared knowl-

edge or, related to that, uncertainty over the nature and dynamics of the development problems at hand and the opportunities available to solve them. This is as true for negotiating trade agreements as it is for defining and implementing public policies.

To facilitate such dialogue and consultation, the Bank uses research networks; holds forums and seminars with public and private actors, NGOs, and the academic sector; and disseminates information through websites, publications and other means. A recent example is the Regional Policy Dialogue established in 1999 as a forum for policy discussions on seven key regional development issues: trade and integration, management and transparency, poverty and social protection, education and training, natural disasters, macroeconomics and finance, and the environment. The methodological, technical, comparative, and best practice studies being conducted as part of this dialogue are providing the feedback necessary for the bank to redirect its regional technical cooperation operations as needed to complement national efforts.

Investment in Regional Infrastructure

The Bank has invested in infrastructure for regional development in a broad range of sectors, including border integration in the Andean countries, establishment of regular sea routes in the CARICOM area, development of transport and electricity infrastructure in the Mercosur countries, and creation of the Central American Electricity Interconnection System (SIEPAC). Inasmuch as such public goods have strong non-rivalry and nonexclusiveness features, the involvement of a regional institution like the Bank in providing and financing them is crucial not only to help meet demand, but also to create the necessary conditions that promote the participation of private capital, such as economies of scale, regulatory frameworks and policy harmonization.

The South American Regional Infrastructure Integration Initiative (IIRSA), which involves 12 countries, aims to coordinate the development of sectors critical to providing appropriate infrastructure for underpinning the competitiveness of regional products in a global market, as well as improving living conditions in the region. IIRSA's social and economic aims have prompted support from the IDB, the Andean Development Corporation, and the Fund for Development of the River Plate Region (FONPLATA). In consultation with the participating governments, these organizations have drawn up an action plan that identifies 12 focal points for integration and development and six sector processes needed to optimize the competitiveness and sustainability of the logistics chain (customs systems and regulations, information technology, freight and insurance). The planning and development of this initiative involves a comprehensive and multisectoral

approach that employs coordination mechanisms between the government, multilateral financial organizations and the private sector.

The IDB has acquired considerable experience and knowledge of the status of the region's infrastructure, national regulatory environments, privatization processes and supervisory institutions, as well as the public and private financing that must be mobilized for project preparation and investment. Implementing a regional infrastructure project involves numerous complex issues stemming from the participation of several nations in the decision-making process. Success requires strategic planning acceptable to all participating countries in terms of national and regional priorities. The IDB's participation in arranging preinvestment studies to identify and prepare projects has been critical to implementation of the action plan. To minimize the risk of subjectivity in selecting and prioritizing investment projects, updating and harmonizing the national regulatory environments of IIRSA countries is a priority.

IIRSA refers expressly to the need for innovative mechanisms to finance investment projects. It is important during the technical cooperation stage not only to strengthen institutions in participating countries, but to conduct preinvestment studies and address anticipated risks of each operation. This enables governments to objectively review the costs and benefits, determine their national priorities, and identify how the perceived risks can be alleviated to facilitate the participation of private investors and financing sources. Another element that must be evaluated is the infrastructure privatization policy of participating countries, which often must be modified to overcome problems resulting from privatization operations.

IIRSA offers numerous opportunities for multilateral financial institutions to provide technical cooperation in areas that reflect the region's current overriding political and social concerns. These institutions should present technical cooperation initiatives to the countries that supply resources, so that they can contribute to developing the region's production capacity, particularly in relatively less developed countries that are limited in their ability to contribute to financing these projects.

Just as the South American countries adopted IIRSA, Mexico and Central America have agreed to carry out the Puebla-Panama Plan (PPP) with a long-term (25-year) horizon. Its aim is to create new opportunities to step up economic and social development of the subregion, which covers nine states of southern Mexico, the Central American countries, and Panama.

The regional nature of the Puebla-Panama Plan offers a special opportunity to adopt investment decisions that would otherwise be difficult to justify on economic and financial grounds alone. Even so, the lack of precedent for this type of initiative makes it necessary to not only build up the institutions involved, but also to make decisions that

promote investment by external actors. Unless this is done, the anticipated levels of investment will not be reached. Mexico's participation in the initiative makes it a regional market whose size will be a major factor in investment decisions taken by international investors. The benefits to be gained from implementing the plan will extend to projects that are strictly national in nature, thereby creating opportunities for local development within a regional context that had not existed earlier.

Care should be taken in analyzing the programming of technical cooperation needed for the Puebla-Panama Plan in order to define the priorities from both the development and financing standpoints. The amount of private resources tapped will be closely associated with the skill of the governments involved to satisfactorily allay the political risks perceived by the market. To do this, they must create investment structures that enable the private sector to assume market risk while ensuring that the remaining risks remain the exclusive responsibility of the public sector. Regulatory environments, legal security, stability of government economic policy, tax policy, and coordination between the participating governments are among the macroeconomic concerns of investors, particularly those interested in investing in infrastructure. Preinvestment mechanisms must ensure that operations are prepared with appropriate and reliable technical, economic, financial, environmental and legal information.

Implementation of the Puebla-Panama Plan calls for substantial investment resources, in addition to technical cooperation, and depend in part on the public and private participation envisioned in each case.

Loans for Regional Investment Projects

During the 1960s, the IDB pioneered the identification of public and private initiatives, particularly in countries with limited markets, that enabled products requiring high initial investments and modern technology to successfully compete. Integration systems at the time in Central America and the Caribbean, along with the Andean Group and the Latin American Free Trade Association, all benefited from technical assistance and loans that supported policies and instruments not normally employed by multilateral organizations. In addition, the Bank financed several regional infrastructure projects. The unique feature of these projects was the collective action processes they required to ensure that each participating country individually assumed the financial obligations necessary to execute the regional project.

Many Latin American countries, for example, made noteworthy efforts to finance and operate integrated electricity systems based on the shared and efficient use of renewable energy sources. Major investments in hydroelectric generating stations such as Yacyretá and

Salto Grande exemplified the models that prevailed up until the 1980s for structuring the financing of regional public goods. These operations were identified, built and operated by public enterprises with IDB and World Bank (in the case of Yacyretá) financing.

The manner in which financing for the Salto Grande and Yacyretá projects was structured reveals the varied forms needed to make an investment project economically and financially viable, and thus responsive to the national priorities of the participating countries. In the case of the Salto Grande Hydroelectric Generating Station, the IDB financed the project through separate loans to each of the countries involved, although the project was indivisible. Argentina and Uruguay financed their portions in accordance with their expected economic benefits, as determined through lengthy bilateral negotiations. The IDB had an opportunity to create a currency basket, using local and foreign currencies to put together a financing package with costs in keeping with the nature of the project and the financial capacity of the participating countries.

In the case of the Yacyretá Hydroelectric Generating Plant, the IDB chose to disburse the financing to the binational body created by the treaty between Argentina and Paraguay. Argentina covered the full financial guarantee, however, inasmuch as the total investment and Paraguay's share were far beyond that country's economic means. In order to compensate Argentina for its additional economic effort, Paraguay committed itself to sell its entire energy output from the plant (50 percent of installed capacity) for a period equivalent to its financial participation in the project. The World Bank, for its part, allocated its full financing to Argentina. Had it done so to the Yacyretá Binational Body, the participating countries would have been required to provide the financial guarantee. Contrary to the loan guarantee policies of the World Bank, the IDB has been able to make loans to subregional banks without requiring the participating countries to deliver financial guarantees to ensure repayment of the financing.

During the 1990s, the privatization of public utilities allowed for regional private investments. The IDB again played an innovative role by using its Private Sector Department to channel resources to the holders of concessions for physical infrastructure works. The Rosario-Victoria Bridge is an example of the financing of a regional project whose execution entirely within Argentine territory made it possible to link up the ports of Paranagua, Brazil and Valparaíso, Chile. Even though the economic analysis of the operation did not consider the acknowledged benefit of linking the road systems of Brazil, Argentina, and Chile, the project's national priority was sufficient to justify the investment. The model, adopted from that case, was called "public-private association," whereby the public sector contributed financing equivalent to the amount of the subsidy that would have had to be provided to allow the cost recovery mechanisms to produce adequate returns for the private concession holder.

Another important operation from the viewpoint of its private structure was the building of high-voltage transmission lines from Argentina to Brazil. The project was awarded through international public bidding, and the winning concession-holder committed itself to build the transmission system in order to sell energy from Argentina to the integrated transmission system in Brazil. This was a purely commercial operation allowing for maximum use of the region's energy resources, with major benefits for consumers purchasing the power and for electricity exporters, which were thereby able to enjoy an enlarged market without affecting the supply of power to consumers in the exporting country.

The IDB also has collaborated in preparing the SIEPAC, which is being developed as stipulated in the Central America Electric Framework Treaty. In this case, the Bank has supplied technical assistance, the services of its own staff, as well as investment financing and contributions by the Spanish government. The structuring of the operation was difficult. An agreement had to be reached on the regional institutional aspects, on how national electric companies would participate, and on the technical features of the system and its operation. IDB technical assistance facilitated the signing of the framework treaty and its amendments, provided a vision of the market, and contributed to the formation of the Regional Electric Interconnection Commission (CRIE) and the Network Ownership Enterprise, as well as to preparation of the permanent regulations. The investment loan was approved in November 2001, and five of the six loan contracts have already been signed with each of the countries involved. The IDB had to provide financing to each of the countries individually, inasmuch as the contributions to the regional body are by country. At the same time, the Central American countries are not authorized to guarantee financing operations with a regional body. The $40 million quota required of each participating country was financed from the Bank's ordinary capital for some countries and with resources from the Fund for Special Operations for Honduras and Nicaragua.

SIEPAC is an example of the "club" type of regional public good, which in this case involved creating and consolidating a regional electric market by means of two elements: i) building an additional 1,830 km-long 230 KV electric interconnection line in Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica and Panama, with connections to each country's transformer substations (such as connecting Guatemala Norte with Río Lindo, Nejapa, in El Salvador, and Pavana, in Honduras); and ii) designing common standards and setting up two regional institutions—a regional regulating body (Electric Interconnection Regulatory Commission) and a regional operating body as a party to the Central American Electric Market Framework Treaty.

With these two components, SIEPAC aims to support interconnection of the Central American electricity markets by promoting private sector participation in the larger

generating stations, and ultimately, improving the quality and reducing the cost of electricity service.

The key role played by the Bank in developing and financing this initiative is an expression of the notion of subsidiarity. In other words, the institution is the multilateral organization whose range of jurisdictional action coincides most closely with the economic dominion of the Central American countries. According to subsidiarity, the Bank is thus the institution most appropriate to provide or finance public goods on a region-wide scale—and possibly the only one with the capacity to finance projects of this kind on a large scale.

SIEPAC includes connections to transformer substations in order to reinforce the electricity transmission systems of the six participating countries. This means paying attention to the weakest links in that system, as already cited above, to ensure that their financing proves to be effective.

Conclusions

Regional Technical Cooperation Program

The Regional Technical Cooperation Program has been perhaps the Bank's most important instrument for providing and financing several types of regional goods, some of which can be considered regional public goods. It has also served as a learning tool for the Bank itself to garner experience in this area.

Promotes cooperation. Regional technical cooperation is vital for promoting the type of collective efforts needed to provide and finance regional public goods. The program has strengthened the capacity of both the countries and the Bank itself to respond and closely collaborate with one another in developing and implementing initiatives that are truly regional in scope. A notable example has been the support provided for the regional and subregional integration efforts of agricultural research centers.

Fosters innovation. Regional technical cooperation is one of the Bank's most valuable mechanisms for promoting and incorporating new ideas, experimental programs and regional topics into its investment operations. The program is an important institutional source of creativity and innovation to respond to problems and changing situations in the development of member countries. This contribution has been a hallmark of the Bank in terms of its existence as a regional institution. Innovative focus areas stemming from Bank-financed regional technical assistance have included work on such issues as gender, access to justice, indigenous affairs, violence prevention, and aid for the disabled and street children.

Generates development expertise. Regional technical cooperation has made an important contribution to generating and transferring knowledge. The program has reinforced academic and independent research programs, as well as strengthened basic and applied research and the development of new methodological approaches. By financing and participating in such initiatives as the Latin American Research Network, the Bank has also promoted development of a regional outlook in focus areas connected to the development agenda, both at the macro and the sectoral levels.

Promotes regional integration. The Bank has played a decisive role in boosting physical and economic integration processes in the region. Regional technical cooperation has been a source of continued support for defining, coordinating, harmonizing and negotiating integration and trade systems or standards, which in turn has bolstered the capacity of Latin American countries to negotiate and implement international or regional agreements. Regional technical assistance also has been a valuable instrument for the analysis, evaluation and financing of physical integration initiatives such as the Central American Electricity Interconnection System, the South American Regional Infrastructure Integration Initiative, and the Puebla-Panama Plan.

Builds national capacity. The Bank's provision of regional public goods has also contributed to building institutional capacity in countries of the region, as well as mobilizing financial resources that many countries lack, particularly less developed countries. Regional technical assistance operations have supported training and consultancies together with studies, seminars, forums and dialogues on key development policy issues. Regional activities often have complemented national-level initiatives by the countries themselves in order to share the benefits of those national initiatives at the subregional or regional levels. A lesson from this complementary process is the need to rethink the Bank's involvement at the national level so that more systematic consideration is given to the regional implications of investing in national public goods.

Furthers comparative advantages and regional specialization. As a specialized regional institution, the Bank has developed comparative advantages that make it the multilateral organization that is most appropriate for providing and financing regional public goods. The Bank has fully demonstrated its institutional capacity over 40 years of accumulated experience in the region. The IDB's problem is the scarcity of concessional funds necessary to encourage countries to participate in more regional initiatives and strengthen national capacity, particularly the relatively less developed countries. As countries progressively assume ownership of these initiatives, other innovative mechanisms will emerge to enable them to sustain these collective efforts at the regional or subregional level. The Regional Agricultural Technology Fund, the Central American Electricity Interconnection System, and the Indigenous Peoples Fund are important not only because

of the role played by the Bank in managing or financing of these operations, but also because they are examples of alternative financial arrangements.

Supports conditions that promote regional public goods. Because regional public goods are strongly non-competitive and nonexclusive in nature, the intervention of a regional institution like the IDB ensures not only appropriate levels and access to goods, but also the establishment of the conditions—such as economies of scale, regulatory environments, and policy coordination—needed to promote the collective action critical to providing or financing these goods. Such is the case, for example, of the Bank's support for international and regional agricultural research centers such as the Latin American Research Network, the Institute for the Integration of Latin America and the Caribbean, and the Inter-American Institute for Social Development.

Fosters ownership and sustainability of operations. An important lesson to be learned from the Bank's regional technical assistance is that sustaining effective collective efforts over time requires the coordinated involvement and integration of state and nonstate actors (including civil society and the private sector) in defining priorities and generating and financing regional public goods. The Regional Technical Cooperation Program has promoted such "ownership" through institutional practices such as targeting focus areas critical to the development of countries, and establishing horizontal participation networks or alliances to shape, negotiate and implement initiatives. This participation by the key actors complements the Bank's loan and technical cooperation operations in order to generate a sense of project ownership and, with that, greater potential for sustainability of the development agenda as well as the regional programs and projects that are advanced.

Meets growing demand for cooperation and resources. Because of the increasing volume of regional integration processes, as well as joint initiatives between Latin American countries, the demand for regional technical cooperation has grown significantly and will most likely continue to do so in the future. This calls for a renewed resource mobilization effort to overcome the Bank's limitations vis-à-vis the projected availability and accessibility of concessional funds. This limitation severely compromises the continuity and sustainability of programming and financing regional technical cooperation. In addition to proposals under discussion for resolving this situation, the experiences of the Bank's Regional Technical Cooperation Program provide important lessons that might foster the adoption of alternative financing mechanisms. FONTAGRO is an example of an untied financial mechanism to which different countries contribute (to a common pool). Fund members determine the priorities and carry out the initiatives jointly. SIEPAC, on the other hand, is an example of a regional public good provided through a public and private alliance. Both cases are examples of emerging trends in the financing of this type of good.

Loans for Regional Investment Projects

Regional infrastructure investment projects are highly complex and require treatment from their very conception that is different than that given to strictly national projects. The contribution of international organizations, particularly the IDB, has enabled many of these initiatives to be carried out, producing benefits for countries and regions that would not otherwise have had access to these products.

With the recent advent of privatization of infrastructure in Latin America, the private sector has assumed an important role in financing public utility projects. As a result, the private sector has become critical in initiating operations that had previously been subject exclusively to limited state financing through national budget allocations.

Preferential allocation of public financing to the production of national public goods that are part of regional initiatives with large regional benefits, or externalities, is more difficult in the lesser developed countries that have limited financial resources with which to cover their basic investment needs. These countries take precautionary measures before obligating themselves financially not only because of the overall difficulty in generating and implementing a regional product, but because of the problems they face in accessing external sources of financing and their limited influence on decisions by regional organizations and more developed countries. They also must address perceptions that they might by financially unstable during the operational period of some regional projects. Similar reasoning can be applied to the involvement of the private sector, which considers the sizable increase in political and commercial risks when projects are justified only by the joint participation of several countries. The involvement of international organizations tends to provide the comfort and support necessary to make it more likely that such projects will be carried out.

The problems brought on by the participation of relatively less developed countries and the private sector make it necessary to create financing mechanisms that are attuned to the limitations described in the previous paragraph. First, private initiative does not normally assume preinvestment responsibilities. As a result, this basic stage is only possible if public financing exists or if there are systems for reimbursing the private sector if the project is not carried out. In any case, recent experiences with the privatization of public utility infrastructure have dampened private sector enthusiasm for mobilizing external financing. Moreover, the involvement of several governments in project decision-making, together with national regulations and the associated political risks involved, make it difficult to attract long-term investors.

Insofar as the relatively less developed countries are concerned, it is necessary to create instruments to facilitate their participation in keeping with their financial capacity, which normally determines the need for financing systems with a large component of

concessionality. An example of this type of financing is the Central American Electricity Interconnection System described earlier.

In effect, public investment in regional physical infrastructure demands that certain critical conditions be fulfilled so that the governments involved can obtain financing, bilateral aid and assistance from international organizations, as well as participation of the private sector. The most important of these conditions are the following:

- The regional project must be a high enough priority in each participating country to enable it to compete successfully with other national options.
- The project must be generated by following procedures at the national and regional levels that are acceptable to all participants, from the governments of the countries where the operation is physically located to the external financing sources (public and private).
- The geographic locations and technical characteristics of the project as well as its financial, economic and environmental justifications must be demonstrated in such a way that design and implementation will lead to the achievement of the expected results.
- Project operation and maintenance must be defined in such a way that reassures the participating countries that the project will be carried out to their full satisfaction, thereby ensuring its economic viability.
- If cost recovery mechanisms are established during the operation (or rates, in the case of public utilities), the participating countries should approve the operation's institutional and regulatory framework, together with the structure, adjustment mechanisms, and compensation, if required. If private sector participation is envisioned, additional measures should be taken to reduce the political risks associated with the multinational nature of the project.
- The institutional structure for project preinvestment, implementation and operation should be clearly defined, with the areas of jurisdiction of national and regional agencies established in keeping with their technical capacities and legal responsibilities.

The application of these principles is clearer in the case of investment projects financed with national budget resources. It is more difficult to evaluate national than regional options when technical cooperation supports regional agencies responsible for implementing regional programs, initial studies, or identification of projects. Each country tends to calculate the impact on jurisdictions in different ways.

These problems are even more complex if it becomes necessary to use national credit allocations to obtain international financing. The allocation of resources and debt

of various countries to regional projects affects their borrowing capacity for operations that are strictly national in scope. In fact, if the countries involved are relatively less developed, existing financial restrictions will heighten differences in priority for the distribution of the few financial resources available. To conclude, the practices used by the institutions that provide reimbursable financing call for sovereign guarantees that may become too burdensome to sustain, or legal considerations may limit the capacity of governments to assume guarantees for regional projects.

Finally, it is important to highlight the IDB's commitment to provide opportunities to enhance regional collective action, as evidenced by its approval in 2004 of an initiative that will enable the Bank to promote and fund regional public goods, as so defined, that will benefit all countries in the region.

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CHAPTER 5

Promoting the Provision of Regional Public Goods in Asia

Clay G. Wescott, Asian Development Bank

The Asian Development Bank (ADB) is a multilateral development bank devoted to helping its developing member countries reduce poverty and achieve sustainable economic, social and ecological development. The ADB supports regional cooperation by providing information to developing member countries, serving as an "honest broker" facilitating dialogue and participation among those countries, and helping to mobilize public and private sector resources to finance regional cooperation activities.[1]

The ADB uses a phased approach to support regional cooperation. In the first phase, the institution helps developing member countries by (i) taking stock of research useful to identifying areas for promoting regional cooperation; (ii) providing regional technical assistance for in-depth research and analyses aimed at quantifying the potential benefits of improved regional cooperation or the real economic cost of its absence; and (iii) facilitating discussion among the countries, the ADB and other international and bilateral agencies on the results of the analyses. Research carried out in the first phase should also identify bottlenecks to regional cooperation and solutions that address them. The research results should be disseminated through Bank-sponsored seminars and publications.

In the second phase, potential projects that have regional implications are identified. The ADB may assist in studies on potential regional projects that have a strong economic rationale, facilitate discussions of the problems involved in the proposed projects, and relate them to issues of regional importance. This phase may include the ADB's economic and sector work. Such efforts, and the sector policy reforms supporting regional market-based investment and trade, may encourage and facilitate additional private sector investment in regional cooperation.[2] This work also helps to protect regional public goods, including shared air space, watersheds, fisheries, financial standards and security.

[1] The terms "regional" and "subregional" are often used interchangeably. However, the ADB typically uses regional to refer to the Asia Pacific region as a whole, whereas subregional refers to specific subregions—that is, groups of countries or parts thereof—within the Asia Pacific region.

[2] See *Empowering Nations through Regional Cooperation, ADB 2001 Annual Report.* Manila: ADB.

The ADB's charter states that the institution will foster economic growth and cooperation in the region and contribute to the economic development of developing member countries, collectively and individually. In 1994, the Bank approved a policy that formalized its role as a catalyst for regional cooperation. More recently, the ADB's Poverty Reduction Strategy and Long-term Strategic Framework for 2001-2015 formally identified regional cooperation as a core component in the agenda for reducing poverty.

Over the last ten years, the ADB has intensified its efforts to foster regional cooperation, successfully promoting a number of subregional cooperation initiatives, each focused on geographic areas with widespread poverty. Although many factors have contributed to the Bank's strong comparative advantage in this field, the most important has been the mandate given to the institution by cooperating countries. More than 35 years of experience in supporting loan projects, sector studies, and technical assistance in Asia and the Pacific have given the ADB the foundation to link national and regional priorities and activities. When countries decide to cooperate in a particular sector, the ADB usually already has an in-depth understanding of the sector, and of what does and does not work in practice. This experience allows the ADB to play a constructive, often pivotal, role in promoting, developing and supporting regional cooperation initiatives.[3]

In 2002, a new Regional and Sustainable Development Department (RSDD) was established with responsibility for regional cooperation. The department helps to ensure coherence of regional cooperation efforts by the Bank's different regional departments, and facilitates sharing of good practices on regional cooperation across subregions, and from other parts of the world such as Latin America. The work of the new department is guided by a new Regional Cooperation Committee, with membership from both central and subregional departments, which oversees policy development, program planning and implementation of regional cooperation initiatives.

While some of the regional and subregional programs supported by the ADB are still not completely in place, there are some emerging issues that should be noted. First, while cooperation has focused primarily on economic issues, the programs cover a diverse geographical region that includes countries with many different political systems—ranging from those that, until recently, have been under central planning, to those that have always been market economies. Second, programs differ from more traditional forms of cooperation in that the primary means through which integration is to be achieved is not tariff reduction, but the removal of structural impediments, such as poor roads, and reduction in risk and uncertainty, which impede cross-border investment. Third, these regional cooperation programs frequently cover only parts of countries. Together with an emphasis on a streamlined institutional structure for promoting coopera-

[3] See Guidelines On Operational Procedures (GP) Regional Cooperation: 28, 1995.

tion, this facilitates adaptability and flexibility in work activities and responses to changing environments.

ADB Subregional Programs

Some of the ADB's subregional cooperation initiatives, such as the Greater Mekong Subregion Project, are well advanced and operating effectively across a range of sectors, with a high degree of commitment and involvement by both government and the private sector. Other newer programs are focusing initially on building trust and raising awareness of the potential benefits of greater cooperation among the participating countries. As this becomes established, the participating economies gradually embark on cooperative projects in priority sectors. In all of its subregional programs, the ADB works to complement specific sectoral activities with streamlined institutional supporting structures and systems.

Central Asia and the Regional Economic Cooperation Initiative[4]

After independence, the former Soviet republics in Central Asia faced the twin challenges of nation building and transition to a market economy, combined with remoteness from major world markets, small domestic markets, and weak, nascent democratic institutions, at best. There has also been sharply divergent economic performance, with Kazakhstan leading in growth thanks to its energy exports, and Turkmenistan expected to benefit from its vast gas reserve, especially if an export pipeline is built. In contrast, the Kyrgyz Republic and Tajikistan are among the poorest countries in Asia.

In Central Asia, there are no incentives like in Eastern Europe, where the powerful European Union (EU) economy and EU membership are a strong lure to pull all countries together for closer cooperation. Instead, the first and foremost incentive for cooperation is that all Central Asian Republics are landlocked. This means that transit of cargo and people through neighboring countries is a crucial fact of life in the region that is there to stay. Second, water and energy resources are endowed in a complementary fashion across countries, and cooperation is necessary for sharing these vital resources.

While broad incentives for cooperation exist, the economic costs and benefits of cooperation are uneven across the countries. Kazakhstan would benefit from cooperation in water use, but a lack of cooperation may not affect it that seriously. For Uzbekistan, noncooperation would seriously affect its economy, particularly agriculture, although as the

[4] For a detailed account of the Bank's approach in this region, see ADB (2004), *CARS, Xinjiang, PRC and Mongolia: Regional Cooperation Strategy and Program.*

largest economy in terms of population the country is relatively self sufficient. For Turkmenistan, cooperation is not on top of its agenda, while for the Kyrgyz Republic and Tajikistan, their narrowly based economies, small domestic markets and geographical locations combine to make them heavily dependent on cooperation with other nations in the region.

This scenario of uneven needs for cooperation implies that negotiation on concrete issues may involve long and drawn-out haggling, since the economic and immediate costs and benefits might be different or be perceived differently by the countries concerned. And besides economic calculations, there are other, principally political, considerations in regard to the costs and benefits of cooperation, such as the need to maintain stability, which may provide an incentive for the better-off countries such as Kazakhstan to help its poorer neighbors.

The ADB initiated the Central Asian Regional Economic Cooperation (CAREC) Initiative in 1997 to support economic cooperation in Central Asia. With the overall objective of promoting economic growth and alleviating poverty, the program has targeted the key regional development challenges discussed above. The initiative has benefited from and complemented ADB programs in the individual countries, which focus on addressing country-specific transition and development issues. Operationally, the initiative has focused on financing large infrastructure investments and improving the policy environment to support cross-border transactions in energy, trade and transportation. This reflects three underlying objectives: to lessen the region's economic isolation through improved transport systems; to maximize benefits from resource complementarity by rationalizing and encouraging regional energy trade based on market principles; and to facilitate trade by promoting market integration both within the region and beyond.

The initiative's early efforts were concentrated on raising awareness about the importance and potential benefits of regional cooperation, mainly through a series of workshops, seminars and studies. As mutual understanding and trust developed, the emphasis shifted to identifying and preparing priority regional projects. By addressing key regional issues in a pragmatic and results-oriented manner, the CAREC initiative has won strong support and close cooperation from all participating countries, and has begun to show concrete results.

Since its inception, CAREC has grown both in breadth and depth. Its core members have expanded from three in 1997 to seven in 2004. At present, the initiative covers Azerbaijan, Kazakhstan, the Kyrgyz Republic, Mongolia, the Peoples' Republic of China,[5]

[5] In particular, the Xinjiang Uygur Autonomous Region (Xinjiang), the western-most territory of China that borders the Central Asian republics. While the development path followed by China over the past decade differs from that of the Central Asian republics, China faces similar key regional challenges and thus has similar needs for economic cooperation.

Tajikistan, and Uzbekistan. There has also been participation by other neighboring countries since 2001, notably Afghanistan, India, Pakistan and Turkey, and work is under way to prepare Turkmenistan to join the program.

In August 2001, senior officials of participating CAREC governments re-emphasized transport, energy and trade as the priority areas in which the ADB should continue to finance regional projects and improve policy environments. They also agreed to establish an overall institutional framework to guide the initiative in the future. The framework, consisting of a policymaking ministerial-level conference and implementation arrangements at an operational level, will be instrumental in systematically strengthening overall planning, prioritization and implementation of the initiative, as well as in providing an effective mechanism for high-level policy dialogue and consensus building. The framework will also serve as a mechanism for mobilizing resources from other donors and the international community. The first Ministerial Conference on Central Asia Economic Cooperation under this framework was convened in March 2002 and the second in November 2003. The ADB has committed to acting as the secretariat.

While continuing to focus on these priority regional development constraints in transport, trade facilitation and energy, the ADB has also taken the lead in addressing some emerging regional issues that have a direct bearing on peoples' livelihoods and on poverty reduction. For example, the Bank is supporting a subregional project to manage education reform in Central Asia, reviewing key education policy issues and development strategies, and advancing collective discussions on experiences and best practices of education reform. In addition, the ADB is supporting a regional project to improve nutrition (especially micronutrient deficiency) for poor mothers and children through the fortification of salt and flour with iodine. The Bank is also supporting a Regional Environmental Action Plan in Central Asia as well as an effort to undertake a comparative assessment of economic development in Central Asia. Finally, the Bank is examining common development issues, such as governance and private sector development, regarding which countries could benefit from sharing experiences.

Future Focus

The events of September 11, 2001 and the subsequent responses have directly impacted Central Asia. In addition to its adjacent geographical location, Central Asia has close historical, ethnic, economic and other ties to Afghanistan. Since the armed incursions in Central Asia from Afghanistan in the summer of 1999, the perceived threat of instability has resulted in border closings, tighter controls over transit and traffic, and intermittent and unpredictable disruption of road and rail transport. All of this ran counter to the spirit of cooperation, and negatively impacted the economies and the lives of the peoples

in the region. Since the anti-terrorism campaign began in late 2001, all Central Asian republics except Turkmenistan, which took a neutral stand,[6] have aligned themselves with it or provided active support.

Recent progress towards peace in Afghanistan has opened up new opportunities for Central Asia. The removal of a major source of instability would enable the Central Asian governments to focus their limited resources on longer-term development issues, including those that require joint efforts. Already there are some promising developments, such as improved cooperation between Uzbekistan and Tajikistan on security and economic fronts agreed upon during a summit at the end of 2001. Multilaterally, the Central Asian republics (except Turkmenistan) signed an agreement in February 2002 to enhance cooperation under the Central Asia Cooperation Organization (hitherto named the Central Asia Economic Community).

Improved conditions in Afghanistan are opening up the possibility for transport and energy links between Central and South Asia. To support such initiatives, the ADB organized a Ministerial Conference in 2003 with Afghanistan, Pakistan, Tajikistan, Uzbekistan and Iran. Ministers agreed to work toward a trade agreement that would bring the five countries into conformity with international transport and trade conventions, modernize border crossings, and establish a Transport and Trade Forum where issues can be discussed and resolved. In a separate initiative, heads of state of Afghanistan, Pakistan and Turkmenistan met to discuss a major cross-border gas pipeline. If ADB-supported studies currently under way are favorable, and financing and implementation are successful, the pipeline would transport up to 30 billion cubic meters of gas per year from Turkmenistan to users in Afghanistan, India and Pakistan.

While cooperative efforts have continued and seem to have intensified since 2001, the record of implementation is still very limited. Added to this, it is worth noting the continued divergent development trends between the Central Asian republics as a result of the different development strategies they have followed and their varied resource endowments. While these differences may offer further potential for cooperation, they also add complexity to the pursuit of economic cooperation. Therefore, enhancing mutual trust and understanding as the foundation for effective cooperation will remain both a top priority and serious challenge to the countries in the region.

In response, the ADB is stepping up its support for economic cooperation in Central Asia in identifying, preparing and implementing flagship projects in the priority areas of transport, energy and trade. Future trade initiatives will focus on regional cooperation in customs, joint processing, and capacity building. An agreement has already been reached with the Kyrgyz Republic and Tajikistan for the ADB to provide assistance for customs

[6] Turkmenistan has provided a crucial land route for the supply of humanitarian aid to Afghanistan.

modernization and cooperation. Within the transport sector, the focus will be on continuing support for repairs of key sections of the regional transport networks, and on exploring future opportunities and challenges. Another priority will be to provide technical assistance to help prepare the Kyrgyz Transport Corridor Project to develop a transcontinental rail and regional road link. In the energy and water sectors, the ADB will continue to support more rational use of regional energy networks and to explore regional initiatives to exploit the potential of hydropower. The ADB is also taking a lead role in launching an initiative to address increasing threats and damage from dust and sandstorms in Northeast Asia.

Greater Mekong Subregion Program[7]

The Greater Mekong subregion is home to approximately 250 million people in six countries that share the Mekong River: Cambodia, Laos, Myanmar, Thailand, Vietnam and China. When the Greater Mekong Subregion Program began in 1992, relations between several of the countries were still strained, and trade and other forms of cooperation were limited. However, peace in the subregion provided a window of opportunity to draw the countries closer together through a regional economic cooperation program that would capitalize on differences in comparative advantage, such as market size, raw materials, and labor costs. The ADB initiated inter-country consultations leading to the establishment of the Greater Mekong Subregion Program, which aims to promote closer economic ties and cooperation among the countries.

The focus of the Greater Mekong Subregion Program has changed through the years. The initial emphasis was on linking physical infrastructure as a means of increasing trade and promoting investment. Priority was accorded to subregional transport, energy and telecommunications projects, including the Phnom Penh-Ho Chi Minh City Road Project and the Theun Hinboun Hydropower Project. As the program evolved, more attention was afforded other sectors such as human resource development, tourism and the environment. Human resource initiatives have included examining the needs of ethnic minorities in the border regions, searching for ways to mitigate the transborder spread of communicable diseases, and countering drug production and use. Subregional initiatives in tourism have included improving access to facilities, promoting tourism, and developing projects in partnership with the private sector.

More recently, the Greater Mekong Subregion Program has begun to place more emphasis on the software components of physical infrastructure projects. For transport projects, investment can only be fully realized if non-physical impediments to the move-

[7] For a detailed accounted of the Bank's approach to this region, see ADB (2004), *GMS Regional Cooperation Strategy and Program.*

ment of goods and people are concurrently reduced. Infrastructure projects should be closely connected with economic development planning activities.

A key means of achieving synergy between economic activities and infrastructure development within the program has been through the development of economic corridors. The first economic corridor extensively examined and found to be promising is the East-West Economic Corridor—a road link of some 1,500 km from Mawlamyine on the Andaman Sea in Myanmar, traversing Thailand and Laos, and ending at Da Nang, on the South China Sea in Vietnam. Various infrastructure improvements under way or planned, combined with inter-country agreements on cross-border movement of goods and people, will make it possible to traverse 90 percent of the corridor along a modern, all-weather highway by 2004.

The first 10 years of the Greater Mekong Subregion Program resulted in many important achievements, particularly in infrastructure. These achievements have been all the more impressive given the unfavorable initial conditions, and the deterioration of the economic climate in the subregion in the late 1990s. From its modest and tentative beginnings, the program is now regarded as one of the most successful models of regional cooperation in Asia. A major accomplishment has been the establishment of trust, goodwill and improved confidence among participating countries. This has led to investments in infrastructure that will help integrate the subregion and promote further cooperation.

As of mid-2001, 10 investment projects totaling $2 billion and technical assistance programs amounting to $46 million had been completed or were in various stages of implementation.[8] The Greater Mekong program has also served as a catalyst for the participating countries to take the initiative in forming cooperation agreements—examples include new air routes, river navigation agreements, and border development plans.

Through a decade of cooperation, a number of lessons on regional cooperation have been learned, some of which are relevant to other regional economic cooperation initiatives in Asia. The relatively noninstitutional nature of the Greater Mekong Subregion Program, with its minimal protocols, bureaucracy and other formal structures, gives its members flexibility in reaching agreements. However, there is also a need for more country ownership of the program, as well as greater institutional capacity for the countries to lead and manage the program themselves. Countries also need to develop a systematic and effective monitoring and coordination system. A related challenge is the need for broad-based participation of local officials, civil society, the private sector and non-

[8] ADB financing for these initiatives has totaled $770 million for investment projects and $28 million for technical assistance. The Greater Mekong Subregion Program has also been successful in attracting cofinancing for regional cooperation projects, particularly in the transport and energy sectors and, to a lesser extent, in the human resource and environment sectors.

governmental organizations in order to make the program sustainable. In this context, the need for equitable sharing of the costs and benefits of cross-border projects is particularly important. In addition, successful subregional cooperation up until now has mainly responded to opportunities as they arise, rather than through the design of strategy-driven programs targeting better provision of pro-poor, regional public goods. This opportunist approach may have advanced the Greater Mekong Subregion Program faster than if the ADB had tried to respond in a more considered manner, and may in part reflect the Bank's organizational limitations and resource constraints.

In summary, the ADB will be able to leverage the knowledge gained and lessons learned from the Greater Mekong subregional experience by building on the following:

- *Maintain the regional cooperation perspective.* The shift from transport to economic corridors in the East-West Corridor Project stretched the sector concentration of transport and power to incorporate tourism, environment, trade and investment, and human resource development. The expansion may have unintentionally altered the project focus to sector-specific development, and reduced the emphasis on regional cooperation.
- *Align regional cooperation initiatives with national programs and lending activities.* The regional dimensions of cooperation programs would be better conceived, and therefore better coordinated, if projects were developed in closer synchronization with country programs and loan projects.
- *Articulate the strategic role of the ADB.* The Bank has helped to ensure the sustainability of regional cooperation programs by reforming policies, removing physical constraints, assuring cross-border agreements, and mobilizing private sector and other sources of financing. Other examples of the ADB's effective role include providing or protecting public goods related to regional tourism projects; developing and supporting regional alliances and agreements; and collaborating with regional partners to design and execute specific regional initiatives such as multi-country capacity building and training.
- *Be prepared for a long-term commitment.* Regional cooperation in the Greater Mekong subregion is a long-term endeavor that will require sustained statesmanship and a sustained commitment to attract financing for subregional projects from the private and public sectors.

Future Focus

The first-ever summit of the Greater Mekong subregion leaders in November 2002 concluded with pledges reaffirming the countries' commitment to subregional economic co-

operation and a shared vision of equal partnership in the pursuit of economic growth and greater prosperity. The leaders attending the summit were Hun Sen, Prime Minister of Cambodia; Zhu Rongji, Premier of the State Council of the People's Republic of China; Bounnhang Vorachith, Prime Minister of Laos; Senior General Than Shwe, Chairman of the State Peace and Development Council of Myanmar; Thaksin Shinawatra, Prime Minister of Thailand; and Phan Van Khai, Prime Minister of Vietnam. The leaders signed the Inter-Governmental Agreement on Regional Power and Trade to promote and facilitate electricity trade in the subregion; welcomed China's accession to the subregional agreement to facilitate the cross-border movement of goods and people; endorsed the Greater Mekong Subregion-Phnom Penh Plan for Development Management to develop human resources; and reaffirmed an action plan that will include 11 flagship programs.

Looking ahead, the summit participants underscored their strong commitment to human resources development; protection of the environment and cooperation on the use of common natural resources; development of subregional road links to strengthen productivity and competitiveness and transform transport corridors into economic corridors; enhancement of transport linkages through implementation of an agreement to facilitate the cross-border movement of goods and people; acceleration of development of subregional energy and telecommunications infrastructure; promotion of tourism throughout the subregion; and creation of a favorable trade and investment climate.

South Asia and the Subregional Economic Cooperation Program (SASEC)[9]

South Asia has significant resources and great potential; paradoxically, it also has the greatest poverty in the region. The South Asia subregion, which includes Bangladesh, Bhutan, India and Nepal, is home collectively to the world's largest concentration of poor people: more than 500 million of the 900 million poor in Asia. With a total population of 1.24 billion people, South Asia accounts for 22 percent of the world population, but only 1.65 percent of the world's GDP and only 1.12 percent of world trade.

The ADB attaches great importance to subregional cooperation in South Asia because the complementarities among these countries—their vast endowments of potential hydropower, hydrocarbons and other minerals, as well as ports, large deltas for rice production, and skilled, low-cost workforces—represent an opportunity to reduce poverty rapidly through high growth, led by subregional cooperation. The increase in total investment within the subregion has been highly volatile, but averaged 150 percent over 1995-2000. There have been modest cross-border investments, primarily by small and

[9] For a detailed account of the Bank's approach in this region, see ADB (2004), *SARD Regional Cooperation Strategy and Program.*

medium-sized enterprises. However, the subregion has vast potential for cooperative development of cross-border investments in many large-scale projects such as hydropower, hydrocarbons, water, tourism, forestry and agriculture.

The ADB's support for subregional cooperation in South Asia developed from the constitution of the South Asia Growth Quadrangle (SAGQ). Initiated in 1996 and endorsed by the Ninth Summit of the South Asian Association for Regional Cooperation (SAARC) the following year, the SAGQ identified five priority sectors for cooperation, established action committees for each sector, and assigned coordinating responsibilities among its members as follows: Bangladesh for energy; Bhutan for the environment; India for trade and investment; and Nepal for transport and tourism. The ADB's South Asia Subregional Economic Cooperation Program (SASEC) was subsequently launched at the request of the participating countries to help develop the SAGQ initiative in each of these sectors.

While SASEC is relatively new, it has made significant progress during the past two years. It started in earnest in 2000 with regional technical assistance funding for a private sector forum on economic cooperation in Eastern South Asia, an ADB-supported initiative of the Chambers of Commerce of Bangladesh, Bhutan, India and Nepal. A specific feature of SASEC is the leading role the private sector has played from the outset. Subsequently, the participating governments and the ADB launched a regional initiative to identify and prioritize subregional projects, with working groups formed for the various development sectors. Each working group met during 2001, with participation of top-level officials, and established specific priorities. Experts in each sector are now developing project concepts for the priority activities identified.

The emphasis of ADB assistance has been on providing participating countries with opportunities to increase their understanding of the potential for subregional cooperation, and on conducting studies to identify projects with potential subregional implications. Within this context, ADB assistance has targeted the five sectors identified as priorities by the SAGQ. In addition, several investment projects with subregional implications have been initiated in the SASEC countries, with support from the ADB. These include the North-South Transport Corridor in West Bengal, India, linking to border points in Bangladesh, Bhutan and Nepal; the North-West Road Improvement Project in Bangladesh, potentially linking to India and Nepal; and the Fourth Road Improvement Project in Nepal, linking to the above-mentioned road corridors in India and Bangladesh through Kakarbita. The ADB's Private Sector Group has also invested in Lafarge Surma Cement, the first subregional private sector project. The project involves transporting limestone from Meghalaya, India to a cement plant in Bangladesh through a cross-border conveyor system.

The ADB has also assisted in convening regional and subregional forums calling for private sector cooperation, including a successful roundtable on information and com-

munication technology (ICT) that brought together key players from the South Asia and Greater Mekong subregions with their Indian counterparts in the public and private sectors. The purpose was to gain insight into India's remarkable success in the ICT field, and take back lessons for forging an ICT development strategy in their own countries. The roundtable generated proposals for regional cooperation in physical infrastructure as well as institutional capacity building in ICT. Proposals ranged from fiber optic extensions to India's neighbors to cyber laws and human resource development in the ICT sector.

Future Focus

While tangible progress from subregional cooperation has been rather modest in South Asia, and despite heightened tensions between two major countries, recent events augur well for the future of subregional cooperation. The SAARC Summit held in January 2002 has enhanced the prospect for lasting peace in the region. Also, the significant progress made through SASEC over the past two years provides a tangible demonstration of the commitment of participating countries to pursue cooperation for the benefit of all countries in the subregion. The momentum being built up through SASEC should be conducive to encouraging more intensive subregional cooperation over time.

However, it is important to bear in mind that the process of cooperation must first take root and be institutionalized before being intensified. This principle will guide the ADB's strategy in the subregion. The Bank's main functions, in the short term, will continue to focus on its "honest broker" role, facilitating participation and dialogue to build consensus for regional cooperation—particularly in the five identified priority sectors—and obtaining tangible benefits from the subregional cooperation activities it supports.

The South Asia subregion includes landlocked countries and areas with poor infrastructure—conditions that severely constrain economic interaction, limit development options, and diminish investor interest, despite the rich natural and human resource endowments available. Within this context, the ADB is promoting cooperation in cross-border transport and energy infrastructure that should make a significant and tangible contribution to development, providing clear economic benefits to the participating countries. To complement the efforts to remove or reduce physical barriers, the ADB will also encourage cooperation in related areas such as streamlining procedures, rules, regulations and policies that restrict the smooth flow of goods and services.

The ADB will also maintain an active dialogue with SASEC participants to identify additional areas where cooperation could lead to the provision of regional public goods in South Asia. These could include subregional solutions relating to natural resource management and conservation of biodiversity, cross-border pollution, and disease control. Over the longer term, the Bank hopes to expand the coverage of SASEC to include

other participants such as Sri Lanka, Pakistan and Afghanistan, as well as form links with other subregional initiatives such as those in the Greater Mekong Delta and Central Asia.

As noted earlier, effectively harnessing South Asia's vast natural and human resource endowments, along with the subregion's strategic location, could transform it from one of the world's poorest areas to one of dynamic growth. Complementarities arising from contiguity and cross-country variations in natural endowments create enormous possibilities for cross-border investments, trade, and rapid expansion of economic activities. SASEC should help accelerate the process of diversification, specialization and modernization leading to more productive economies and higher standards of living.

Southeast Asia

Structurally, the economies of Indonesia, Malaysia and the Philippines are somewhat similar, their GDP primarily coming from the industry and services sectors, with the latter gradually gaining importance. Their rural economies are predominantly agro-industry-based, offering opportunities to benefit from economies of scale through closer cooperation. While population size varies considerably from one country to the other, life expectancy is similar, averaging in the upper 60s.

These similarities are conducive to the development of harmonious economic relationships. All of the countries also share an interest in promoting regional cooperation, so there is much to be gained through developing diversified areas of collaboration. At the same time, subregional cooperation in Southeast Asia has a checkered history, at times yielding benefits well beyond expectations, and at other times stalling completely as national imperatives diverted attention, causing commitment to regional cooperation to falter.

Significant advances were made in subregional cooperation during the mid-1990s in Southeast Asia. The ADB supported both the Indonesia, Malaysia, Thailand Growth Triangle (IMT-GT) and the Brunei Darussalam, Indonesia, Malaysia, Philippines-Association of Southeast Asian Nations Growth Area (BIMP-EAGA) in formulating their respective initial development plans. However, progress stalled as a result of external and internal shocks that spoiled the investment climate, including the Asian financial crisis in 1997, the destruction caused by the El Niño and La Niña weather phenomena in 1998 and 1999, changes in political leadership at national and local levels, and armed domestic conflict in some areas. Prior to these events, IMT-GT and BIMP-EAGA were arguably the most dynamic subregional economic cooperation arrangements in the Asia and Pacific region, and included some of the least developed parts of the participating countries.

With the temporary economic recovery in 2000, efforts began to revive cooperation within both initiatives. Among the priorities was the need to assess such emerging fac-

tors as globalization, the effectiveness of the Association of Southeast Asian Nations (ASEAN) free trade agreement, implications of the increasing membership of the World Trade Organization (WTO), and an unsettled peace and order situation in parts of Southeast Asia.

In March 2000, senior officials of countries participating in the IMT-GT identified a range of emerging factors that required a change in the conditions under which growth triangles operate. These included the potential effects of globalization and greater liberalization of the IMT-GT. A work plan was prepared to reposition the IMT-GT in light of these factors.

Within BIMP-EAGA, the first ministerial meeting after the Asian crisis reaffirmed that the governments of the participating countries still supported subregional initiatives. Subsequently, in 2001, the new heads of government of both Indonesia and the Philippines made their first official visits to EAGA countries, each delivering clear messages to the political leaders reflecting the harmonious relationship among the countries, and their determination to revive subregional cooperation.

Parallel to this, ASEAN itself served as a forum to discuss the policies of the concerned governments for strengthening subregional cooperation in Southeast Asia. In September 2001, ASEAN sponsored a roundtable on accelerating regional integration and growth. This meeting concluded by affirming the viability of the concept of subregional groupings. Subsequently, at the 34th ASEAN Joint Ministerial Meeting in November 2001, ASEAN heads of state renewed their call for development through subregional cooperative programs, including BIMP-EAGA and IMT-GT. Acknowledging ADB's experience in supporting subregional cooperation efforts, the ASEAN heads of state invited the ADB to assume the role of regional cooperation advisor for BIMP-EAGA.

Circumscribed threats to peace and order, as well as local effects of the terrorist attacks of September 11, 2001 in the United States, further strengthened the determination of the heads of state to strengthen subregional cooperation in both areas. Against this, reviving—and possibly expanding—subregional cooperation in IMT-GT and BIMP-EAGA has become a higher priority for the participating countries in order to address the socioeconomic factors that affect public order and local populations in the subregion, create political and economic instability, and keep away potential investors.

In both subregions, governments focused on reviewing development policies and initiatives in order to enhance the dynamism and flexibility of growth areas and make them more responsive to emerging factors. In EAGA, addressing the concerns of the private sector, government officials emphasized the importance of public-private sector partnerships. This paralleled efforts to improve the enabling environment with measures to lower trade barriers and improve security. Strengthening private sector participation was also discussed, resulting in a review of the modus operandi of business councils, includ-

ing the creation of a Joint Business Council in BIMP-EAGA to complement the EAGA Business Council.

The IMT-GT and BIMP-EAGA economies recovered faster than expected in 1999 and into 2000. The currency depreciation during the Asian crisis, as well as strong external demand, generally boosted exports, inducing rapid economic recovery. Accordingly, GDP growth resumed, while inflation was contained at manageable levels during both years. In some areas that had been participating in subregional cooperation activities, economic growth was higher than that at the national level, as local industries were more resource-based and less dependent on high technology exports. Exports thus increased, bolstered as well by favorable weather conditions for agriculture and by devalued local currencies.

This resilience in the regional subgroupings was short-lived, however, as budget constraints reduced the capacity of the different governments to provide counterpart resources in such areas as infrastructure development and maintenance and local government financing. The world economy decelerated in the first half of 2001 due to the economic slowdown in industrialized countries, including the collapse in demand for ICT products in the United States, a major trading partner of the subregional economies. As a result, export growth of countries in the subregion dropped. This was compounded by the global climate of insecurity that developed in the second half of 2001, further discouraging private investment. Altogether, progress in poverty reduction in the aftermath of the financial crisis was mixed.

Future Focus

Improved prospects for subregional cooperation have opened the door for reviving economic activity in both the IMT-GT and BIMP-EAGA groups that constitute Southeast Asia. At the same time, the participating countries are keen to update and strengthen the initiatives developed in the mid-1990s in order to adapt and respond more effectively to emerging issues and the evolving socioeconomic environment.

Following the invitation by ASEAN heads of state, the ADB is preparing a regional cooperation program to help revive economic development in BIMP-EAGA. The program will provide a sound basis for stronger and sustained regional cooperation by re-engineering subregional cooperation and jumpstarting economic activity, with a view to helping restore confidence in doing business in the region. Re-engineering will require upgrading subregional cooperation mechanisms and improving coordination with bilateral and multilateral partners as well as with ASEAN and other subregional development partners. The major initiatives will seek to redefine subregional development priorities and strategies, enhance cross-border trade and investment opportunities, strengthen access to

information by small and medium-sized enterprises, and establish an Economic Development Fund. During the early stages, ADB assistance is likely to focus on providing technical assistance, including advisory and promotional work. Investment financing is expected to emanate mainly from the private sector and from public-private partnerships.

The ADB first reaffirmed its support for revitalization of subregional cooperation in BIMP-EAGA in late 1999, initiating a study of the small and medium-sized enterprise environment in Indonesia and the Philippines in order to help strengthen the private sector. The resulting strategy was endorsed by the governments of both countries within the framework of the BIMP-EAGA subregional cooperation mechanism. The ADB is currently undertaking activities to fully implement the small and medium-sized enterprise development strategy, including encouraging other bilateral and multilateral donors to participate; examining options to expand the strategy across the entire EAGA subregion; reviewing the EAGA structure and mechanisms; and addressing the requirements of these businesses in terms of transport infrastructure.

In order for the ADB and the concerned parties to better understand the nature and potential of economic cooperation in the subregion, a study is being conducted to assess trade and investment flows in each cooperation subgrouping, and a mechanism is being set up for statistical monitoring of economic and social indicators.

In addition to issues addressed through formalized subregional cooperation programs such as IMT-GT and BIMP-EAGA, other forms of cooperation among the Southeast Asian countries go beyond the boundaries of such initiatives and require a more sector-focused approach. Examples include initiatives to address cross-border issues related to the lack of information on financial markets, cross-border disease transmission, and environmental degradation. At present, the ADB is conducting a study on the potential for harmonizing customs, immigration, quarantine and security rules, regulations and procedures. The Bank also is considering mechanisms to improve the exchange of information on capital markets among the capital market supervisory authorities of participating countries. In support of environmental protection, the ADB and ASEAN continue to collaborate to address the serious problem of transboundary haze, with the Bank providing regional technical assistance through the ASEAN Secretariat and advisory support to Indonesia.

By supporting the revitalization and strengthening of subregional cooperation through existing arrangements such as BIMP-EAGA, the ADB hopes to establish a firm basis for longer-term cooperation, including expansion of collaborative initiatives into new areas. For example, priority needs to be given in future programs to cooperative efforts in the social sectors, particularly in terms of the intra-regional movement of migrant workers, and its resulting impact on the transmission of HIV/AIDS, tuberculosis and malaria.

Pacific Islands[10]

The small economies of the Pacific have many constraints to economic development, including the large number of countries, their small size, and their remoteness. This means that regional cooperation is critical to address these constraints. The Pacific economies have numerous subregional organizations covering issues such as politics, economics, sector development, commerce and trade, and religion. They are funded largely by outside assistance, along with a mix of small annual subscriptions from the countries themselves. In addition to the ADB, various donors—including developed Pacific rim countries, the European Union and UNDP—have funded many long-running subregional programs such as the atoll development and regional microfinance programs.

Some cooperation activities have not been successful, such as a subregional airline that ended up becoming the main airline for Fiji; an initiative to develop a Pacific Islands Chamber of Commerce, which suffered from weak country oversight and poor management; and the Pacific Forum Shipping Line, which has been strained financially. However, other cooperative activities have been more successful, such as the Pacific Forum, the Forum Fisheries Agency, the Regional Environment Program, and the UNDP-funded regional fisheries program.

One vital and successful area of subregional cooperation over many years has been in the fisheries sector. Fish are the most significant economic resource for the small Pacific economies. Together, the exclusive economic zones of the Pacific islands total 30.5 million square kilometers. The total tuna catch in the Pacific averages one million metric tons a year, almost one-third of the worldwide tuna catch. The tuna industry is worth some $1.9 billion per annum to Pacific economies. In the area of marine resource management, the ADB's subregional technical assistance has helped the Pacific countries negotiate from a stronger position with distant fishing nations based on an international tuna management agreement. A regional Tuna Commission was established in the Federated States of Micronesia in 2002. The ADB has also been supporting sound live reef fish trade management through regional technical assistance.

The ADB has also been working closely with the South Pacific Regional Environmental Program (SPREP) and the South Pacific Applied Geoscience Commission (SOPAC) on other environmental and resource management issues, including climate change and sea level rise due to global warming, preservation of biodiversity, water resource management, and indigenous environmental management. Through SPREP, the ADB is sup-

[10] For a detailed account of the Bank's approach in this region, see ADB (2004), *PARD Regional Cooperation Strategy and Program.*

porting the subregion's efforts to promote traditional environmental management practices, knowledge and values.

The Pacific experience in many sectors has demonstrated the importance of subregional cooperation in achieving economies of scale. Airline and airspace management is one such area. As private investment in air links is often financially non-viable, there is a need for Pacific nations to work together on collaborative arrangements that facilitate economic and financial viability. The ADB is encouraging negotiations between some countries in this area, learning from the difficulties experienced in the past. ICT also has the potential to reap economies of scale in the region, and the ADB is helping Pacific countries assess their e-readiness, close the gap between ICT demand and supply, and increase their awareness of the benefits of subregional cooperation in the communications sector. In particular, the Bank is focusing on ICT infrastructure development, social inclusion and e-governance.

ADB support for subregional cooperation in capacity building and sharing of information and experience has shown promising results in the Pacific. The weakness of economic databases, for example, is a major constraint to economic management, policymaking, and private sector development in the subregion. Given that statistical operations within each country are small, and there are many similarities in the structure of these economies, the ADB is promoting subregional cooperation to develop the capacity to manage economic statistics in selected Pacific island countries. Much of this work is being done in collaboration with the Pacific Financial Technical Assistance Centre (PFTAC) and the South Pacific Community (SPC).

Financial sector development is also an essential ingredient for long-term private sector development. An ADB-assisted review of the financial sectors in seven Pacific island countries, completed in 2001, identified key constraints and policy and institutional weaknesses, and facilitated dialogue among the countries for subregional solutions, including the possibility of electronically linking regional stock exchanges. Another initiative will establish a subregional investment opportunities database for circulation among potential foreign investors. A major subregional initiative in 2001 was the launching of the Pacific Island Countries Trade Agreement.

The ADB continues to promote subregional cooperation among utility providers through the Pacific Water Association and the Pacific Power Association, which facilitates the exchange of experiences with and approaches to the provision of drinking water and power in Pacific countries. With ADB assistance, the associations have developed benchmarks for their member utilities and are now having discussion of key issues, best practices and lessons learned. Topics of discussion include sustainable demand management, water treatment technologies suitable for small waterworks, leak reduction, sewerage and sewage treatment, low-cost and sustainable power production, power loss reduc-

tion, and operations, management, financing and training. It is expected that the result of such cooperation will be improved efficiency and management based on clearer industry standards.

The ADB is also providing assistance to some Pacific countries to establish a legal and financial framework that meets international standards to combat money laundering. Likewise, public sector management and governance reform have been important targets of ADB assistance. The Bank carried out governance assessments for some Pacific countries in 2001 and 2002, and in collaboration with the ADB Institute has supported training of trainers in public expenditure management and private-public partnerships in social sectors.

In some Pacific island countries, the key policy priority in recent years has been the need to restore business confidence in the wake of political instability and ethnic conflict. In others, the challenge has been finding sufficient political will to implement much-needed economic and public sector reforms. For the smallest island economies, the paramount challenge is still to establish and manage sustainable arrangements (e.g., trust funds) that can provide long-term support for essential public expenditure.

Future Focus

The structural impediments to development in the Pacific present a significant challenge to small governments. Although there are large differences in the level of poverty between the Pacific countries, there is general agreement that "poverty of opportunity" is common to them all. Because poverty is a relatively recent concept in the Pacific, one important role for a regional institution such as the ADB is to promote awareness of the issue, generate consensus on strategies, and assist in implementing the agreed strategies at both the national and regional levels.

Good governance and sound economic management remain priorities across all Pacific island countries and are prerequisites for sustained private sector growth. Sound environmental management, including preemptive action to address consequences of climate change in the atoll economies, is also crucial to the longer-term viability of these islands.

The ADB will focus its future subregional programs on five objectives: sound economic management, good governance and public sector reform; private sector development; improvement of women's welfare in the social, economic and political spheres; sustainable environmental management; and poverty reduction. In each of these areas, collaboration with respect to capacity building, awareness raising, and policy analysis will be encouraged, alongside the promotion of joint solutions to common problems based on economies of scale. The Bank will also continue to support the strong institutional framework already in place to support subregional cooperation.

The ADB will undertake poverty assessments in Pacific island countries and assist in formulating a poverty reduction strategy based on the outcome of these assessments. The Bank will also continue to support subregional cooperation efforts aimed at improving governance, environmental management and private sector development opportunities.

In the medium term, if ongoing analytical work can identify viable opportunities for collaboration, and if there is corresponding receptivity from the Pacific countries, the cooperation program may move towards specific investment projects, possibly in the areas of transport, tourism, resource management and ICT.

Cooperation Initiative between Mongolia and the Peoples Republic of China

Heavily dependent on the export of primary mineral commodities, Mongolia's economy grew below its potential in 2001, owing mainly to the negative impact of the global economic slowdown. In addition to continuing structural and other reforms, Mongolia's remote location poses a major challenge to its long-term development. The western part of China faces similar development constraints due to its geographic isolation. Strengthening trade relations in the subregion and developing new transport links both to subregional and industrialized markets are therefore key development priorities.

Before China and Mongolia began their transitions to a market economy, there was little trade and limited economic relations between them. Through their participation in the Tumen River Area Development Programme (TRADP), both countries expressed interest in accelerating growth and development by strengthening economic cooperation.

In 2000, China unveiled its "Go-West" strategy, a major shift in the focus of the country's development efforts from coastal areas to the inland and western regions, including the Xinjiang Uygur and Inner Mongolia autonomous regions. The strategy aims to bridge the increasing development gap between coastal and other regions, and has gained recent importance because of concerns over discontented Muslim groups such as the East Turkestan Liberation Organization. The strategy, inter alia, calls for increased investments in both infrastructure and human development and other preferential policies. A major component promotes better cooperation with neighboring countries, including the Central Asian republics and Mongolia.

To support these developments, the ADB provided technical assistance in 2000 for a study of economic cooperation options for a subregion comprising three eastern provinces of Mongolia, and the Xinganmeng Prefecture of China's Inner Mongolia autonomous region. The study highlighted the subregion's potential to develop its mineral resources, preserve its diversified ecosystem and unique natural beauty, and develop green food production and international tourism. The study also recognized that rapid devel-

opment of the transportation system in China had provided the subregion a good opportunity to break from its physical isolation from the world's markets.

Through the study, the two governments reached a consensus on a phased approach to promote cooperation, beginning with joint construction of border facilities to allow for year-round trade and travel, and joint formulation of an environmental protection plan to manage the environmental impact of development arising from enhanced cross-border activities. The two governments have also established a senior level multi-agency consultation and coordination mechanism to coordinate specific collaborative development projects. Over the medium term, the two governments have agreed to review the export potential of mineral deposits in eastern Mongolia. A shared view on the potential of the mining sector will help them formulate a mutually agreed medium-term transport plan for the subregion.

Future Focus

As ADB support for economic cooperation between China and Mongolia only began in 2000, there is great potential for promoting subregional cooperation in Northeast Asia as a whole, and the ADB could potentially play a role in this process.

Both governments have endorsed a focus for future ADB support on cooperation in transport, trade and investment promotion, and environmental management, all of which are priority areas of the governments with medium- to long-term development potential. Special attention is to be paid to environmental issues, as deforestation and desertification due to intensive mining activities are becoming serious development concerns.

ADB Inter-Regional Programs

At a time when the international economy has slowed and global and regional conflicts threaten the stability of Asia, regional cooperation is a powerful instrument to address the many challenges confronting the world's economies. Through regional cooperation, countries can draw on their mutual strengths to hasten the process of recovery and development. They can take advantage of the benefits from cross-border initiatives, and mitigate adverse cross-border effects. For instance, regional cooperation can support global financial stability, providing an effective means to address the contagion of financial crises across borders—a continuing threat with the liberalization and globalization of capital markets.

The rapid increase in crime is another disturbing development that will be addressed most effectively if countries harness their mutual strengths and cooperate re-

gionally and internationally. Even as law enforcement remains constrained by national boundaries, crime is becoming increasingly global in nature. There is increased illegal cross-border trafficking in people—especially women and children, as well as drugs, arms and contraband. Money laundering, too, is of increasing concern, having been an unintended consequence of liberalized financial flows and advanced information and communication technologies.

In addition to these emerging concerns, much work remains to be done to combat numerous longstanding constraints to development. In relation to health issues, the migration of diseases such as malaria, tuberculosis and HIV/AIDS across borders continues to be a critical concern. Regional cooperation is an effective tool to prevent the spread of disease from country to country. Similarly, the solutions to many environmental issues—such as shared watershed management and efforts to prevent and mitigate the effects of forest fires, acid rain, effluent discharge, climate change and natural disasters—lie in effective regional cooperation. Such cooperation can also hasten mutual capacity building to address common development goals such as improving education, reducing corruption, optimizing the relative roles of government and the private sector, and strengthening governance.

The many institutional arrangements that are now operating successfully demonstrate that the world community has chosen regional integration as the path to globalization. Although global integration has enabled humankind to reach an unprecedented level of material well-being, it has also exposed globalized economies to a much greater risk of destabilization as a result of shifts in speculative sentiments. The process of globalization needs to be managed to maximize its benefits and minimize its risks. In managing the global economic system, regional institutions and arrangements provide a supporting scaffold that complements the role of international institutions.

Many of these themes are common across the entire Asia-Pacific region. In addition to fostering cooperation based on geographic proximity through its subregional programs, the ADB has supported many sector-level regional cooperation initiatives. These have included region-wide exchanges of ideas, policies and technologies on food policy and nutrition, integrated water resource management, and issues relating to urbanization in Asia. The ADB is also taking a lead role in a number of broader regional cooperation initiatives, including:

- Establishment and coordination of a Regional Economic Monitoring Unit (REMU) within the ADB to build and strengthen the capacity of East Asian countries to conduct economic monitoring and regional surveillance. Established in 1999, the REMU is now well accepted as a vehicle for promoting economic and financial cooperation in the region.

- An ADB-OECD Initiative to Combat Corruption in the Asia Pacific Region, which is promoting good governance through legal, institutional and administrative reforms; strengthening the rule of law; promoting integrity in business operations; and developing proactive strategies to promote citizen participation in anti-corruption efforts. This initiative, endorsed in December 2000, is gathering momentum as a cooperative effort involving 18 countries.
- Various initiatives to support regional monetary and financial cooperation, including information exchange and economic surveillance, regional financing arrangements, and the coordination of macroeconomic and exchange rate policies.

Such initiatives allow countries to meet regularly to discuss issues of common interest and provide avenues to carry out peer review, share information, monitor emerging developments, develop early warning systems, and build programs in areas of mutual interest, such as capacity building and institutional strengthening. Similarly, the ADB contributes by participating in various other regional institutional arrangements that are in place in the Asia Pacific region, including the Asia Pacific Economic Cooperation (APEC) group, the South Asian Association for Regional Cooperation (SAARC), the South Pacific Forum, the South Pacific Community, and various sector-specific regional bodies.

The ADB will continue to promote these broader initiatives in the interests of leveraging the skills and experience that exist in the region to accelerate the development prospects of all. In particular, the ADB has a pivotal role to play in elaborating the links between good governance and poverty reduction, private sector development, and institutional frameworks. In this context, priority will be given in the years ahead to initiatives that fall within the following thematic areas: poverty reduction; governance and capacity building; private sector development; social development, gender and social protection; and promotion of regional cooperation.

In addition, the ADB will take a proactive role in facilitating regional networking. For example, as part of its medium-term governance agenda and action plan for 2000-2004, the ADB committed to initiating a regional program of governance initiatives to directly promote good governance and enhance cooperation and partnership in the anti-poverty programs of its developing member countries. In this regard, the ADB has identified public administration as a key area of focus for regional networking. Although a number of regional bodies are in place to promote cooperation at a political level in the Asia Pacific region, there are few forums targeting middle to senior levels of public service. Yet these parts of any bureaucracy play a critical role in the development, analysis and implementation of policies and programs that can hasten economic development, and thus strengthen efforts to achieve sustained poverty reduction. They are also the key group in efforts to improve public administration as a whole.

Accordingly, the ADB is seeking to promote a regional partnership network on governance, primarily focused on public administration and incorporating representatives of governments, civil society, the private sector, and development agencies. The purpose of such a network would be to build a consensus on relevant benchmarks, best practices, codes of conduct and indicators of good governance, as well as to review progress in achieving better governance in the region. The network would also be a venue to support "champions of change" to learn from one another and promote the value of good governance to other developing nations; provide a mechanism to demonstrate the positive effects of good governance, thus encouraging wider acceptance of good governance principles; and help build a regional consensus on the attributes of good governance in the Asia Pacific region. In sum, such a network has the potential to expand the range of governance improvement programs under way in the region and improve the effectiveness of methodologies used in these programs.

The ADB's experience with regional cooperation covers a diverse region both geographically and politically, and has provided the institution with a practical understanding of what works in different contexts. A priority for the ADB in coming years will be to synthesize this accumulated experience and make the findings, including best practices and lessons learned, available to all programs. In this way, the Bank can act as the catalyst for successful regional cooperation initiatives, while ensuring that the participating countries retain full ownership of the process.

CHAPTER 6

A Selective Survey of Regional Public Goods in Latin America

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Since publication in 1997 of Todd Sandler's book *Global Challenges,* a new paradigm has emerged that recognizes the public implications of actions by developing and donor nations in accounting for the benefits and costs of foreign aid. The advantage of such a paradigm is that it requires an integrative approach that involves all of the players identified in the jurisdiction of an externality to participate in the decision-making process regarding the potential for market failures in producing everything from clean air to security, biodiversity, financial stability and best development practices. Further, when action by the developing nation is deemed most appropriate, but constraints exist because of the lack of domestic capacity, donor aid can be tailored through monetary transfers or in-kind measures to provide what is needed most efficiently.

The world finds itself today in the midst of a public goods revolution in the design and justification of foreign aid. Kaul, Grunberg and Stern (1999) describe how the public goods perspective can shed new light on the effectiveness of development cooperation for issues ranging from distributive justice to trade agreements, public health, cyberspace, and peace. Reinicke (1997, 1998) takes up this theme for an almost mutually exclusive set of topics that includes money laundering, banking regulations, and dual-use technologies. Even the World Bank (2001) describes its efforts to eradicate river blindness, control the burden of HIV/AIDS, and support the Global Environmental Facility from the perspective of global public goods.

Kanbur, Sandler and Morrison (1999) make the point that if foreign aid is to effectively correct the problem of undersupply of regional public goods, then it will likely have to move from conditionality-based lending to a "common pool" approach. In a common pool, a country or regional body proposes a project and donor subscribers commit funds to an unrestricted common pool, where individual contributions are based on each donor's assessment of the project.

Finally, as an illustration of just how far this paradigm has evolved, both the provision of global public goods, and the common pool approach were among the 12 princi-

pal recommendations of the Zedillo Panel Report to the UN Secretary General for setting the agenda of the International Conference on Financing for Development in Monterrey, Mexico in March 2002.

There is growing importance of expenditures on regional public goods as a proportion of development assistance.[1] This suggests that expenditures on these goods are both rising and displacing other traditional forms of aid. For some, this combination of trends is alarming, because the rise in regional public good expenditures at a time when overall aid has been declining suggests a crowding out of traditional aid needed by the most impoverished nations. However, there are factors that serve to temper such concern.

First, there has been significant developmental progress in Latin America and Asia, thereby changing the aid basket demanded in these regions in favor of one that is more heavily concentrated on regional public goods (Lancaster, 2000). For example, 30 years ago it would be inconceivable that Bolivia and Costa Rica would be the leaders that they are in the regional provision of environmental and biodiverse public goods. Yet each country may now represent the "best shot" for forest conservation and exploring biodiversity, and they receive foreign aid to support these efforts.

Second, te Velde, Morrissey and Hewitt (2002, p. 120) recognize that significant provision of regional public goods takes place outside developing countries, and hence is not financed out of aid expenditures. For example, most funding for medical research, which contributes to providing regional public goods in health, occurs within wealthy countries. As impoverished countries are those hardest hit by such diseases as HIV/AIDS, malaria, and multiple drug resistant tuberculosis, they stand to benefit substantially from activities that will never be formally classified as aid, but that do fit under the umbrella of regional public goods.[2] Even under this classification, with the exception of the diseases mentioned, the benefits of providing health-related regional public goods are much more concentrated in Africa and subregions of Asia than in Latin America, due to the latter's development progress.

Regional Public Goods and Latin America

This section presents a highly selective survey of regional public goods activities within Latin America. Table 6.1 gives the classic breakdown of types of goods according to Samuelson's (1954) characterization of non-rivalry and nonexcludability. The table is presented here to refresh the reader's memory of the definition of public goods given in

[1] See Raffer (1999) and te Velde, Morrissey and Hewitt (2002).
[2] Sandler and Arce (2002) provide a taxonomy of regional public goods for health.

Table 6.1. Types of Public Goods

	Excludable	Nonexcludable
Rival	Private	Common pool resource
Non-rival	Impure	Public
	Partially rival ⇒ Club	

Chapter 1. The focus is on regional public goods and regional initiatives with global implications. Regional public goods in this context are transboundary public goods whose non-rivalry and nonexclusivity properties extend beyond national borders, but are contained within the Western Hemisphere. The Central American Electricity Interconnection System (SIEPAC) is an example of a regional public good. By contrast, in 1952, Chile, Ecuador and Peru established the *Comisión Permanente del Pacífico Sur* (CPPS) in order to assert national sovereignty over the 200-mile stretch of the sea off their respective coastlines. This in turn created a domestic common pool resource whose benefits accrued exclusively to each country's citizens.

Global public goods have nonexclusivity and non-rivalry properties that are not limited by geographical borders or any alternative definition of region. The carbon sequestration occurring in Latin American rainforests is an example of a global public good provided regionally. Other global initiatives with Latin American origins include the Rio Earth Summit in 1992 and Mexico's place as the initial signatory to the Montreal Protocol on CFCs and halons.

In the past, the import substitution and industrialization strategy implemented throughout Latin America never successfully capitalized on regional markets or regional synergies. The strategy turned out to be far more domestic or inward looking than the Prebisch thesis intended it to be. By contrast, neoliberal trade policies implemented during the 1990s have led to a greater understanding of regional interdependence. Public inputs such as environmental and infrastructure arrangements and financial stability are absolutely essential to the region's development. Due to the public nature of their spillover effects, they require support to be coordinated and possibly funded at a regional level.

When structural reform is applied at a regional level, a common agency problem may arise because there may be multiple monitors or lenders to the project at the national and international level. If these principals have differing objectives, then the agents' effort in producing the regional public good may be suboptimal, owing to the competing incentives offered by the principals (Siqueira, 2001; Hamada, 1998). Rather than subjecting a regional public good to the effects of competing jurisdictions, it may be incumbent upon entities such as multilateral development institutions to serve as a central monitoring authority, since they have the multicountry expertise and jurisdiction to monitor and coordinate the production of such goods.

This chapter first discusses environmental public goods and common pool resources for the Latin American region, including an analysis of how such goods as tropical forests and biodiversity correspond to Hirshleifer's (1983) alternative categorization according to aggregation technology (summation, weakest link, best shot, etc.). The underlying aggregation technology is a third degree of publicness that is becoming increasingly important for defining effective forms of aid for regional public goods (Arce and Sandler, 2002a). This exercise—defining and characterizing regional public goods in terms of non-rivalry, nonexclusivity and the aggregation technology—is then repeated for social overhead capital and macroeconomic public goods at the regional level. The chapter then presents the results of a survey of financing for regional public goods by the Inter-American Development Bank, the U.S. Agency for International Development, and the Andean Finance Corporation.

Environmental Regional Public Goods

Latin America is known for its abundant tropical forests, with Brazil and Peru ranked first and fifth, respectively, in terms of total hectares of tropical forests. Table 6.2 lists some of the private and public benefits derived from tropical forests. The greatest threat to Latin America's forests are illegal logging, mining, population pressures, and land ownership

Table 6.2. Public-Private Aspects of Tropical Forests

Benefit	Classification
Agriculture	Private
Biodiversity	Joint products
Carbon stores/sequestration	Regional public and possibly global, depending on how spatial responses bound the range of forest capacity
Climate patterns	Global and regional public
Commercial logging	Private
Deforestation	Global and regional public
Energy source (e.g., firewood)	Joint products
Homeland for indigenous peoples	Joint products
Potential grazing land	Private or common pool resource
Microclimatic	Regional public
Soil erosion protection	Public
Species preservation	Joint products
Raw materials for industry	Private
Recreation and tourism	Joint products
Settlement	Private
Nutrient recycling	Regional public
Water assimilation	Regional public
Watershed	Regional public
Wintering habitat for migratory birds	Regional public

and tenure practices. These all produce short-term benefits that lead to resource depletion and destroy a country's biological wealth as well as any possibility of renewing such assets for future generations. A pertinent example is tropical deforestation, where slash and burn clearing for subsistence agriculture yields plots that are cultivable for only two to three years. Illegal logging is tantamount to mining because it is not accompanied by regenerative investment. These practices eliminate any hope for sustainable income flows based on the large pharmaceutical and agroindustrial potential of tropical forests. Miller, Reed and Barber (1991, p. 92) cite a Peruvian study that shows that the net revenue from harvesting fruit and latex was 13 times greater than that of the timber value. In addition, deforestation is a global public concern because it contributes to the greenhouse effect and global warming. Brazilian forest management—in the form of 2.2 million hectares of "extractive reserves" (Barraclough and Ghimire, 1995)—balances the public and private benefits of Amazonia.

Wilson (1992) has identified a pattern known as the latitudinal diversity gradient, which shows that the greatest species concentrations in the world are found in those countries located in the tropics. Dry tropical forests are as biodiverse as tropical rainforests. Hence, the global public benefits accrued from tropical forests reflect a weighted sum aggregator, owing to the latitudinal diversity gradient. Identifying the aggregation technology as weighted sum is important for several reasons. First, as Sandler (1998) has shown, when a weighted sum implies locally-accrued public benefits—as is the case with tropical forests—then substantial incentive exists for unilateral action, as opposed to endemic free riding. Second, weighted sum implies that the neutrality theorem (Warr, 1983) no longer applies. A role for foreign aid therefore exists, as is evidenced by the success of debt-for-nature swaps in Bolivia, Costa Rica and Ecuador.

Steinberg (2002) argues that the latitudinal diversity gradient should be used to encourage further involvement of Northern donors to preserve Latin American forests. In addition to recognizing the importance of biodiversity, donors should recognize that the asymmetric impact of global warming directs more of the carbon sequestration benefits derived from tropical forests to developed countries located in the higher latitudes (Sandler, 1993). Finally, weighted sum has been shown to be one of the aggregators where leadership (political entrepreneurship), as demonstrated in the Costa Rican example cited below, can facilitate cooperative levels of provision (Arce, 2001; Arce and Sandler, 2001; Oliveira, Faria and Arce, 2002).

Costa Rica and INBio

Costa Rica has set aside more than 27 percent of its land mass as national parks and conservation areas, making it a worldwide leader in the provision of public goods associated

with tropical forests. Further, Costa Rica was establishing a world-class national park system long before the Rio Earth summit or the Nairobi Biodiversity Convention, and even before international funding for tropical forests became the industry that it is today. Steinberg (2002, p. 75) finds that prior to 1979, international financing comprised only 2 to 3 percent of the support provided by the Costa Rican government for conservation. Further, even at that time, fully two-thirds of Costa Rica's present-day parks and reserve hectares had already been set aside. Strong domestic support for the park system is explained as a means of establishing a tradeoff with Costa Rica's extremely high deforestation rate outside park boundaries. The parks emerged as conservationist awareness grew that reforestation was insufficient for preserving biodiversity, which requires the continued maintenance of habitats.

During the 1980s, the Costa Rican park effort was severely threatened by the debt crisis, which meant that little funding would come for the parks from the central government, even though executive branch support remained high. At the same time, some interest groups floated the idea of logging within the parks to secure much-needed foreign exchange. Three developments transpired that preserved Costa Rica's role as an environmental leader in the face of the debt crisis. First, by credibly committing hectares to the park structure, Costa Rica became the leader in debt-for-nature swaps. Second, in 1989 the Costa Rican environmental authority created the National Biodiversity Institute, whose Spanish acronym is INBio. INBio is a government-organized NGO with monopoly rights to exhaustively inventory the nation's biodiversity. INBio's charter requires that it grant a minimum of 10 percent of all project budgets to the National Parks Foundation, and that it must share equally with the foundation all royalties it earns from products resulting from bioprospecting agreements with private corporations. Finally, the publicity associated with the first two activities increased international awareness of the quality of the Costa Rican park system, thereby promoting the country's ecotourism industry. By 1988, ecotourism had surpassed bananas and coffee as Costa Rica's greatest source of foreign exchange.

Meyer (1999, p. 106) observes that biodiversity itself has complex public and private aspects. Ecologically, biodiversity is a pure public good of benefit both domestically and internationally. By contrast, the pharmaceutical value of genetic resources, once innovation justifies a patent, can become an exclusive good. The implication is that INBio produces joint products. Indeed, the potential for private benefits via bioprospecting were substantial enough for the pharmaceutical company Merck to sign a decade-long contract with INBio in September 1991 for bio- and ethnopharmacological targeting.[3] This has

[3] The royalty rate negotiated with Merck remains private.

been followed by more than 20 other contracts and partnerships with INBio for screening for natural products.[4]

INBio is representative of what is becoming an emerging trend for the regional provision of public goods: public-private partnerships. Such innovative partnerships address both North and South aspects of market failure in the provision of public goods. From the Southern perspective, the INBio partnership addresses financing problems by tapping into Merck's willingness to pay. From the Northern perspective, the Costa Rican government can allow Merck monopoly privileges—akin to property rights—over genetic resources that it identifies through bioprospecting in national parks. The end result is a whole slew of public goods ranging from knowledge to possible cures for diseases that are shared internationally (Meyer, 1995).

As Sandler notes in Chapter 1, when the ratio of private to total benefits approaches one, the level of provision of joint products is likely to be efficient. Yet the implication is that there is also very little public good being provided. Hence, the prospect that INBio may have monopoly power for negotiating royalty agreements for what may turn out to be largely private benefits for INBio itself or Merck has led to controversy about this agreement and others like it.

There are at least three mitigating circumstances that offset such concerns, at least from the perspective of public goods. First, the funding arrangement between INBio and the National Parks Foundation effectively bounds the private/total benefit ratio below one. Whatever revenues come from INBio's production of private goods will also go to the Costa Rican park system, which is a public good. Second, partnerships such as the Merck agreement are bound to result in technology transfer and human capital development. According to endogenous growth theory, these are the building blocks that produce increasing returns to scale. Third, there is widespread agreement that Costa Rica is so biologically diverse that it contains upwards of 4 to 5 percent of the earth's terrestrial biodiversity (Meyer, 1996, p. 459). Hence, biodiversity is a type of "better-shot" public good. This implies that a developing country such as Costa Rica will be unlikely to have the resources at hand to unilaterally provide at a level that is globally efficient. Instead, outside funding and in-kind action will be required to attain efficient capacity. In this context, the Merck and other bioprospecting partnerships must be evaluated in terms of whether a foreigner's technological comparative advantage outweighs the opportunity cost of securing funding domestically.

Costa Rica's forests are a part of a larger Central American system, making the biodiversity contained there part of a regional public good. Further, up until now INBio's

[4] INBio's 2000 Annual Report lists important agreements with BTG, Strathclyde Institute, Merck, Hacienda La Pacifica ECOS, Indena, Diversa, Phytera, Eli Lilly and Akkadix.

output has been largely public in nature (i.e., park financing), with the biodiversity inventory primarily in the public domain, training and technology transfer very much part of different projects, and the findings disseminated in journals. While INBio bioprospecting has yet to result in development of a new drug, a number of samples have shown promise (Eberlee, 2000, p. 2). Both the odds and pipeline for marketing a discovery are long: one compound for every 10,000 substances screened in the bioprospecting process (Guevara, 2002). Further, it can take 17 to 20 years to obtain a drug from a compound. Meyer (1999, p. 113) documents an INBio partnership with the British Technology Group and Kew Royal Botanical gardens to develop a biodegradable nontoxic nematicide from plant compounds. Financially, INBio's commercial partnerships have covered the operating costs of bioprospecting for the last 11 years and have also contributed 10 percent of INBio's budget for conservation research.

Social Overhead Capital

In his study of economic progress in the 1950s in Colombia, Hirschman (1958) was one of the first to identify the critical role that public goods play in the development process. Specifically, Hirschman labeled public goods such as transport, medical care, communications systems, utilities and other forms of infrastructure as social overhead capital.

Social overhead capital has several important properties critical to the development process. First, it complements directly productive private investment. The nonexclusivity and non-rivalry properties of social overhead capital imply that it is unlikely that firms will undertake such investment on their own (or, if they do, it will be at a level inefficient relative to the demands of the entire economy). Second, social overhead capital is lumpy, which adds to the underprovision problem because investment must be coordinated to reach a critical level (Taylor and Ward, 1982). Hence, there is a role for the state to play in coordinating and perhaps undertaking social overhead capital investment in order to prevent bottlenecks from constraining the development process.

What are the prospects for regional social overhead capital or regional spillovers of such capital domestically? For example, a fully functional Pan American highway would benefit all Latin American residents who desire to travel throughout the region and would also facilitate trade. The Darien gap in the highway (where Colombia meets Panama) therefore affects the connectivity of the entire system, which would otherwise be a continuous stretch from Alaska to the Southern Cone. The benefits of completing such a highway must be balanced with its impact on the biodiversity of the Darien gap, which is itself a global public good. Another example is when landlocked countries, such as Bolivia and Paraguay, benefit from seaward transportation investment in bordering nations. If

these neighbors do not account for Bolivian or Paraguayan benefits when considering social overhead capital investment alternatives, the resulting investment is likely to be inefficient from a regional perspective. This section considers three examples of regional social overhead capital investment in Latin America: the Central American Electricity Interconnection System, the Regional Fund for Agricultural Technology (FONTAGRO), and the Alcântara satellite launch facility in Brazil.

Central American Electricity Interconnection System (SIEPAC)

Scheduled to become completely on-line in 2005, SIEPAC is a power grid involving six countries: Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. SIEPAC is a weaker-link category public good, designed to facilitate electricity exchange between countries, thereby increasing reliability through a network designed to overcome fluctuations in hydrological conditions that might otherwise result in local power outages. For the network to be effective, its weaker links need to be addressed. In this case that specifically means substations to connect Guatemala North with Rio Lindo, Honduras and Nejapa, El Salvador with Pavana, Honduras.

In its role as a provider of social overhead capital, SIEPAC is expected to promote private investment in regional electricity generation projects by enabling companies to take advantage of economies of scale by integrating the six national electricity markets into a single regional one. SIEPAC will be a regional answer to local bottlenecks in energy demand that arise due to variations in consumption patterns and development in member countries.

Arce and Sandler (2002a, Chapter 5) assert that because the jurisdiction of regional actors is readily definable, proper application of the principle of subsidiarity will result in regional public goods being more efficiently provided than global public goods. SIEPAC illustrates the principle of subsidiarity from several perspectives. First, as shown in Table 6.3, all loans under SIEPAC are to power utilities within the six countries involved. The leadership role of the Inter-American Development Bank in funding SIEPAC is itself a demonstration of the subsidiarity principle in action, as the IDB is the multilateral organization whose jurisdiction most closely resembles SIEPAC membership.

Second, in 1998 the SIEPAC countries ratified the Framework Treaty for the Electricity Market in Central America, which will create two regional commissions, one for regulating the regional market, and the other for operating the regional system. These commissions are examples of best-shot public goods, and so efficiency dictates that their provision be centralized. Yet, best-shot public goods can still be inefficiently provided if the centralized authority does not take into account the range of benefits across all parties. For these two commissions, funding is aggregated across members to increase ca-

Table 6.3. SIEPAC Financing

	IDB Loan	Concessional loan from Spain[1]	Total
Costa Rica	$30 million[a]	$15 million	$45 million
El Salvador	$30 million[a]	$15 million	$45 million
Guatemala	$30 million[a]	$15 million	$45 million
Honduras	$25 million[b]	$10 million	$35 million
Nicaragua	$25 million[b]	$10 million	$35 million
Panama	$30 million[a]	$15 million	$45 million

[1] 35-year, variable interest (euro denominated), administered by IDB.
[a] 25-year, variable interest.
[b] 40-year, low interest.
Source: IDB (2001a).

pacity at the centralized location to meet system-wide demand. This is a novel example of using a summation aggregator for financing a best-shot good.

Regional Fund for Agricultural Technology (FONTAGRO)

FONTAGRO is an agricultural research consortium designed to increase productivity and reduce poverty by boosting the competitiveness of rural regions. All funded research must have cross-country relevance, and at least two countries within the consortium must cooperate on any project. The consortium is an example of an institution that provides regional public goods through common pool financing. A breakdown of contributions to the pool by country is given in Table 6.4.

FONTAGRO uses the income from its endowment fund to provide grants to research institutes, universities, NGOs and private organizations on a competitive basis.[5] Since 1998, FONTAGRO has funded 29 projects totaling $5,623,000. The summary of FONTAGRO's criteria for investment shown in Table 6.5 illustrates how in-tune it is with the notion of regional public goods, implicitly and explicitly requiring that projects have nonexclusivity and non-rivalry properties. The selection of projects is based on a weighted ranking according to socioeconomic impact (40 percent), technical quality (30 percent), institutional capacity (20 percent), and environmental impact (10 percent). FONTAGRO is thus an ideal blueprint for the promotion of regional public goods.

The consortium is engaged in research activities whose public outputs can be further broken down in terms of aggregation technology. For example, productivity research for genetic improvement is a form of best-shot good. Once a breakthrough is made, it can

[5] Validating the principle of subsidiarity, the Inter-American Development Bank again is the depository and legal representative of the fund.

Table 6.4. FONTAGRO Country Contributions, 2001-2003

Country	Contributions to date (US$)	Future commitments
Region 1		
Argentina	—	20,000,000
Bolivia	1,000,000	1,500,000
Brazil*	—	20,000,000
Chile	2,500,000	—
Paraguay	2,000,000	500,000
Uruguay	1,400,000	3,600,000
Region 2		
Costa Rica	100,000	400,000
Dominican Republic	2,100,000	400,000
El Salvador*	—	2,500,000
Guatemala*	—	2,500,000
Honduras*	—	2,500,000
Mexico*	—	20,000,000
Nicaragua	1,000,000	1,500,000
Panama	2,500,000	2,500,000
Region 3		
Colombia	2,175,000	7,825,000
Ecuador	2,500,000	—
Jamaica*	—	2,500,000
Peru	2,500,000	—
Trinidad & Tobago*	—	2,500,000
Venezuela	12,000,000	—
Total	**31,775,000**	

* FONTAGRO membership expected in 2002.
Source: FONTAGRO, April 2002.

then be disseminated to all interested collaborators. Natural resource management is often viewed from the perspective of common pool resources. However, when applied to pest control, the weakest-link typology also comes into play. By integrating pest and disease management so that funds are directed at the likely source of outbreak, cost savings can be achieved in neighboring countries within the region (Arce and Sandler, 2002b). Agro-industrial research into new uses for products and forms of agribusiness management are knowledge-based public goods that are likely to follow a better-shot aggregator because lesser efforts are unlikely to be redundant.

Alcântara

The Alcântara launch facility in Maranahão, Brazil is an example of a better-shot club good. The launching of orbital satellites requires an infrastructural investment in ground support, fueling and down-range tracking facilities, as well as an uninhabited area east of the launch site. Further, the comparative advantage of a near-equatorial location such as

Table 6.5. FONTAGRO Financing Criteria for Transnational Public Goods

Criterion	Description
Research	The activity must be research or research related.
Relevant to Fund goals	The research must address the goals of enhancing competitiveness, protecting the environment, and reducing poverty.
Regionally shared problem	The problem addressed must be widely shared by countries of the region.
Potential for impact	The research must address a product or problem that is important in the region.
Strategic in nature	The research must contribute to longer-term production or sustainability of the region through development of new approaches, methods or information.
Public good in character	The research will generate a public good that is freely available.
Scientific quality	Proposals will be approved on a competitive basis following peer review for scientific quality.
Collaborative in nature	The project must contribute to collaboration among research systems, especially stronger and weaker systems.
Mobilizes resources	The project has the opportunity to mobilize additional resources for regional priorities.
Synergistic	The project must contribute to synergy among institutions within the country.
Consolidating	The research will contribute to the consolidation of regional mechanisms.

Source: FONTAGRO Medium-term Plan 1998-2000: A Summary. At: http://www.fontagro.org/pdf/33.pdf

that in Maranahão is that it represents a substantial savings in fuel expenditures (approximately 30 percent) for the launch of geostationary orbital satellites. Most of the $200 million in funding for the Alcântara site was provided by the Brazilian government through its space program. Further, membership in Alcântara is currently granted via launching fees. At present, capacity is not an issue in assessing the efficiency of Alcântara. Indeed, the facility is becoming an example of a Latin American club good that has global implications. For example, the China-Brazil Earth Resources Satellite Program aims to place two high-resolution imaging satellites from Alcântara into geosynchronous orbit to gather data on the environment. In addition, Brazil and the United States signed a Technology Safeguards Agreement in April 1999 that allows U.S.-built commercial satellites to be launched from Alcântara. The protection of dual-use technology is another example of a global public good (Reinicke, 1998).

Macroeconomic Regional Public Goods

Trade agreements are the most studied regional club goods. Latin American trade agreements include NAFTA, Mercosur and the Andean Community (formerly the Andean

Pact). Recall that clubs are used to provide impure public goods, where the good itself is excludable to nonmembers and is partially rival among members (Table 6.1). The public good provided to members in a trade agreement is most often expressed as the sustained economic growth that arises from free trade. Synergy arises from the growth rates of the trading partners and the size of their domestic economies. Counterbalancing this synergy are cohesion problems that are akin to congestion in producing rivalry effects when a trade group is expanded. Padoan (1997, p. 109) defines cohesion in terms of a relatively equal social and territorial distribution of employment opportunities, wealth, income and economic expectations.

When a trade group is initially proposed, it is likely that a process of convergence will have to be undertaken in order to ensure cohesiveness. This was certainly the case for the original members of the European Union, and remains a requirement for new members there. Indeed, it explains why there has been a great deal of infrastructural investment by the EU in countries such as Spain and Portugal in order to equate standards across members. These are known formally as cohesion funds. In the same way, the lack of compatibility of potential new members is what restricts the size of any trade agreement. Economic theory itself would suggest that "the world" is the optimal membership size for a trade agreement. Yet cohesion defines the transaction costs that limit the size of trade agreements, thereby making the theory of clubs relevant.

Convergence has rarely been a formal part of the initial agenda for promoting trade agreements in Latin America. By contrast, some issues, such as cohesion in environmental and labor market standards, have been used as barriers to free trade. Indeed, examining trade agreements involving Latin American countries from the perspective of Padoan's cohesion criteria (Table 6.6) may explain some (potential) difficulties. In NAFTA, for instance, there is an obvious disparity between the wealth and income among members. Counterbalancing this disparity is the expectation that trade is the engine for growth, and the realization that the fortunes of all three countries are highly tied to the performance of the U.S. economy; hence, integration capitalizes on this interdependence. Further, the labor markets of these economies have become highly integrated, albeit informally. For-

Table 6.6. Trade Cohesion

	Andean Pact	Mercosur	NAFTA
Size equality	Yes	No	No
Geographic barriers	Yes	No	No
Labor mobility	No	No	Informal
Wealth/Income cohort			
(Standard of living)	Approximate	Less so	No
Economic expectations are interdependent	No	Asymmetric	Asymmetric

mally recognizing labor market integration was high on Mexican President Vicente Fox's proposed agenda for U.S.-Mexican relations during his summit with U.S. President George Bush in 2001. The lack of progress in the area is likely due to the amount of attention diverted to concerns associated with the terrorist attacks of September 11th of that year.

In the Andean Community, by contrast, there is greater cohesion in terms of standards of living, yet substantial territorial (i.e., geographic) barriers exist for integrating markets. Further, in its origins as the Andean Pact, membership and adherence to terms were inconsistent, owing to evolving differences in expectations as to whether the pact would suffice as a vehicle for development and growth. The benefits of the pact have to be clearly identified. In its present form as a customs union, the Andean Community is working towards liberalization of trade in services, which may be a more viable sector for trade given the geographic challenges to integration.

In Mercosur, there is substantial disparity in income and territorial characteristics between members. Indeed, the asymmetric size of Brazil itself limits the degree to which it can benefit from the trade agreement. At the same time, Hirst (1999, p. 39) cites a "subjective similarity" as the impetus for the formation and expansion of Mercosur, especially between Argentina and Brazil. As much as anything else, the members envisioned the agreement as a means for locking in and maximizing the results and benefits of market-based and democratic reforms that accompanied their emergence from the debt crisis of the 1980s. Further, Mercosur is seen as the entity for promoting trade relationships for member countries throughout the Western Hemisphere and worldwide. Indeed, the Clinton administration's loss of fast track authority enhanced Mercosur's identity as the leading actor for trade integration in the Americas during the 1990s.

Unfortunately, Mercosur never evolved from a customs union into a common market; hence, it may not have achieved an irreversible degree of integration that can withstand political and economic turmoil among its members. At present, whether Mercosur survives and thrives depends upon another regional public good—financial stability. This financial stability is itself an example of a weaker-link public good. In the weaker-link situation, the minimal effort (or care) has the greatest impact on the public good, and larger efforts have lesser impact. Hence, for Mercosur nations, the compatibility of their exchange rate systems went hand-in-hand with the success of the customs union. At the onset of Mercosur, Brazil had a floating band tied to the dollar, Argentina a dollar-based currency board, and Uruguay a currency trading band tying the peso to the dollar. The fortunes of each and Mercosur as a whole is tied to the financial health of member nations, but efforts in the areas of fiscal policy, the status of the domestic banking system, and each country's reserves allowed a degree of independence.

With the 1999 fall of the Brazilian reaís, however, the resulting asymmetric impact on Argentine and Brazilian exports created a situation in which underlying weaknesses in

the Argentine economy were exposed. The increased competitiveness of Brazilian exports, due to the devaluation of the reaís, contributed to an Argentine recession. Unemployment in Argentina surged from a level that was never below 12 percent during the mid-1990s to heights exceeding 20 percent. This, coupled with a fiscal crisis, caused widespread speculation on the likelihood of an Argentine debt default in the spring of 2001, even through the banking system itself was in relatively good health. Further, evidence of an inability to deal with endemic corruption, an increase in country risk due to default speculation, and an ambivalent plebiscite during the fall of 2001 cumulated in a chaotic and unscheduled transfer of power in December 2001 and January 2002. As a result, Argentina abandoned its currency board, allowed the peso to float, and the currency, which had been at parity to the dollar, reached 3.5 pesos to the dollar by July 2002.

The consequence of the Argentine economic collapse played out in a fashion that illustrates how financial stability ought to be considered a weaker-link public good. The effect on Brazil was not immediate due to the health of its economy, its level of reserves, and sound market-based policies. Yet, political uncertainty associated with the upcoming presidential election prompted Brazil to accept a $10 billion loan in June 2002 from the International Monetary Fund to stay current on its debt payments. During that same month, Uruguay allowed its currency to freely float, ending an 11-year floating peg to the dollar. Hence, it appears that self-fulfilling financial expectations are a type of weaker-link good throughout the region. Attention must be paid as to how a country can emphasize its country-specific attributes to separate the market's assessment of its financial health from that of its neighbors.

It is interesting to pose the question as to why the situation in Argentina has not as of yet spilled over to non-Mercosur nations? Do capital markets see a country such as Mexico as being substantially different from Brazil and Argentina? This was not the case during the debt crisis of the 1980s. For example, Ecuador became a casualty in the 1980s debt crisis essentially through guilt by association. Contagion reappeared during the 1990s, when the Mexican peso crisis of 1994 caused markets to test Argentina's resolve towards maintaining its currency board. At present there is little discussion of a "tango" effect outside of Mercosur that would rival the "monsoon," "tequila," "vodka," and "samba" effects due to financial instability in East Asia, Mexico, Russia and Brazil, respectively, during the 1990s.

What a country can do to break weaker or weakest-link ties to the financial health of cohorts remains a subject worthy of further study. Contagion takes place through direct and indirect financial channels. Remarkably, the question of contagion is rarely framed in terms of a public goods perspective. For example, a July 2002 survey of the ECONLIT database on financial contagion and monetary union yielded no match between the literature on these phenomena and the public goods concepts of weaker link or weakest link. Yet the convergence conditions placed upon members of the European monetary

union are clearly aimed at eliminating any weaker links that may contribute to macroeconomic instability.[6] The same framework should also be used for understanding the financial contagion that occurs among Latin American countries and between Latin America and other emerging market regions. For example, NAFTA appears to have made financial contagion in Mexico dependent on the current state of the U.S. economy, rather than on default prospects in Argentina and Brazil.

Financing Latin American Regional Public Goods

Even a selective survey such as this reveals that there is both demand and supply of regional public goods in Latin America. Hence, one is hesitant to suggest that a "Kuznets curve" applies when it comes to regional public good activities. Instead of being constrained by poverty-based preferences for such goods, Latin America's performance in terms of regional public goods is subject to the same types of collective action problems that have been understood since Olson (1965) and Hirshleifer (1983)—i.e., free riders and the need to match capacity with the spillover range of benefits.[7] Moreover, establishing adequate capacity for weaker/weakest and better/best shot goods is more of a concern than free riding. Collective action is taking place at the regional level in Latin America.

Further, Ferroni (2002) found that a major challenge for financing regional public good capacity is the fact that regional loans themselves are uncommon. In surveying the history of regional loans by the World Bank, Ferroni found only 44 such loans from the 1960s to 2000. Similarly, Cook and Sachs (1999, p, 446) found that while the IDB has a growing portfolio of regional projects, they total only 4.5 percent of total disbursements in 1997.

Inter-American Development Bank

In addition to loans, the IDB disburses and coordinates a substantial amount of grants for regional public goods. An examination of the grants for 1998 and 1999 shown in Table 6.7 reveals that that they cover many areas of regional public goods, with the environment, financial and trade sectors, and social overhead capital all figuring prominently.

[6] Another example is the 1988 Basel Accord on International Banking Supervision, which was meant to standardize the definition of capital across G-10 nations and establish minimum capital requirements. Matching behavior of this type is commensurate with successful collective action for weaker and weakest link regional public goods.

[7] For example, Schittecatte (1999) takes the existence of collective action to produce global public goods within the Amazon as a given, and attempts to further characterize it in terms of resource mobilization via international support versus social movements based on latent cultural identity, codes and networks.

Table 6.7. IDB Grants for Regional Public Goods, 1998-99

Title	Description	Sector
José Luis Bobadilla Inter-American Network for Health Policy	Supports health initiatives in the region and establishes an Inter-American health information clearinghouse.	Health
Support to the Caribbean Community for External Trade Negotiations	Training on vital aspects of trade negotiations to strengthen the negotiation capacity of Caribbean Community (CARICOM) countries.	Trade
Regional Biodiversity Strategy for the Andean Tropics	Coordination of a biodiversity strategy and action plan for conservation and sustainable resource use of the Andean ecosystem in Bolivia, Colombia, Ecuador, Peru, and Venezuela.	Environment
Support for the Andean Community's Regional Consultative Group for Economic Integration	Supports the consolidation of intraregional trade among Andean Community countries.	Trade
Support for the Free Trade of the Americas Initiative	Finances studies and technical support as part of negotiations for developing a hemispheric free trade area by 2005.	Trade
Equity Investment in the Southern Cone Environment Fund	Supports small-size businesses that have an impact on biological diversity in the Southern Cone.	Environment
Labor Market Modernization Fund	Harmonization of labor standards.	Trade
Training in Bank Supervision and Securities Regulation	Promotes harmonization of capital market rules and compatibility of market information to improve integration on a regional level.	Finance
Agricultural Technology and Resource Management	Supports 12 FONTAGRO projects.	Agriculture
Mundo Maya Sustainable Development Program	Preservation of shared cultural, historical, and environmental heritage of Belize, El Salvador, Guatemala, Honduras, and Mexico.	Cultural
Disaster Mitigation in Central America	Improves the capacity of the six Central American countries to prevent or mitigate natural disasters such as hurricanes, earthquakes, drought, flooding, wildfires, and landslides.	Social overhead capital
Early Warning System to Ameliorate Socio-Economic Effects of El Niño	Design of an early warning system to better protect the region from the harmful socioeconomic effects of El Niño.	Social overhead capital
Humanitarian Assistance Volunteer Training	Creates and maintains a corps of volunteers to offer humanitarian assistance in cases of natural disasters or other emergencies throughout the Latin American region.	Social overhead capital
Virtual Science Mathematics Education Network	Improves the teaching of science and mathematics in pilot elementary schools in Brazil, Colombia, Venezuela, Panama, and Peru.	Education
Human Resources in the Agricultural Sector in Mercosur	Modernizes human resource training in the agricultural sector of Mercosur based on sustainability and the environment.	Trade

Source: IDB, The Lending Program and Targeting Investments, 1998, 1999.

The IDB's activities in these areas imply that the region has attained a level of development beyond that normally associated with traditional aid.

Individual country loans can also produce regional public goods. For example, an IDB loan in 2000 for Paraguay's Western Integration Corridors Program will repair National Route 9, thereby ensuring year-round passibility to borders with Argentina, Bolivia and Brazil, with major implications for regional travel. The IDB's loans to SIEPAC, which are extended to countries on the power grid as opposed to being regional loans, are another example of country loans with regional implications.

U.S. Agency for International Development (USAID)

USAID was created in 1961 by the Foreign Assistance Act to separate military from nonmilitary aid. USAID has a Latin American bureau that funds three types of regional programs: the Caribbean Regional Program, the Central American Regional Program, and the Latin American and Caribbean Regional Program (see Table 6.8). USAID's emphasis on regional public goods is more heavily focused in the areas of trade, health and the environment. There is less emphasis on social overhead capital, although some trade-related programs have provisions for harmonizing Central American road standards.

USAID has also been heavily involved in the development of a malaria vaccine. This clearly has a regional dimension, as malaria ranks with HIV/AIDS and tuberculosis as one of the three major diseases causing death in the developing world. USAID's Malaria Vaccine Development Program (MVDP) has been a world leader at funding basic research and vaccine development. A vaccine represents a best-shot or better-shot public good, so efficiency dictates that funding be centralized with an organization such as the MVDP.

Andean Development Corporation (Corporación Andina de Fomento-CAF)

The Andean Development Corporation is a multilateral bank that promotes regional integration and sustainable development. Its primary shareholders are the five Andean nations, 10 other Latin American nations, and 22 private banks from the Andean region. CAF provides multi-purpose banking, including loans to both the public and private sectors. It is another example of a public-private partnership. CAF is further involved in jointly financing (with the IDB and FONPLATA) the Initiative for the Integration of Regional Infrastructure in South America (IIRSA). This regional public good promotes social overhead capital investment to convert border areas into international transportation areas.

In creating an Andean axis for infrastructure CAF is addressing the capacity issue of weaker- and weakest-link regional public goods. Efficiency requires bolstering infrastruc-

Table 6.8. USAID Funding For Regional Public Goods in Latin America and the Caribbean (LAC), 2002

Project	Description	Category of goods
LAC Region		
Health	Vaccination and integrated management of childhood illness, HIV/AIDS, anti-microbial resistance, malaria and health sector reform.	Health
Environmental Partnership	Addresses asymmetries in the region in order to conduct meaningful environmental impact analysis of the proposed Free Trade Area of the Americas (FTAA).	Environment
Trade Capacity Building for FTAA	Helps the Secretariat for the Integration of Central America, Mercosur, and the Andean Community promote inter- and intra-regional integration and become WTO-compliant and FTAA-prepared.	Trade
Special Development Opportunities	Initiative to catalyze economic growth and reduce poverty in Central America and Mexico by supporting forest and coral reef management and increasing coffee productivity.	Environment
Conservation of Biological Resources	Develops national, international and regional alliances for conservation in support of the Parks in Peril (PiP) Program.	Environment
Caribbean		
HIV/AIDS	Support of "south-to-south" technical assistance and training to build the capacity of Caribbean Epidemiology Centre (CAREC) countries to deliver clinical and diagnostic management systems.	Health
Central America		
Regional Trade and Investment	Promotes trade and investment capacity for negotiation of entry into FTAA and also for Central America Free Trade Area negotiations. Improves functioning of labor markets.	Trade
Regional HIV-AIDS	Enhances Central American capacity to respond to the HIV/AIDS crisis.	Health
Regional Environmental	Improves environmental management in the Meso-American corridor and manages key watersheds.	Environment

Source: USAID.

ture to a minimal level in order to raise the overall benefit of transportation networks as a whole. Many CAF road projects claim that they will halve transportation time. Further, CAF is partially financing an Inter-Oceanic Corridor that will be bimodal in nature, linking existing roads and waterways in eastern South America (see Table 6.9).

Subsidiarity at Work

The subsidiarity principle of public goods financing dictates that if regional public goods are increasing in importance as a component of foreign aid, then the funding of regional organizations such as the IDB and CAF should increase. Further, regional programs

Table 6.9. Andean Development Corporation Regional Public Goods for Social Overhead Capital, 2000

Country/Client	Operation	Description
Bolivia National Road Service	Highway Rehabilitation and Maintenance Program	Repairs and paves Bolivia's basic road network, which links main cities with other countries in South America. Estimated to halve travel times.
Bolivia National Road Service	Improvement and Paving of Tajira-Bermejo Highway	Completes paving of the highway, which provides an alternative route from the Atlantic to the Pacific and links up with an international bridge on Argentina's route 50.
Bolivia Central Aguirre Portuaria	Long-term corporate loan	Portion goes to enlarge bulk freight and liquid fuels terminal to help ship goods more efficiently between Bolivia and Brazil.
Ecuador Ministry of Public Works and Communications	Baeza-Tena Road Project	Improves the trunk highway in the eastern part of the country, which is of international character because it provides bimodal transportation links between the Pacific and Atlantic, most notably Amazonian ports in Brazil.
Ecuador Ministry of Public Works and Communications	Southern Road Corridor Project	Partially finances road repair and environmental improvement project to connect the city of Cuenca with the Pacific and Amazonia.
Ecuador Andinatel	Fiber Optic Trunk Project	Enhances the quality of connections within Ecuador as well as interconnections with Colombia, Peru, and the rest of the world.
Venezuela Various Clients	Medium-term loans	Contributes to regional integration with Bolivia and Peru by paving and other public works on road segments in the State of Rodonia

Source: CAF Annual Report, 2000.

within an organization such as USAID ought to gain more attention. This trend is partially offset by the tendency for mission creep within global organizations such as the World Bank. Indeed, in addressing the issue of mission creep, former World Bank Managing Director Jessica Einhorn (2001) argues that the Bank should open the door to the new agenda of global common goods, but in doing so should also consider scale and distance when playing a role in regional and local ventures. This in turn implies redistributing some programs to existing institutions whose mission more closely corresponds to the range of benefits. For regional public goods, the relevant institutions include those mentioned above.

It is also worthwhile to recognize that some specialization appears to have taken place. For example, USAID has specialized in funding health, environmental and trade related activities, with CAF emphasizing transport, social capital and biodiversity. This illustrates the potential for future institutional specialization within Latin America. The

specific loans and grants within these areas are also indicative of the progress that has occurred in Latin American development.

Conclusions

Collective action is taking place at the regional level in Latin America. This has resulted in myriad regional public goods in the areas of social overhead capital, trade groups and environmental public goods. Yet such activity is substantially suboptimal because the regional mindset is not pervasive; hence, regional implications of the spillovers created by national actions (e.g., highway investment) have yet to be fully incorporated. Further, a regional donor culture is only in the insipient stage. Organizations such as the IDB and USAID's regional programs need to be expanded in order to recognize the public goods revolution in foreign assistance. These organizations need to emphasize their comparative advantage in terms of the subsidiarity principle in order to supersede the funding of regional activities through global organizations. FONTAGRO is an example of subsidiarity properly applied at the regional level. Project funding is administered by the IDB, and the public benefits created by a FONTAGRO project must be regional by definition.

Another emerging trend in the provision of regional public goods is public-private partnerships. CAF, SIEPAC and INBio are prototypical examples. As many public goods embody either a weaker/weakest-link or better/best-shot aggregation technology, the overriding concern for attaining optimal provision is to establish sufficient capacity. For weaker/weakest-link goods, this means bolstering provision across cohort nations up to similar levels. For best/better-shot goods, it implies the concentration of efforts to produce a maximum benefit that will be distributed regionally. In either case, efficient provision may involve in-kind action by a private entity. Examples include INBio's public-private bioprospecting agreements, and the private investment that SIEPAC is expected to encourage by creating a power grid integrated across six countries.

Finally, to borrow a phrase from George Soros (2001), regional public goods remain a missing component from the globalization and regionalization that have taken place at the turn of the millennium. In terms of future prospects for such goods, a great deal of infrastructural investment is taking place. This can only contribute to regional synergies and cohesion. For example, the IIRSA initiative will foster regional trade. There is something to be said for integrating markets on a de facto basis by providing the necessary social overhead capital that private investment can capitalize on. It is no coincidence that programs simultaneously exist for bolstering the ability of nations to negotiate and carry

out a trade agreement for the Americas. Trade integration itself creates further demand for regional public goods.

The future of regional public good investment in Latin America will be associated with the creation and completion of networks (trade, transportation, power distribution, communications, etc.) and network effects (trade standards, knowledge, property rights, labor and environmental standards, etc.). Cohesion in these areas is critical for regional development. This is particularly true in the financial arena, where the implications of the transition from managed floats and fixed exchange rates in Brazil and Argentina, respectively, has yet to play itself out. The public aspects of the channels of contagion need to be better understood, as do their welfare implications. A public goods perspective can shed light on capacity issues in these areas that are not currently part of the international financial paradigm.

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PART II

Building the Case for Regional Public Goods Provision

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CHAPTER 7

A European Perspective on Monetary and Financial Arrangements as Regional Public Goods

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Post-war economic arrangements and institutions have been built on the principle of multilateralism. Both historical experience and economic principles strongly back multilateralism, and the achievements of the past decades are, in many ways, spectacular. Negotiations of the General Agreement on Tariffs and Trade (GATT) and oversight by the International Monetary Fund have contributed to create a world with decent trade openness and reasonably effective payments systems. Certainly trade barriers still abound and currency crises frequently occur, but the world economic system functions better than ever before, not a mean feat given the birth of more than a hundred countries in the wake of decolonization.

For political-economic reasons, however, multilateralism is running into decreasing returns. The first gains from multilateralism were reaped from liberalization measures that typically delivered large economic gains at relatively small political costs. In retrospect, erga omnes reductions of hitherto large tariffs, along with the acceptance of broad rules for the world monetary system, were easy to agree on and implement. Nowadays, the remaining tariff and non-tariff barriers protect narrow and well-organized interest groups. Because these are relatively small pockets of protection, the overall gains from further liberalization are typically limited. Because these groups have long been effective at maintaining protection, they believe that they do not have to surrender, and they have much knowledge to draw upon.

The world monetary system has been partly taken over by the financial markets. During the 1990s, the multilateral institutions followed the Washington consensus and encouraged the emerging market countries to repeal their capital controls. After several waves of severe crises in Latin America and Asia, the consensus has only partly evaporated. The view that financial liberalization is a step fraught with many dangers is not considered outlandish in official circles anymore. It remains anathema to financial mar-

kets, which capture most of the gains and suffer few of the losses from financial crises, and whose influence is often overwhelming. Taken one by one, the developing countries, which need access to financial markets, find it difficult to resist the trend. Regional agreements may strengthen their hands.

Further deepening economic integration may deliver still more useful public goods such as freer trade, more diversified savings and borrowings, and safer payments, but the political costs have become relatively high. Further progress seems to depend on the ability to generate compensating political gains. This is where regionalism enters the picture.[1] Regional integration typically delivers smaller economic gains for the world as a whole. For example, regional trade integration can lead to trade diversion, which cancels some of the economic gains. At the same time, the range of political gains can sometimes be more easily expanded and internalized at the regional level than at the world level. For instance, Europe's long march towards regional integration has always been motivated by the desire, as stated succinctly in 1950 by French Foreign Minister Robert Schuman, to make wars on the continent "not merely unthinkable, but materially impossible." Adding in the public good of regional peace made many economic and political costs look trivial. Similarly, the public good of owning a world-class currency tilted the undecided balance of costs and benefits from monetary union.

It is not surprising, therefore, that regional integration gradually becomes more appealing than multilateral integration. However, part of the appeal lies outside the traditional realm of economics. So far, Europe is the only example of successful political-economic integration. Its experience serves as a background for the present study of regional macroeconomic integration, which brings into the picture other features of regionalism, namely trade integration and political cooperation.

The emphasis is on macroeconomic and financial integration. Exchange rate stability is seen as a regional public good because it encourages trade opening and integration and contributes to overall stability. The simplest form of exchange rate stability is pegging. Pegged exchange rate systems, however, are known to be fragile and crisis-prone. Strengthening this kind of arrangement calls for extensive agreements, which are unlikely to be acceptable at the world level. Indeed, the collapse of the Bretton Woods system 30 years ago was partly a recognition that simple, fixed exchange rate systems are not viable and that deeper support goes beyond mere economic and political acceptability. Regional exchange rate arrangements, on the other hand, may be built on sturdier foundations, be-

[1] There is by now a large and still growing literature on the costs and benefits of regional arrangements. Most of it is based on trade theory, but geographic and politico-economic considerations now appear. A small subset of that literature is Krugman (1991), Ferroni (2001), Frankel, Stein and Wei (1995) and Wonnacott (1996).

cause the externality of both failing systems and mutual support is better shared. This is certainly a lesson from Europe's experience. Another lesson is that extensive exchange rate arrangements naturally lead to currency unions. Currency unions are the true ultimate fix. They deliver total exchange rate stability within the region and have been found to significantly boost regional trade without negatively affecting world trade (Frankel and Rose, 2002).

This chapter first reviews the public good nature of trade and macroeconomic integration, then provides an overview of the European experience with trade and financial integration, highlighting the move from multilateralism and the role of institutional building. The view that Europe cannot be used as a blueprint for other regions that contemplate macroeconomic and financial integration is next examined in detail, and largely rejected. Then, assuming that the aim is to foster regional macroeconomic and financial integration, the chapter examines the required preconditions both at the regional and world levels.

A Public Good Perspective

A key message from the theory of fiscal federalism is that the provision of public goods should be centralized if those goods involve important externalities or economies of scale. Working against centralization are heterogeneity of preferences and the presence of information asymmetries, i.e., the possibility that the needs for public goods are better known at the local than at the central level. This section applies the trade-off between externalities and scale economies, on the one hand, and heterogeneity and information asymmetries, on the other, to three issues: (i) Should trade be "centralized" within regions, i.e., should neighboring nations bind themselves through trade agreements? (ii) Should macroeconomic policies be shared at the regional level? (iii) Is financial stability a regional public good? In all cases, policy actions are involved at the national, regional and international levels.

This theory assumes that governments at the local and central levels are benevolent in the sense that they aim to maximize the welfare of their citizens. This is a questionable assumption, of course, and recent work now analyses the principal-agent problem between citizens and their elected governments. Governments can be assumed to be ideologically biased, to care only about re-election, or to seek rents either for themselves or for segments of their electorates. This requires that the conclusions drawn from the traditional theory of fiscal federalism be adjusted. The effect depends on whether the political agency problem is more severe at the central or local level of government, and on the respective democratic institutions.

Trade

The standard presumption backed by much empirical evidence, but based on trade theories which do not always involve economies of scale, is that trade improves welfare and should be conducted on the largest possible scale. However, as European countries have realized, eliminating tariff and non-tariff barriers is not enough. Trade integration tends to weld markets across countries, and for competition to develop the field must be fully leveled. To that effect, market institutions (legislation and enforcement mechanisms, public procurement, standards, consumer protection, etc.) must also be harmonized. Market institutions are fundamental public goods. They facilitate transactions and provide clear guidelines and procedures to resolve disagreements. They not only constitute an externality, but they also generate economies of scale. The larger the geographical area covered by the same or compatible trade institutions, the more the gains from trade can be exploited. This implies that open trade and the related market institution public goods ought to be provided at the world level.

Does the theory of fiscal federalism suggest any mitigating factor? Information asymmetries are hard to imagine unless heterogeneity is important, resulting in particular trading patterns. This is unlikely to be the case among neighboring countries at similar stages of development and with seemingly similar trading patterns. The case for full trade centralization (the removal of trade barriers and the adoption of common market institutions) is strongest at the regional level. Indeed, the empirical trade literature shows that, ceteris paribus, trade is more extensive among geographically close countries and among countries that share a common language and colonial links.

What about non-benevolent governments? What may matter for trade is the idea that special interests are more powerful at the local level, leading to protectionism. Protection is best held in check with the largest possible agreements, at the world level. But support for widespread trade-enhancing measures is always thin. As long as political legitimacy remains at the national level, protectionist forces remain powerful and need to be accounted for. Deep trade integration, therefore, is likely to be better accepted where its impact is limited and does not affect easily organized groupings like whole industries. This, again, favors regional trade, which is less inter-industry and more intra-industry, and thus affects individual enterprises more than whole sectors.

Finally, should full integration be achieved through international agreements or through common institutions? GATT represents the agreement solution, while the World Trade Organization (WTO) incorporates significant elements of institution sharing. Establishing a level playing field is one step up from removing trade barriers, but the travails of the WTO suggest that additional global steps are unlikely in the foreseeable future.

Thus the debate is not one that pits regionalism against multilateralism, but rather deeper regional integration against nothing more than making the WTO work.

Macroeconomic Policies

Macroeconomic stability is a nationally provided public good. With variable degrees of success, national authorities use fiscal and monetary policies to deliver price stability and to smooth output and employment variability. This national public good is a source of international externalities. The huge literature on macroeconomic policy coordination provides details of the channels of interdependence and their size.

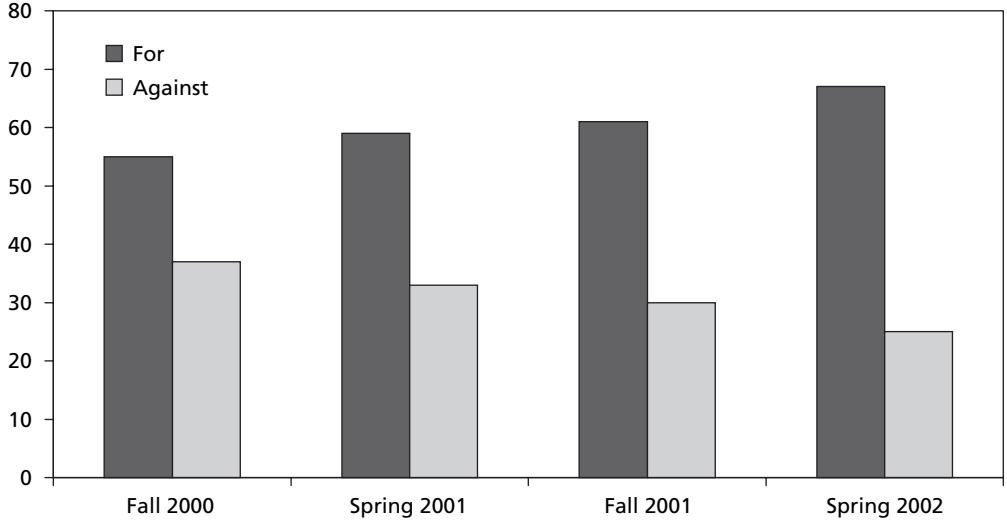
The main channels are income flows, capital flows and the exchange rate. Income flows operate through exports and imports. Imports are procyclical, which means that a country's expansion is positively transmitted to its trading partners. Macroeconomic policies work in the same way. This positive transmission can be helpful to partner countries if they are in the same cyclical position, but a nuisance when the cycles are asynchronous.

Private borrowing is procyclical, so it also brings monetary policy interdependence to the forefront. For instance, monetary expansion tends to weaken the exchange rate, which raises the country's competitiveness and boosts exports. This is a negative transmission, as it adversely affects the partner countries' competitiveness. The beggar-thy-neighbor characteristic of monetary policy has long been recognized as an important externality. The exchange rate also serves as a vehicle for the transmission of contagious crises, as has occurred repeatedly in recent years in cases such as the Tequila and Asian crises. This confers upon the exchange rate, and therefore monetary policy, the characteristic of an international public good. Indeed, the Bretton Woods agreements can be interpreted as recognition that exchange rate stability is a global public good that justifies the acceptance of limits to the unfettered use of the exchange rate.

The exchange rate also has some elements of increasing returns to scale. Money exhibits significant scale economies: the more widespread its acceptability, the more useful it is as a medium of exchange. Exchange rate stability between two currencies expands the usefulness of both by making them acceptable to residents of both countries. As stability increases, so does the mutual acceptability, the limit being a monetary union. This reasoning lies behind Mundell's (2000) celebrated advocacy of a single currency for the whole world. This is also the discovery currently being made by European citizens, as shown in Figure 7.1.

Important heterogeneities explain why the world is broken down into more than a hundred currencies. The optimum currency area literature is an attempt to better discuss

Figure 7.1. Acceptance of the Euro (Public opinion poll)
(In percent)



Source: Eurobarometer 57, July 2002.

heterogeneity. Sharing the same currency, or simply attempting to achieve a high degree of stability, totally or partially restricts the use of monetary policy. Asynchronized cyclical conditions must be dealt with in other ways. The key source of heterogeneity is the stickiness of national price levels. The lack of cross-border labor mobility implies that cyclical fluctuations must be met by socially painful and economically inefficient unemployment. This heterogeneity can be offset, at least partly, by trade integration that strengthens competitiveness and limits price stickiness.

In the end, in choosing the desirable degree of centralization of monetary policy in order to achieve exchange rate stability, one has to balance strong externalities and scale economies against strong heterogeneities. Trade integration increases the externalities and tends to reduce heterogeneity. As trade tends to be more intense at the regional level, it is also at this level that exchange rate stability should be pursued more actively.

What about the quality of government? In the area of monetary policy, central banks tend to be benevolent. Anchoring the exchange rate has been one way of countering political pressure, and sharing a central bank common to several countries powerfully furthers that goal. This supports aiming at exchange stability and centralizing monetary policy at a regional or world level.

Concerning fiscal policy, externalities are important and magnified by trade integration. Scale economies arise only for the redistributive function of fiscal policy, seen as

insurance against bad states of nature, hence the usefulness of risk diversification. On the other side, heterogeneity and information asymmetries are important. On balance, within a federal system, only some fiscal policy functions ought to be centralized. When applied to different nation states, there is little support for supra-national centralization. Democratic legitimacy and accountability further argue against centralization.

International Financial Stability and Crises

Financial instability is a nationally provided public good, yet it bypasses national borders, operating through the exchange rate and occasionally resulting in contagious crises. Exchange rate fluctuations and contagion are important externalities that make financial stability an international public good as well. This conclusion is reinforced by the presence of scale economies. Globalized financial markets offer better scope for risk diversification, enhancing returns to savers and better financing conditions to borrowers.

On the other hand, financial markets are characterized by significant heterogeneity and acute information asymmetries. Heterogeneity results from the varying degree of development of financial and banking institutions from one country to another. Information asymmetries are a defining characteristic of financial markets.

On the whole, there is a strong presumption that some degree of centralization is desirable, but full centralization is ruled out by heterogeneity—a temporary feature, perhaps—and unavoidable information asymmetries. This is probably why much of the collective effort to date has taken the form of establishing common standards for regulation and supervision. Interestingly, these efforts have so far been largely restricted to the relatively homogeneous advanced countries, such as those within the Basel Committee for Banking Supervision.

Crisis contagion often occurs regionally, as shown inter alia by Glick and Rose (1999) and Favero and Giavazzi (2002). This massive regional externality needs to be traded off against the asymmetric information problem. Because a high degree of policy coordination—including mutual support—can go a long way towards limiting contagion, financial stability qualifies as a regional public good, at least among countries where heterogeneity is limited, i.e., countries at a similar stage of development of their financial markets.

Political-economy considerations mostly work towards centralization. Regulators and supervisors are more likely to be captured by financial institutions at the local level. However, the establishment of a supra-national regulatory agency is bound to raise delicate questions of governance. The experience so far with supra-national governance is limited. The existing institutions, such as the IMF and the WTO, are dominated by a small number of developed countries. At the regional level, however, heterogeneity is less of a concern, and national dominance may be less problematic.

The European Experience

Since the late 1940s, European policymakers have taken for granted that broad regional cooperation is essential for peace and welfare. Trade integration was identified as the primary objective and exchange rate stability was taken as a necessary condition. These arguments are evaluated in the public good perspective.

Although the interwar history of devastating competitive devaluations left a profound impression, there was no solid empirical backing for the view that exchange rate variability hurts trade. However, recent work spurred by Rose (2000) is gradually providing evidence that exchange rate volatility can be an impediment to trade integration and growth.

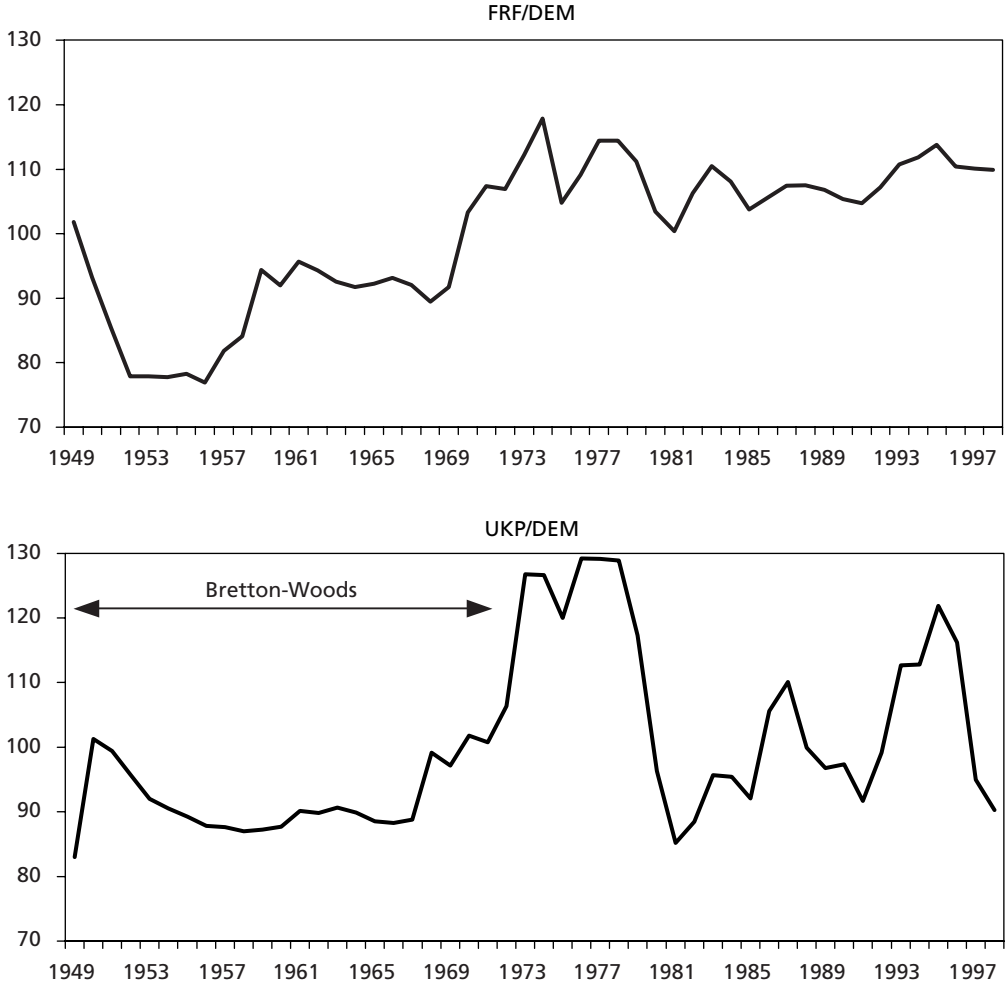
The European view has long been that regional trade integration requires a level playing field, which includes preventing real exchange rates from significantly departing from their equilibrium levels. In practice, the conclusion has been that the nominal exchange rate ought to be stabilized as much as possible, and that realignments ought to compensate for accumulated inflation differentials.

For a while, Europe's intra-regional exchange rate stability was indirectly provided by dollar pegs within the multilateral Bretton Woods system. There were concerns that the intra-European currency margins of fluctuations were double those vis-à-vis the U.S. dollar, but the Bretton Woods margins were narrow (1 percent). When in 1971 the margins were enlarged to 2.25 percent and doubts about the anchor value of the U.S. dollar grew, the Europeans started to explore a regional arrangement. Following the unsuccessful Snake arrangement, the dollar anchor was abandoned in 1973 and a regional exchange rate arrangement was agreed upon to bilaterally tie the European currencies to each other.

The lesson from the Snake episode had been that the defense of exchange rate arrangements could not be left to the responsibility of individual countries. In the face of determined speculative attacks, no individual central bank can mobilize sufficient resources. The European Monetary System (EMS), established in 1979, included automatic, unlimited mutual support and the centralization of decisions on exchange rate changes. The strengthening of the regional exchange rate arrangement was achieved through significant transfers of sovereignty. The system significantly stabilized real exchange rates. Figure 7.2 contrasts the bilateral real exchange rates of the French franc and the pound sterling vis-à-vis the deutschemark.

Over time, the deutschemark became the center of a system initially conceived as symmetric. De facto, all central banks gradually transferred their authority to the Bundesbank. With the end of all restrictions on capital movements in 1990, as mandated by the Single Act, realignments became all but impossible to manage. Monetary union was the only possible response, a symbolic step for all countries except Germany. A deal pro-

Figure 7.2. Real Bilateral Exchange Rates, 1949-98
(Index 100 = sample average)



Source: International Financial Statistics.

vided the breakthrough: Europe would agree to German unification following the collapse of the Berlin Wall, Germany would give up the deutschemark, and the new European Central Bank would be patterned after the Bundesbank. Later on, it was agreed to establish the European Central Bank (ECB) in Frankfurt, a short ride away for the Bundesbank.

For more than 40 years, capital controls had remained prevalent. The early motive was financial mercantilism, the desire that domestic savings finance domestic investment

and growth. It was progressively realized that these restrictions preserved some room for monetary policy independence, allowing each country to pursue its own inflationary path. The necessary exchange rate alignments were often foreseen by the markets, but speculative pressure remained (barely) manageable. The first realignments that followed the final removal of capital movement restrictions essentially destroyed the EMS in 1992-93. Two countries (Italy and the United Kingdom) left the system, and the others widened the margins of fluctuation to 15 percent around the central parity.

This sequencing stands in contrast to the rolling back of restrictions in many countries in Southeast Asia and Latin America. Trade agreements have been pursued, but there is no equivalent to the European Common Market. Exchange rate stability has been sought, but has always remained defined in terms of the U.S. dollar. Nowhere is a regional arrangement of the EMS variety to be found.

An important lesson is that trade, exchange rate stability, and financial stability are regional public goods that strengthen each other. Having designated trade early on as a regional public good, the Europeans faced increasing incentives to add exchange rate stability. They are now gradually discovering the need for regional financial stability, and will realize again that it too is a public good. Other regions grapple with exchange rate instability, but, having decided to provide the trade integration public good at the world level, they are disinclined towards searching for a regional solution. Sequencing thus matters crucially.

Role of Institutions

An important aspect of European integration is that it has relied on specific supranational institutions. The most visible are the European Commission and the European Central Bank, but there is also a European Court of Justice, a European Parliament, a Court of Auditors, a Committee of Regions, an Economic and Social Committee, a European Investment Bank and a Statistical Office.

Any transfer of sovereignty requires institutions to take over the associated tasks. For example, a customs union implies the common setting of external tariffs, negotiations with third parties, and the internal enforcement of free trade. Customs union members can deal with some of these tasks through coordination and detailed agreements, but that is an inefficient approach. In the presence of numerous conflicts of interest, coordination unavoidably fails to fully internalize the various trade-offs. Agreements cannot include all the contingencies, and the fixed costs of continuous negotiations are high.

It is far more efficient to delegate tasks to a specific institution. In Europe, the adoption of the Common Market was accompanied by the creation of the European Commission. Its powers have gradually been extended, and the commission currently enjoys a

substantial degree of autonomy and authority in such areas as competition policy and WTO negotiations. Similarly, the European System of Central Banks is the supranational monetary authority of the euro zone.

Economic integration is justified if it improves welfare, but it rarely is Pareto-improving. As a result, some interest groups are justified in opposing integrative steps. In addition, when integration leads to transfers of sovereignty, national governments have a tendency to resist losing some of their prerogatives. As a consequence, integration faces powerful opposition and needs powerful counterweights. Common institutions take over this function since any further integrative step raises their powers. The European Commission was deliberately conceived as an advocate of integration. In particular, it was given the monopoly in the preparation of pan-European legislation, an important agenda-setting role.

The relationship between the central institution and national governments or institutions is both cooperative (the general aim is collective welfare) and conflictual. Conflicts arise because of turf battles, of course, but also because the distribution of benefits and costs does not always fall equally across member countries. The conflicts often reflect political or ideological disagreements as well. The question that naturally arises then is, which institution speaks for the citizens? The national authorities are legitimate and democratically accountable. If the centralized institutions are to act as a meaningful partner, they also need to have their own source of legitimacy and be made accountable. This unavoidably leads to a move from initially narrow economic goals to deeper political integration.

Europe has indeed followed this gradual evolution. When the Common Market was launched, the commission was created as an international bureaucracy with no legitimacy of its own. Instead it was, and largely remains, directly accountable to member governments organized as "the Council." Over time, the role of the commission widened. As more countries joined, council deliberations have become increasingly unwieldy. Some competencies have been declared as "shared," in effect transferring authority to the commission. This is the case with most aspects of the internal market, covering areas such as competition and standards. The growing autonomy of the commission has led to complaints about its lack of accountability. As a counterweight, the European Parliament has been given more legitimacy (through direct elections) and power. Europe started with trade integration, moved on to monetary integration, and is now contemplating some degree of political integration.

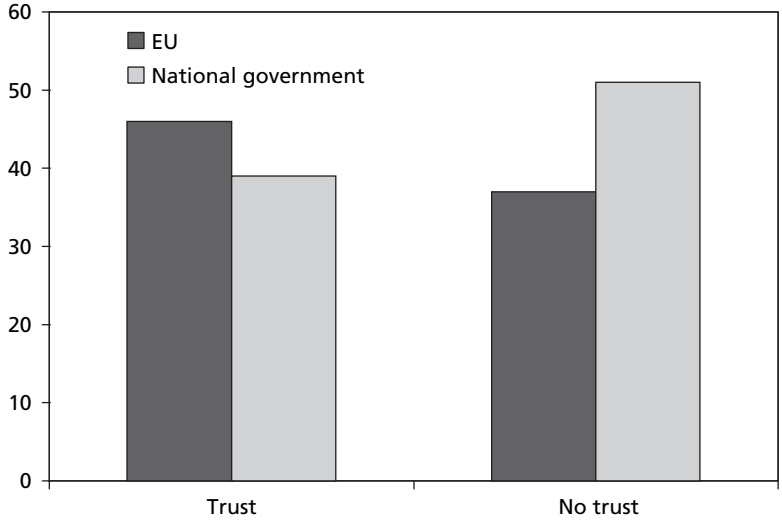
The early construction of a regional institution is important in view of two arguments spelled out earlier tin this chapter. First, the information and expertise gradually accumulated helps reduce information asymmetries where they are important. At the very least, the institution promotes the sharing of information hitherto considered of

purely national interest. Additionally, the institution builds up its own knowledge and understanding of national idiosyncrasies, enhancing the dynamics towards regional provision of public goods.

Second, the quality of government also matters. Absent common institutions, the only approach is inter-governmental. The European experience with this approach is that it becomes the locus of conflicts of national interests, resulting in negotiations characterized by painful and protracted conflicts. Absent common institutions, the provision of public goods is heavily tipped towards the national level. The European solution has been to start with a small commission, whose powers were limited and restricted enough to limit transfers of sovereignty. Once the commission proved its mettle, the debate started to shift. In many areas, the quality of government is now at least as good at the European level as it is at the national level. Figure 7.3 provides some evidence of public trust.

Both considerations apply to the international as well as to the regional level. In theory, there is no reason why international institutions could not perform the catalytic role of regional institutions. Good governance, however, is intimately linked to political legitimacy and accountability. Legitimacy, nowadays, is deeply rooted in sovereign nation-states, and Europe finds it nearly impossible to develop a sense of regional legitimacy. Under such conditions, transferring elements of sovereignty is a difficult and perilous ex-

Figure 7.3. Public Trust in European Union and National Institutions
(In percent)



Source: Eurobarometer 57, July 2002.

ercise that calls for some sense of commonality. Accountability then becomes essential. The European solution, no matter how unsatisfactory it is currently perceived to be, has been to keep accountability at the level of national governments, with a limited but increasing role for the European Parliament. It is essential, of course, that all countries involved be well-functioning democracies. Quite obviously, this is not a situation that can be matched at the world level.

How To Do It? Macroeconomic and Financial Integration

There are many roads toward regional integration. Europe's own process is not the outcome of a carefully planned path. Indeed one crucial aspect of European regional integration is that it has proceeded opportunistically in steps. This pragmatic and at times messy evolution has been crucial. This section examines some of the principles concerning macroeconomic and financial regional integration.

At the regional level, stabilization of intra-regional bilateral exchange rates can be achieved in a number of ways. The first decision is whether to use external or internal pegs. External pegging means that, when each of the regional currencies is pegged to the same third currency, bilateral stability is indirect. The main advantage is that no formal transfer of sovereignty is required. Most countries have used this approach. There are three disadvantages, however:

- Absent a world international monetary system of the Bretton Woods type, the major currencies tend to fluctuate widely. If regional trade is significant, this can be a nuisance, as has been the case in Latin America and Southeast Asia. One solution is to adopt a basket peg. Simulations for the case of Southeast Asia (Wyplosz, 2002a) show that a common basket peg provides a high degree of intra-regional exchange rate stability. However, national baskets significantly reduce the regional readability of the arrangement, which may have a nontrivial impact on trade integration.
- Pegging to a major currency or to a basket is a unilateral move undertaken separately by each country, even if it is coordinated. As a result, individual monetary authorities are left alone to face exchange market pressure. Given the size of private capital flows, defending a peg can be extremely difficult. Failure by one country can then trigger contagious attacks that will unravel the whole undertaking, leaving lasting scars behind. The solution, contemplated in Asia via the Chiang Mai initiative, is to pool some or all of the national foreign exchange reserves. Absent capital controls, there is no reason to believe that this will gener-

ally be sufficient to uphold the arrangement. Capital controls can raise the odds of a successful defense, but only to a limited extent.

- External pegging does not naturally lead to further evolutionary steps. Indeed, its hub-and-spoke characteristic is structurally oriented and dependent upon the center currency. In addition, individual external pegging does not require the setting up of an institution that could become the root of a more ambitious regional arrangement.

Internal pegging means that all the currencies of the region jointly peg to each other and then manage (or not) their common exchange rate vis-à-vis third currencies. They can either adopt consistent bilateral pegs, such as the EMS matrix, or they can peg to a common basket of all currencies party to the agreement. The difference is mostly cosmetic and symbolic. Such an arrangement has some important advantages:

- Internal pegging calls for supporting decisions. The responsibility for intervening in support of the parities must be specified ex ante. This implies agreeing on a rule—but who makes it?—and on sharing the costs. The intervention rules represent a significant cooperative step that can be deepened if desired, for example by extending the volume and nature (multilateral instead of bilateral) of mutual support.
- Intervention does not have to be carried out on third currencies. This is important, since, by definition, foreign reserves are finite, so any defense can be overrun by a determined speculative attack. If intervention is carried out with member currencies, the supply of the momentarily strong currency can be expended until speculation gives up. In addition, the need to accumulate and hold foreign currency reserves is reduced, and could be eliminated.
- The degree of regional stabilization can be chosen when setting the width of the margins of fluctuation. It does not depend anymore on third currency movements.
- The member countries can decide jointly how they manage their parities vis-à-vis third countries.

There are disadvantages as well to internal pegging:

- The implied mutual commitment requires reassurance that no country will attempt to free ride. Absent any formal agreement on mutual surveillance, there is a serious risk that conflicts might degenerate into disintegration, rather than integration.

- Fixed exchange rate arrangements are notoriously fragile and open to speculative attacks. One approach is to disinvite as much as possible speculative activity by imposing market-friendly costs on short-term capital movements, of the Chilean *encaje* variety. Another approach is to frame the exchange rate arrangement into a longer-term monetary union project. None of these approaches will guarantee a smooth ride, but jointly they may reduce the incidence of speculative attacks.

A variant of external pegging is the adoption of a foreign currency—the dollar, the euro, or any other major currency. If all the countries adopt the same foreign currency, they achieve a de facto currency union. Like external pegging, it is a roundabout approach. The obvious key advantage is complete stabilization of regional exchange rates. It is also considered an extremely robust peg. Dollarization does not come free, however. A first disadvantage is that the region's exchange rate is determined by foreign economic and political conditions. This is of limited consequence if trade and financial relations are mainly within the region and with the anchor-currency country. A second, minor disadvantage is the loss of seigniorage. More serious is the loss of the lender of last resort function. The central bank (or the treasury) can only intervene to the extent that it holds reserves, which would have to be quite considerable.

Is dollarization robust? Few countries of any significance are dollarized or euroized. So far at least no dollarized system has caved in, but the sudden collapse of the Argentine currency board is a reminder that no exchange rate system is unassailable. Where speculation fails, acute popular discontent fueled by economic hardship can deliver a fatal blow. Nor can regional contagion be ruled out either.

The view that dollarization is a natural solution when the economy is de facto deeply dollarized is fallacious. The existence of a national currency provides the authorities with an important instrument to deal with such contingencies as bank crises, fiscal difficulties or even adverse economic shocks. As long as public spending is carried out even partially in the local currency, which remains legal tender, monetary policy has a role to play. Like any instrument, it can be misused, but that does not mean that it should be given up simply because the economy is dollarized.

Regional Fiscal Policy Cooperation

Does the presence of deep monetary cooperation reverse the conclusion that the case for centralizing fiscal policy at the international level is weak? In the European Monetary Union, fiscal policies remain fully a national prerogative, but they are subject to an excessive deficit procedure. The motivation is that unsustainable debt in one country may affect the common currency or the common interest rate. There are also fears that the

union might be blackmailed into bailing out a government that is about to default on its debt. The Stability Pact does not regionalize fiscal policy but relies on a combination of peer pressure and fines to limit national budget deficits below the ceiling of 3 percent of GDP.

The transfer of fiscal policy sovereignty is difficult because it is not just a macroeconomic instrument. Taxation and public spending are structural and redistributive measures, with limited regional externalities, and with considerable information asymmetries and heterogeneity of preferences. Yet, monetary integration increases the macroeconomic externalities of fiscal policy. Federal countries, seen as monetary unions, typically impose severe restrictions on subnational fiscal policies and operate a sizeable federal budget.

Could fiscal policy cooperation act as a substitute? It is difficult to implement, because national decisions are the outcome of a politically complex interplay between the government and the parliament. Adding a new, international layer to the exercise further raises the level of political complexity. This is why attempts at cooperation typically only deal with the budget deficit or the public debt. This is the case of the Stability Pact in Europe and of budgetary limits on subnational governments in federal states.

The approach so far has been to adopt fiscal rules. Rules work reasonably well in federations where the political legitimacy is shared between the federal and sub-federal levels. Early appraisal of the European Monetary Union is not too encouraging. Rules are inevitably arbitrary and therefore lack legitimacy as well as adaptability to unexpected contingencies. Another approach, so far never implemented, would be to adopt national level institutions established along commonly accepted norms. Independent, apolitical committees could be given the task of achieving debt sustainability and entrusted with the decision to set annual deficits, much as central banks are given the task of price stability and entrusted with the decision to set interest rates.

Institutional Design

As previously noted, regional integration calls for the creation of one or more regional institutions that are the recipients of the executive powers transferred from the national level. The design of such institutions raises many complex issues.

A first question is whether the tasks that are explicitly recognized as regional ought to be dealt with by committees representing the national governments or transferred to a supra-national institution. The first solution limits the need for a formal transfer of sovereignty and is therefore politically easier. However, it calls for clear rules for decision-making. In order to formally preserve sovereignty, decisions need to be unanimous, but unanimous decision-making is highly inefficient as it opens the way to hold-up, when a single country blocks important decisions for the sake of extracting concessions elsewhere.

Second, should several regional institutions be created as individual tasks, or should one single institution be given responsibilities for all regional tasks? The single institution solution creates an increasingly powerful advocate for regionalization. As its powers grow, so does the potential for conflict with national governments and the need for accountability and control. A patchwork of institutions, on the other hand, creates the risk of turf battles and may cloud the need for accountability and control. Europe has largely relied on a single institution, the Brussels-based commission.

Implications at the International Level

This section examines the implications for the global monetary system—currently structured to a large extent around the concept of multilateralism—if the nations of the world were to evolve into a number of regional agreements, some with full-blown monetary unions and others with coordinated exchange rate systems.

Over the last three decades, there have been a number of fast-paced currency crises, often contagious and driven by regional trade links (Bordo et al., 2001; Glick and Rose, 1999). The challenge is to reduce the incidence of such crises and contagion while deepening welfare-enhancing trade integration. Since trade can and will likely continue to develop along regional (as well as language and cultural) lines, collective crisis containment should start at the regional level.

This line of reasoning runs against the "two-corner solutions" view that the only robust regimes are the extremes of free floats or hard pegs. This view is gradually losing support—mounting evidence of "fear of floating" indicates that most emerging market countries do not see pure floating as a desirable solution. Furthermore, hard pegs are considered more vulnerable since the collapse of the Argentine currency board. Dollarization and euroization would be the only remaining hard pegs, but the few existing experiments remain to be tested. Finally, the "two-corner solution" ignores regional arrangements.

Regional soft pegging along the lines of the European Monetary System is an interesting intermediate solution. Another one in the spirit of the "two-corner solution" is regional currency unions that freely float vis-à-vis the major currencies. Europe adopted the two regional solutions, one after the other.

Capital liberalization may enhance growth and welfare in the long run, but it also often contributes to devastating crises. This suggests that the debate on capital liberalization should not be whether but *when* to open the capital account. The answer must account for the exchange rate regime. The "two-corner solution" view assumes that capital flows are liberalized. Once this assumption is challenged, the terms of the debate shift.

If the main external economic policy objective is trade integration with a significant regional component, exchange rate stability should take precedence over capital liberal-

ization. Regional arrangements that fall short of a currency union need to be backed by all available means, provided they are not a source of serious distortions. The experience with the European Monetary System is that capital controls provide the temporary breathing space required to deal with realignments and (moderate) speculative pressure without imposing serious distortions.

As an institution structurally committed to multilateralism, the International Monetary Fund accepts but does not actively encourage regional arrangements such as the European Monetary System. Its view remains largely that flexible exchange rates offer not only the best protection against crises, but that they also act as a gauge of the quality of economic policies.

In general, the IMF does not actively take positions on exchange rate regimes, except for mild support for floating rates. An untold part of the reason is that it does not want to bear the blame in the event the advice turns out to have been misguided. Since pegged regimes are known to have a limited lifespan, prudence indeed recommends that they not be endorsed. At the same time, since most countries are unwilling to let their exchange rates float freely, the IMF's position leaves open a crucial policy choice.

The IMF should seriously consider openly advocating regional exchange rate arrangements. Its position is important because regional politics often make it difficult, if not impossible, for an initiative to emerge. The largest countries are the only ones that can take an initiative, as France and Germany did in Europe. But they are often suspected by their would-be partners of having regional ambitions. Such is the case in Southeast Asia, where the China-Japan rivalry and lingering animosity towards Japan effectively block any mildly ambitious regional project. This is also the case in Latin America because of the traditional rivalry between Argentina and Brazil. A neutral player might make a big difference. The United States is unwilling to play this role, partly because it seems ideologically opposed to regional arrangements, and partly because multilateralism effectively supports the dominating role of the dollar.

Conclusions

Europe's path to deep regional integration has put trade integration in the front seat of world priorities. The associated quest for regional exchange rate stability eventually led to a monetary union. This logic is not dependent on any European specificity. Trade is both an international and regional public good. Important heterogeneities prevent provision of this public good at the world level through a complete removal of trade barriers. Regional heterogeneities are considerably less pronounced and justify the proliferation of regional trade arrangements.

Deep trade integration calls for a level playing field, which in turn requires reasonably stable real exchange rates. Regional monetary and financial integration naturally accompany trade integration. Surprisingly, when considering which exchange rate regime to adopt, most countries seem to take as given that the anchor has to be external—one of the international currencies. Soon after the collapse of the Bretton Woods system, Europe ditched the dollar and has instead focused on stabilizing regional bilateral exchange rates.

The crucial requirement, often overlooked, is the need to build institutions that underpin the integration process. Integration amounts to sharing some components of sovereignty, so some arrangement must be found to deal with these shared tasks. This can be done through ongoing negotiations or through the transfer of these tasks to supranational institutions. Europe has adopted the latter, and this is where its uniqueness lies.

Outside Europe, some other regions have made some progress towards institution building. The regional development banks have played a positive role in promoting both a sense of regional solidarity and policies that aim at providing regional public goods. For instance, the Asian Development Bank has supported the Chiang Mai initiative and continues to explore ways of achieving more regional exchange rate stability. The idea of an Asian Monetary Fund, briefly promoted during the Southeast Asian crisis, may have had some flaws, but the aim of providing alternative policy choices remains valid, as forcefully advocated by Cook and Sachs (1999). On the other side of the world, the Inter-American Development encourages integrating the regional dimension in national development strategies. Importantly, these institutions provide an alternative to the Washington consensus, the dominant blueprint promoted by the international institutions.

The required transfer of competencies raises the issue of legitimacy and accountability. Where citizens strongly identify legitimacy for collective actions with the nation-state, a supranational institution faces serious odds. Europe's approach has been a very slow buildup of the commission, which has evolved over 40 years from a bureaucracy with little legitimacy to a major player. It is now in need of even greater legitimacy and accountability, as Europe's further integrative steps will involve political arrangements. Most regions currently investigating the European model need to ponder the logical link from trade to money and finance, and then to political institutions.

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CHAPTER 8

Trade and Cooperation: A Regional Public Goods Approach

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Cooperation involves voluntary coordination of policy between two or more associates to extract mutual benefits that are more costly, or impossible, to achieve through unilateral action. Cooperation requires some form of subordination of the participant's sovereignty to the collective interest. When related to governments, cooperation can occur at any level, ranging from municipalities and districts to central governments.

Cooperation is the basis for the generation of public goods. Pure public goods share characteristics of non-rivalry and nonexclusivity, while impure public goods reflect different degrees of erosion of these qualities.[1] The classic public goods literature was implicitly oriented to individual nations producing national public goods. Broadening the concept, there was increasing analysis in the post-war era of global public goods. These emerged to deal with a broad range of international problems arising from the growing interdependencies in the world economy; if let to fester without cooperation they could have negative spillovers for a broad range of nations, and indeed in the extreme could be the source of calamities such as economic depressions or world wars.

Regional cooperation can lead to the provision of regional public goods. The benefits or spillovers of national public goods remain primarily within national borders, while in the case of global goods the benefits or spillovers extend to all nations. In between these two levels of public goods are regional public goods, which have a range of spillovers that are less equivocal, affecting a geographically demarcated area embracing more than one country. This is the base concept of "region" that is used in this chapter (Stalgren, 2000). The configuration can be as small as two neighboring countries, or expanded to a subregion such as Central America or even to a continent such as South America.[2]

However, according to other authors (Arce and Sandler, 2002), a region can also be defined in a broader sense, that is, a territorial subsystem of the global system, whose basis

[1] See Arce and Sandler (2002) for a full typology that ranges from pure public goods to so-called club goods that exhibit a high degree of exclusivity.

[2] What is generally referred to as "Latin American regional cooperation" traditionally extends further to include Central America and Mexico.

might be a combination of the forces of economics, politics or culture. This situation—interregional cooperation—can produce cooperation between parties that traditionally have been considered part of different regions. Such cooperation—particularly the North-South and South-South variants—shares many of the features, and hence policy recommendations, of regional cooperation. Moreover, in the discussion of regionalism, the variant of interregionalism is gaining an increasing profile. For these reasons, interregionalism will be absorbed into our concept of regional public goods.

In any event, an intensifying process of globalization over the past two decades has been paralleled in recent years by growing regionalization. There has been a spectacular rise of regional and bilateral trade agreements in most areas of the globe. In Latin America, a myriad of new trade agreements have blanketed the whole region, including all countries and almost all possible combinations among them. This trend is true for Europe as well, with the consolidation of the monetary union and the rapid expansion to incorporate Eastern European countries. In Asia and Africa, there has also been a renewed interest in pursuing policies to promote regional integration.

At the same time, there has been a growing interest in interregional cooperation. The North-North variety between industrialized economies has a rich post-war tradition. South-South interregional cooperation also has important precedents. But the most dynamic phenomenon in recent years has been of the North-South variety. This has involved mechanisms for free trade as well as cooperation in such areas as preserving the environment, building transnational infrastructure networks, eradicating cross-border diseases, promoting research networks, and establishing collective regulatory frameworks or standards in different areas of economic policymaking.

This chapter provides a framework for understanding the dynamics of expanding regionalism and the generation of regional public goods at a time when multilateralism is facing major difficulties in advancing many agendas. The chapter studies the relationship between trade and integration agreements and other regional cooperation agreements, and connects at least three important bodies of literature: (i) recent economic and trade literature on the new regionalism; (ii) political theories of international cooperation; and (iii) public choice literature related to the provision of public goods on a regional scale (regional public goods).

By building on these different approaches, the chapter attempts to provide an enriched framework for understanding the explosion of interest in regional issues. The analysis goes beyond the traditional textbook explanations of economic integration, and is highly influenced by the development of the European model of integration in the post-war period as well as the initiatives that followed this model in the developing world.

The traditional thinking on regional integration has been mostly restricted to a linear-stages approach, in which a group of countries form a simple free trade agreement

and then progressively move towards deeper forms of economic integration. These include forming a customs union, establishing a common market, and, finally, moving towards a full-fledged economic union, including monetary unification. In this context, other forms of cooperation are for the most part ancillary aspects to this process. However, regional integration agreements today are becoming a key instrument for responding to and managing the increasingly autonomous forces of globalization and technological change that have greatly accelerated cross-border exchange and externalities. This is being achieved by including comprehensive non-commercial forms of cooperation for the generation of regional public goods as an integral part of the policies of regionalism.

Optimal provision of regional public goods, due to its "public" nature, requires formal frameworks for regional cooperation such as a regional cooperation agreement. This chapter argues, however, that incentives for cooperation in providing regional public goods are greater when there are strong economic incentives and commercial interests in place, such as the implementation of trade integration agreements. In this framework, trade integration and cooperation are endogenous components and integral parts of the same process.

Why the Growing Interest in Regional Cooperation?

The forces of globalization are not new—they have their roots in the very development of the capitalist system of production, and have been pushed forward by a combination of autonomous technological change and policy reform (Taylor, 2003; Oman, 1998). These forces were renewed after the Great Depression and have assumed an accelerating pace over the last 25 years. More recently, the centrifugal forces of globalization have been paralleled by the seemingly contradictory centripetal dynamics of regionalization. This is mirrored in world trade and investment. For instance, two-thirds of the trade of European goods is with European countries, while the figures for North America and the Asian-Pacific area are of the order of 60 percent and 40 percent, respectively.

The same forces that are driving globalization are also driving regionalization, i.e., technological change and policy. Microeconomic productive forces have altered the traditional opportunities of economies of scale and scope in many sectors. Hence, while multinational corporations pursue global strategies and face global competition, sourcing of production is often regionalized in order to articulate certain inputs and demand (Oman, 1998). Meanwhile, countries are pursuing de jure regionalization through policies that promote free trade areas and common markets. Latin America is a good example: more than 20 regional integration agreements emerged among these countries in the 1990s, ranging form bilateral free trade areas to customs unions with ambitions of be-

coming common markets. Indeed, today more than 50 percent of world trade passes through a regional integration agreement, and China is the only country in the world that is not a member of at least one such agreement.

The policy motivation for regionalism is usually complex. For instance, the new interest of developing countries in regionalism reflects multiple objectives, ranging from more secure market access, creating platforms for export diversification and greater competitiveness, reinforcing structural reforms, attracting foreign direct investment, and geopolitical considerations (Devlin and Estevadeordal, 2001; IDB, 2002).[3]

Interregional cooperation also has very complex forces driving it, and many such agreements also converge around the dual forces of globalization and regionalization. Focusing on the North-South type, which has displayed the most dynamism in recent years, the motivations of industrialized countries include the altruistic intent of promoting economic development and the promise of a more stable, prosperous and equitable world. But industrialized countries also use interregional cooperation to better position themselves in the global competition for world markets (often channeled through regional blocs), as well as to exercise political and cultural influence and tackle interregional problems. As an example, the Caribbean Basin Initiative and North American Free Trade Agreement (NAFTA) have not only been instrumental in greatly diversifying the exports of Central America, the Caribbean and Mexico, but through rules of origin have also served as a vertical production platform to lower costs and allow U.S. firms to better compete internationally. Likewise, new export opportunities have created employment and presumably assuaged pressures to illegally migrate north. The creation of NAFTA also was used by the United States to influence the directions of negotiations in the Uruguay Round. More generally, bilateral economic agreements between the industrialized and developing countries inevitably place their individual "footprint" on local market rules, which in an accumulated way can influence the direction of global rules.

Meanwhile, developing countries have pursued interregional cooperation with industrialized countries in large measure to obtain more secure and better access to their major export markets, modernize their institutions, lock-in structural reforms, attract foreign direct investment (especially from the Northern partner), reduce residual trade diversion in their subregional agreements, and secure technical and financial assistance

[3] It also is interesting to note the interplay between regionalization and the multilateral trading system. Obstacles to trade can be simply summarized in geography (distance) and formal trade barriers. While the GATT and WTO, coupled with unilateral liberalization, have successively reduced trade barriers, the pull of geography and proximity have increasingly influenced world trade and investment patterns (Ethier, 1998). Meanwhile, many multilateral firms want deep liberalization to support their global strategies, and they can see that the relatively homogeneous environment of regional cooperation offers more prospects for this than the heterogeneous, 140-plus nation membership of the WTO (Oman, 1998).

(IDB, 2002). What South-South interregional cooperation that does exist seems to largely follow the traditional motivation of joining together to leverage bargaining power in international forums, although there is an emerging bilateral commercial interest reflected in the recent Chile-South Korea free trade agreement and in Brazilian initiatives to liberalize trade with India.

The Technology of Regional Cooperation

This chapter uses the concepts of "regional cooperation agreements" and "regional public goods" somewhat interchangeably. However, an objective is to establish a functional relationship between the general concept of regional cooperation and a particular subset of cooperation agreements. Hence, it is useful to conceptually view regional public goods as an "output" of regional cooperation agreements. This is because a theory behind regional cooperation agreements can be separated from the study of particular technologies associated with different types of regional public goods. Moreover, the distinction is also useful from an empirical point of view, since it is difficult to evaluate the effectiveness of cooperation agreements independently of their content, which can vary from virtually nothing more than symbolism to actions of a very profound nature. In effect, outputs and, hence, relevance can be measured on the basis of the amount, quality and effectiveness of specific regional public goods provided by a cooperation agreement.

This chapter defines regional public goods as transnational public goods whose non-rivalry and nonexclusive properties extend beyond national borders, but are contained in a well-defined set of states or a geographical region. Examples might include cleaning up a lake; creating a transnational park; preserving a rain forest; preventing or mitigating natural disasters; reducing acid rain; building power grids and other energy projects; establishing airport hub-spoke networks; building transportation infrastructure; combating transnational diseases; carrying out agricultural and other research; designing policy standards or coordination in financial, macroeconomic, labor and other sectors; and holding information and exchange programs. A formal regional integration agreement such as a free trade area or a customs union should also be considered as another type of regional public good.

The "C" Technology

In the literature on international relations, the concept of cooperation between states is defined as the mutual adjustment of state policies to achieve outcomes that all prefer to the status quo (Keohane, 1984). Thus, any conscious policy coordination is considered

cooperation. To narrow it down, one should add that this coordination should, as mentioned earlier, be voluntary, as well as necessary for the extraction of mutual benefits for all participants. As noted earlier, cooperation also requires some form of subordination of the members' sovereignty to the interests of the group. This subordination of internal interests is always associated with some costs to participants. But the benefits of cooperation are somewhat uncertain. At the outset this is due to asymmetric information, commitment issues, etc., and more generally because outputs usually are not fully internalized. This causes an undersupply of interregional cooperative action, but it is also why regional cooperation can be regarded as a public good.

The generation of regional public goods, as in the case of almost any public good, is initially reliant on a process of negotiations, as parties search to identify benefits, costs, mutual interests, distributional effects and the credibility of commitments. The actual coordination of individual actions takes place through agreements, which make the cooperative effort binding. The role of institutional mechanisms (formal or intergovernmental) is to provide a reliable vehicle for negotiation—which helps compensate for the market failure that inhibits discovery of mutual advantages—and to provide support and formal commitment to the agreed cooperation.

Institutional mechanisms help states remove barriers—or market failures—to mutually advantageous collective action, primarily by providing information about the preferences, intentions and behavior of the actors and collective support.

The outcomes of strategic interaction depend on many factors that characterize a given situation. To a large extent, the size and the relative power of the participating states determine the cooperative solution. This is true in all cooperative arrangements, but is an especially important dimension of North-South interregional cooperation, due to the very asymmetric power between the parties. Indeed, if not managed in the interest of creating a public good, North-South interregional cooperation could easily degenerate into interregional coercion.

Another important feature is the existence of focal points, which can serve as an equilibrium that for one reason or another may seem "obvious" to the players. The players' cultural background and past experiences are important in establishing focal points. In this context, strict regional public goods may be easier to produce than interregional public goods, and both may be easier to generate than global public goods as the cultural or historical divide progressively enlarges. Institutions can broker the interregional divide to promote cooperation. The Tripartite Committee—made up of the Organization of American States (OAS), the UN Economic Commission for Latin America and the Caribbean (ECLAC) and the Inter-American Development Bank (IDB)—is playing this role in certain elements of cooperative efforts in the Western Hemisphere.

Institutional mechanisms function in the domain of either "hard" or "soft" laws. The former refers to a legal framework that produces formal protocols, accords and treaties, which have to be ratified by the members to become legally binding. An example of such a structure is the European Union's Association Agreements. Soft laws, on the other hand, do not build on a legal framework. In this case, coordinated action is achieved though informal communications and notes among members. The G-7 forum is one such arrangement.

Special consideration should be given to the issue of enforcing regional agreements. The agreements have to be self-enforcing, or designed in such a way that participants choose to comply with requirements voluntarily; i.e., they must have the political will to preserve collective agreement. This view departs from a more idealized notion of cooperation that assumes a certain dose of altruism in the players' behavior. The modern theories of international cooperation (also applicable to regional initiatives) assume not only that the states act in their self-interest, but also that these interests are conflicting and complementary (Kaul, Grunberg and Stern, 1999). For example, because of their political will to preserve and advance European integration, Germany and France forge many agreements for the EU that involve tradeoffs between conflicting and complementary interests. That political will is facilitated by institutional support mechanisms in the EU that encourage compromise solutions, but in the end, each nation's self-enforcement and political drive are necessary, because in many cases no regional institutional authority will have enough power to punish the deviator, and there are no mechanisms to prevent the parties from simply breaking agreements that they find are not beneficial. (Witness, for example, the difficulty the European Commission has enforcing the EU's fiscal deficit rules.) However, in North-South cooperation, the Northern partner wields a powerful potential threat of unilateral commercial or political sanctions.

Finally, there is an important difference between global or regional cooperation and its interregional dimension. North-South agreements invariably embody a type of cooperative action, where special attention is given to development. Hence, the donor-recipient model has traditionally shaped such relations, although, as will be seen below, there has been greater reliance more recently on reciprocal arrangements.

The "T" Technology

Preferential trade agreements (T) have long been a central component of transnational cooperation, both at the strictly regional (e.g., the Latin American Integration Association-ALADI) and interregional levels, especially of the North-South type (e.g., General System of Preferences, Caribbean Basin Initiative, Lomé Convention). But the traditional ap-

proaches to preferential trade have been undergoing radical changes. Indeed, changes in the national and regional economic policies of developing countries have undoubtedly contributed to notable modifications of regional cooperation, so much so that it can be considered a new "technology" for designing regional trade and integration agreements.

To begin the story, the regionalism underpinned by preferential trade that emerged around the world in the 1990s is clearly a new type vis-à-vis early post-war experiences. Latin America and the Caribbean in many ways have led the recent trends. This "new regionalism" in Latin America (Ethier, 1998; Devlin and Estevadeordal, 2001) has been much more than just a rebirth of integration initiatives after the collapse of the region's traditional post-war schemes during the crisis years of the 1980s. The greatest difference between the two periods was the policy environment that the new integration initiatives were designed to support. The policy framework encircling the "old" post-war regionalism involved an inward-looking, protectionist and state-led import substitution strategy (often in the context of authoritarian regimes). The new regionalism, however, is inserted into a framework of policy reform that promotes open and competitive private market-based economies in a modern democratic institutional setting. Two dimensions of the new technology in signing regional agreements stand out: the depth of regional integration agreements in terms of their content and the choice of partners.

The change in the global policy framework contributed to a fundamental change in the modalities and instruments of regional integration. Liberalization of the regional market has paralleled a dramatic reduction of external protection. The traditional laborious positive lists for regional trade liberalization were abandoned in exchange for automatic schedules to liberalize trade with limited negative lists. Free trade objectives have gone beyond traditional liberalization in goods to incorporate so-called new issues such as services, investment, intellectual property, and dispute settlement mechanisms. Moreover, all Latin American countries today have become members of the GATT/WTO, and hence trade and regionalism itself are subject to multilateral rules.

But perhaps the most dramatic change has been the addition of a new dimension to the strategy: since the mid-1990s countries have increasingly added to their strictly "Southern" regional trade agreements a growing network of North-South interregional agreements with cutting-edge and second-generation free trade areas (see Table 8.1). The shift means that developing countries are attempting to link up commercially with industrialized countries in reciprocal free trade (in contrast to the traditional non-reciprocal relationships). This is something that would have been politically inconceivable, at least for Latin America, before the new policy framework. A similar trend is taking place in Asia and Africa.

A complementary phenomenon is the strategic dimension of sequentially negotiating bilateral free trade agreements that are part of a "hub and spoke" strategy by indi-

Table 8.1. Free Trade/Customs Union Agreements in Latin America and the Caribbean

Agreement	Entry Into force
Intra-regional	
Central American Common Market (CACM)*	1960
Andean Community*	1969
Caribbean Community (CARICOM)*	1973
Southern Cone Common Market (Mercosur)	1991
Costa Rica-Mexico	1995
Group of Three (G-3)	1995
Bolivia-Mexico	1995
Chile-Mercosur	1996
Bolivia-Mercosur	1997
Mexico-Nicaragua	1998
Chile-Peru	1998
Chile-Mexico	1999
Mexico-Northern Triangle of Central America	2000
CARICOM-Dominican Republic	2000
Panama-El Salvador	2002
Central America-Chile	2002
Central America-Dominican Republic	2002
North-South	
North American Free Trade Agreement (NAFTA)	1994
Canada-Chile	1997
Mexico-European Union	2000
Mexico-EFTA	2001
Costa Rica-Canada	2002
Chile-United States	2003
Chile-European Union	2003
Chile-EFTA	2004**
Central America-United States	2004**
Mexico-Japan	2004**

* Relaunched in the 1990s.
** Awaiting ratification.
Source: IDB Integration and Regional Programs Department.

vidual countries or subregional blocs. The combinations are multiple, from South-South and bloc strategies like those found now in Mercosur, to South-South-North hub and spoke strategies as in the case of Mexico, Chile or the EU. The ongoing negotiation of the Free Trade Area of the Americas (FTAA) and Asia-Pacific Economic Cooperation (APEC) are examples of other approaches. The failure of the Cancún Ministerial to advance the Doha Development Agenda may intensify these trends.

Modalities of a Joint Technology: The "T and C Nexus"

Taking (T) as trade-related regional cooperation and (C) as non-trade regional cooperation, this section provides an overview on how the T and C technologies have been com-

bined in practice based on the following typology: (i) trade alone [T]; (ii) cooperation alone [C]; (iii) trade and cooperation jointly but as separate processes [T + C]; (iv) trade and cooperation together in a single and integrated process [T & C]; (v) trade precedes cooperation [T -> C (or T + C)]; and (vi) cooperation precedes trade [C -> T (or C + T)].[4]

While trade liberalization and non-trade cooperation can evolve independently, in many cases the two components are closely related. One would expect that when economic integration is launched with the far-reaching objective of a common market (common external tariffs and free movement of the factors of production) or more, the agreement will not only anticipate regional free trade, but also systematic cooperation in trade-related and non-trade areas, thus creating an integrated "trade and cooperation nexus" (T & C). This approach may save costs associated with negotiations, as well as with the development and administration of the cooperation programs, and can tap positive synergies among different areas of cooperation. However, it also entails the risk of getting bogged down with a large number of complex issues that limit advancement of the overall project.

Meanwhile, a strictly "business only" free trade area may more quickly capture the mutual interest of the parties, and serve in practice as a solid beachhead for more comprehensive future cooperation. In effect, as trade successfully deepens, a trade-based model without any systemic plans for cooperation beyond the free trade itself may later create endogenous incentives for incorporating broader cooperation into the agreement. These elements may be just trade-related, at first, but they could later expand into non-trade areas. In this scenario, the relationship evolves from trade (T) to a trade and cooperation nexus [(T) · (T + C) or (T & C)].

Another model involves agreements where an initial framework of cooperation only (C) predominates in economic or noneconomic areas. Expanding cooperation on different fronts can break down informational barriers and create a reputation for commitment. Broader opportunities can be more easily identified. This can reach a point where externalities or exogenous events eventually highlight the benefits of launching a formal trade and integration agreement, creating a trade and cooperation nexus [C · (T & C)].

It is possible that the agreement produced in the course of negotiations could end up being more deep or shallow than the parties initially intended. On the other hand, a protracted negotiation period may produce a series of agreements that replace or supplement one another. With many issues on the negotiating table that are sometimes in conflict, it is not surprising that although they have a particular agreement design in mind, negotiators are sometimes forced to take a step back and change some of the in-

[4] A more detailed analysis of this typology, applied more generally to all types of regional and interregional cooperation can be found in Devlin, Estevadeordal and Krivonos (2002).

tended components of the agreement. Hence, if a unified approach [T & C] is anticipated, it may become necessary to negotiate one part of the agreement at a time, perhaps starting with trade and moving later towards a more complex trade and cooperation nexus.

An overview of post-war initiatives more or less bears out the models suggested above. Agreements launched with an initial official framework or objective of "very deep integration" have typically started out with a trade and cooperation nexus (T & C) built into the initiative. This is illustrated in Latin America's "old" subregional integration schemes that were committed to developing a common market, as well as the "new" subregional schemes such as the Andean Community. At the other extreme are shallow free trade agreements that are "business only" (T) in their initial intent. Examples are NAFTA, the new bilateral trade agreements in Latin America, and the Latin American Free Trade Association (LAFTA) of the 1960s.

Meanwhile, Western Europe is a good example of deepening trade interdependence through (T) evolving into comprehensive (T & C). There are now also increasing pressures on NAFTA partners to move from (T) in the direction of (T + C). The movement from (C) to (C + T) is a less frequently observed model; the Association of Southeast Asian Nations (ASEAN) is perhaps the most notable example.

The most recent North-South agreements can be divided into agreements that only cover trade (T), agreements for cooperation without a trade component (C), and agreements that cover both preferential trade and cooperation simultaneously (T + C). Table 8.2 shows that North-South cooperation agreements can be quite comprehensive in scope, involving everything from trade-related cooperation to economic cooperation, political cooperation, social and cultural initiatives, environmental protection, human resource development, and science and technology.

In the context of North-South agreements, (T) is increasingly a reciprocal arrangement, while (C) can take the form of a donor-recipient model with implicit or explicit one-way resource transfers, purely intergovernmental programs without net resource transfer implications, or a mix of the two. As mentioned earlier, in North-South cooperation one would expect some presence of the donor-recipient model in addition to purely intergovernmental schemes. Moreover, a distinction should also be made depending on the instruments used to achieve cooperation, such as whether cooperation evolves through informal channels without any official budgetary or technical support or is couched in more structured operational terms involving formal mechanisms to identify and agree on priorities and objectives with procedures to implement the outcomes of deliberations/negotiations, coupled with programmed budget support.

There are three modern North-South plurilateral initiatives that are interesting variants of the T with C model and will lead into our central points. The first is the Western

Table 8.2. Areas of Cooperation

		Non-trade cooperation					
Agreement	**Trade-related cooperation**	**Economic**	**Political**	**Social and cultural**	**Environment**	**Human Resources and Science & Technology**	**Other**
EU-ACP	Competition policy, intellectual property rights, standardization and certification, sanitary and phytosanitary measures, trade-related environment and labor standards, consumer policy and protection of consumer health	Investment, private sector development, macroeconomic and structural reforms, economic sector development, tourism, fisheries and food security	Human rights, democratization, rule of law, good governance, peace building, conflict prevention and resolution	Social sector development, poverty reduction, health, youth and gender issues, and cultural development	Environment and natural resources	Education and training	Regional integration and cooperation, institutional development and capacity building
EU-Mexico	Public procurement, competition, intellectual, industrial and commercial property rights, customs, technical regulations and standards, sanitary and phytosanitary measures, protection of human and animal health	Liberalization of capital movements and payments, industrial cooperation, investment promotion, financial services, cooperation on small and medium-sized enterprises, agriculture, mining, energy, fisheries, transport, tourism, statistics, consumer protection and data protection	Human rights and democratization	Social affairs, poverty reduction, health, refugees and cultural cooperation	Environment and natural resources	Science and technology, information and communication, education and training	Regional cooperation, combating drug-related crimes

APEC	Deregulation, dispute mediation, implementation of WTO obligations, customs procedures, standards and conformance, intellectual property rights, competition policy, government procurement and rules of origin	Macroeconomic policy, financial stability, structural reforms, economic infrastructure, business facilitation, financial systems, free movement of investments, mobility of business people, capital markets, energy, tourism, fisheries, transportation, telecommunications, small and medium-sized enterprises, agriculture, rural infrastructure, food production and biotechnology	Political dialogue through Ministerial Meetings	Social safety net, social development and gender integration	Environmental protection and marine resource conservation	Industrial science and technology, human resources development, knowledge and skills development, information and communications technology and electronic commerce	Emergency preparedness
ASEAN	Customs, dispute settlement, standards and conformance	Macroeconomic and financial stability, freeing movement of capital, investment facilitation, industrial development, infrastructure, food, agriculture and rural development, forestry, mining, energy, tourism, transport and communication	Political and security cooperation	Human and social development, poverty reduction, women and youth issues, cultural cooperation	Environment	Science and technology, human resources development, information and communications technology and electronic commerce	Combating the abuse and traffic in narcotics and transnational crime

Source: Devlin, Estevadeordal and Krivonos (2002).

Hemispheric Summit process, which involves a free trade negotiation coupled loosely (hence T + C) with a confederation of somewhat autonomous non-trade cooperation initiatives covering more than 20 areas. This cooperation is a mix of intergovernmental and donor-recipient types. The donor-recipient type of cooperation (aid and technical assistance) is delivered in the framework of an informal "outdoor" contracting market, where supply and demand clear only very imperfectly, at least up to now.[5]

Then there is the APEC process, which includes a package of trade and non-trade cooperation initiatives modeled on the (T + C) approach. The non-trade cooperation component (more than 25 initiatives) is largely of the intergovernmental type, while the trade component is a loose confederation of voluntary most-favored-nation trade liberalization exercises with the goal of reaching free trade by 2010 and 2020 for industrialized and developing countries, respectively.

Finally, there is the EU-bilateral Interregional Association Agreements, which propose the novel approach of a "single undertaking" (T & C). This would systemically integrate political dialogue, cooperation and reciprocal free trade under a single treaty and program.

Creation of a "T and C Nexus": A Political Economy Approach[6]

Trade agreements are increasingly the point of departure for regional economic cooperation for several reasons. First, trade can attract support from well-organized private business communities. Second, unlike many other economic arrangements, the mutual benefits of trade agreements and their distribution can be reasonably assessed ex-ante by participants, and monitored and enforced ex-post. This is because they usually contain precise disciplines, and the institutions and procedures (including WTO rules) for negotiating and administrating cross-border trade are well known. Third, trade agreements accommodate nationalistic sentiments in every society, as they can be designed in ways that initially involve only a limited loss of national sovereignty, such as in the case of free trade areas. Trade negotiations also do not demand resource transfers. On the other hand, the difficulty of negotiating cooperation in non-trade issues is related to the very nature of such issues: whereas preferential trade arrangements are concerned with the removal

[5] However, in the 2002 FTAA Ministerial Summit in Quito a proposal for a Hemispheric Cooperation Program was launched which could set pioneering precedents for trade related capacity building. See http://www.ftaa-alca.org/ministerials/quito/ministe.asp

[6] This section borrows some of the key concepts on regional public goods from a recent and growing literature on this topic. In particular, see Arce and Sandler (2002), Devlin, Estevadeordal, Krivonos (2002), Ferroni (2002), Ferroni and Mody (2002), Kanbur, Sandler and Morrison (1999) and Stalgren (2000). Kaul, Grunberg and Stern (1999) offer an excellent compilation of articles on global public goods.

of trade-distorting policies, cooperation in other economic areas as well as in social and cultural fields requires the introduction of additional policies. This is more difficult to deal with. Moreover, agents in non-trade areas often have little cross-border experience, and blueprints for plurilateral institutional arrangements and practices often are scant or nonexistent. Finally, a critical mass of regional trade among partners acts as a "hanger" on which other forms of cooperation can be functionally draped.

Indeed, growing and mutually beneficial commercial interdependence among partners typically induces demands for expanded economic cooperation in order to more fully exploit the revealed advantages of an interregional market. Moreover, demands for noneconomic and even political cooperation arise from the social externalities generated by closer economic ties. In effect, the centripetal forces of trade among partners can be an effective handmaiden of deeper relations, whether so planned or not.

While not an interregional arrangement, Western Europe is the best contemporary example where growing interdependence through trade has served to fuel the political agenda of certain partners of the agreement, who sought very deep cooperation. As a result, regional market opening became functional to widening the scope of cooperation, or in the words of Garcia and Glocker (2000), to "integration by stealth." As commitments have deepened, even the multilateral trading system has increasingly encompassed more and more issues that originally were not identified with trade. The recent international debate on labor and environmental standards in the production of traded goods is an example of the pressure to further expand the frontier of cooperation, as multilateral commitments to liberalize trade enter advanced stages of development.

So one conclusion is that successful regional cooperation might best begin by pushing forward a reciprocal trade agenda, which creates a solid beachhead for engagement and serves to create a (T + C) or (T & C) nexus in a two-staged approach—i.e., (T) -> (T + C) or (T & C). In the context of North-South agreements, cooperation in non-trade areas is especially important for the development dimension of the agreement and indeed can magnify the impact of trade cooperation. For instance, cooperation in good governance or education might enhance the developing country's or countries' competitiveness, attract investment and foster positive distributional effects. But the above-mentioned catalytic role of trade in promoting solid engagement among the partners, coupled with creating externalities that endogenously help identify needs for non-trade cooperation, suggests that in the sequence of priorities, trade-related capacity building should be the primary objective at the outset of attempting broader cooperation.

Some experience bears out these arguments. In the big North-South regional initiatives, the free trade component is clearly the priority area for engagement of most of the developing countries as they seek to eliminate trade barriers in their major export markets, which still protect goods for which they have a comparative advantage, such as

textiles, agriculture and food processing. They also want to secure that access in a legal framework involving the rights and obligations of a formal free trade agreement in order to anchor their economies and attract investors. And importantly, free trade agreements are viewed as a way to "import" institutional modernization. As for (C), this is important too, but often is a secondary objective. Moreover, within a framework of general cooperation the most immediate interest often is in trade-related assistance (given the implications of market opening with an industrialized economy).

In contrast, the industrialized countries have often given relatively more priority to advancing the (C) agenda. On the one hand, developing country markets are a relatively minor share of their total trade. On the other, trade negotiations typically hone in on sensitive sectors with strong political constituencies at home, which are resisting liberalization and globalization more generally. Meanwhile, industrialized countries' cooperation programs are closely linked to promoting existing and politically consolidated priorities in national foreign policy and aid agendas.

Given this dichotomy, it is not surprising that the Free Trade Area of the Americas emerged only with great difficulty at the 1994 Miami Heads of State Summit, and only after Latin American countries conditioned their participation on the summit's broader cooperation agenda by the incorporation of the aforementioned free trade negotiation (Hayes, 1996). Likewise, Mexico conditioned its willingness to enter into a three pillar Association Agreement (trade, political dialogue and cooperation) with the EU on the assurance that a full-fledged free trade agreement was going to be part of it, and that it would enter into force no later than the two other components (it in fact entered first). A whole new set of institutional provisions for the negotiations of the Mexico-EU agreement (the Interim Agreement) were put into place in order to make the Mexican goal possible. Serious trade negotiations also emerged only slowly in the EU-Mercosur process, and then under pressure from the Mercosur partners. Finally, as APEC's trade liberalization program has lost steam, so too has the overall initiative.

Aside from the problem of the asymmetric priorities just mentioned, simultaneously advancing in a full free trade and cooperation nexus, while for developing countries highly desirable in principle, in practical terms is extremely difficult. However, it may be easier to establish the linkage in the cases when a North-South agreement is signed with the relatively poorest countries. The reason for this is that trade preferences are likely to be non-reciprocal, while the cooperation component is traditionally supported largely by donor-recipient transfers from the North, where an important part of the dynamic is unilateral.

Finally, South-type regional cooperation has tended to advance most when there was a dynamic trade component at its core. Subregional groups like Mercosur have progressed in broad cooperation mostly when trade opening among partners was dynamic.

When the deepening of trade-related initiatives stalled in the second half of the 1990s, the cohesion of the group underwent severe stress that persists today. Meanwhile, in South-South interregional cooperation, limited resources, distance and unfamiliarity suggests that initiatives would have greater prospects for success if led by reciprocal trade agreements where mutual interest is more easily identified, desired objectives are precise, and costs are relatively modest.

Other Considerations

One way of thinking about the linkages between regional integration and cooperation agreements is the classic trade-off described in the public finance literature on federalism. This trade-off is between the benefits of size, due to externalities and economies of scale and scope, and the costs associated with heterogeneity of preferences, culture and attitudes of the population as well as the presence of information asymmetries. It is necessary to further analyze the optimal scope and the equilibrium size of a "regional" agreement. This trade-off implies that the appropriate level of regional "policies" or "cooperation" should be limited to those cases where economies of scale and externalities are significant and heterogeneity of preferences and information asymmetries are low. The important point here is to recognize the potential endogeneity between the two. A larger market resulting from a regional integration agreement can create conditions such that potential regional policies will have greater opportunities to take advantage of economies of scale. In the same way, increased commercial relations can reduce the degree of heterogeneity of preferences or information asymmetries. In other words, the optimal size of a "region" and the equilibrium number and scope of regional initiatives is endogenous to the expansion of the "region" itself.

Many regional public goods cannot be supplied by national governments acting unilaterally, and the cooperation necessary between countries to supply the goods will usually require an agreement of some kind supported by a variety of institutional arrangements. Effective design and implementation of a cooperation agreement and the development of supporting institutions will depend on what other countries are doing. This is why strategic interdependence issues should be taken into account.

It also is important to note that despite the greater attention given to global public goods, regional public goods are in principal easier to supply, since, all else being equal, the incentives to free ride decrease as the number of countries that must supply a public good decreases. Therefore, there is a positive correlation between the number of recipients that benefit and the extent of suboptimality in the provision of public goods. Thus, in terms of a central trade-off on federalism, regional public goods compare better vis-à-vis global ones, since countries in a regional group have greater homogeneity and famil-

iarity, more opportunities to identify the advantage of scale economies, and face less constraints arising from asymmetric information.

From the point of view of the dynamics of trade negotiations, given the differences in the payoff structures, negotiations on trade issues and other cooperation may be more or less complicated, and may take more or less time to conclude. In the context of a formal regional integration process, it is clear that some issues are discussed and negotiated ahead of others, depending on the potential benefits, complexity and complementarities, as well as on how each government prioritizes the issues. The linkage between regional integration agreements and the provision of other regional public goods may increase the number of negotiating issues on the table, creating more margin for trade-offs. At the same time, this increases the complexity of negotiations based on the "single-undertaking" principle, such as in the EU bilateral agreements. The success of that type of arrangement will depend ultimately on the right combination of incentives in the form of reciprocal market access, the convergence of interests regarding areas of cooperation, creation of a sense of ownership on the part of stakeholders in civil society, and technical support or some type of compensatory mechanisms that can help governments translate political will into concrete production of regional public goods.

There are also some important institutional considerations that support a linkage between trade and cooperation. Regional integration agreements may offer a cost-saving institutional architecture to aggregate the demand for regional public goods among their members. Regional integration agreements can achieve sufficient economies of scope[7] with respect to regional public goods to offer the provision of "multiple" or "joint" regional goods, and support other complementary activities through mechanisms of redistribution to the least developed members of the group. Regional integration agreements may also increase the credibility and ability of a regional group to act jointly to offer collateral to back up loans or other external financing for regional public good production. Indeed, the leading country of a regional agreement may act as a forceful "demandeur" of regional goods when the group deals with the international donor community. Regional integration agreements may also reduce the effect of competition among regional members that may otherwise inhibit efficient provision of regional goods. Finally, the institutions involved in preparing regional integration agreements possess the necessary infrastructure to provide regional public goods, and also act as intermediaries in global networks that can contribute to a more optimal provision of global public goods.

The principle of subsidiarity in the provision of regional public goods implies a correspondence between the political (decision-making) jurisdiction, and the economic do-

[7] The cost of providing more than one regional public good by the same institution is lower than supplying them by separate institutions, due to the use of common inputs.

main of the public good's range of spillovers. According to the subsidiarity principle, a global public good would be allocated optimally by a global institution, while a regional public good would be better provided by regional institutions.

Based on this subsidiarity principle, there are additional advantages or justifications for using existing regional integration agreements for the provision of regional public goods. Choosing the most localized jurisdiction possible saves transaction costs by limiting participants, drawing on shared culture, and fostering repeated interactions. In addition, common values and benefits facilitate the development of regional institutions, allowing them to adapt more rapidly to changing circumstances.

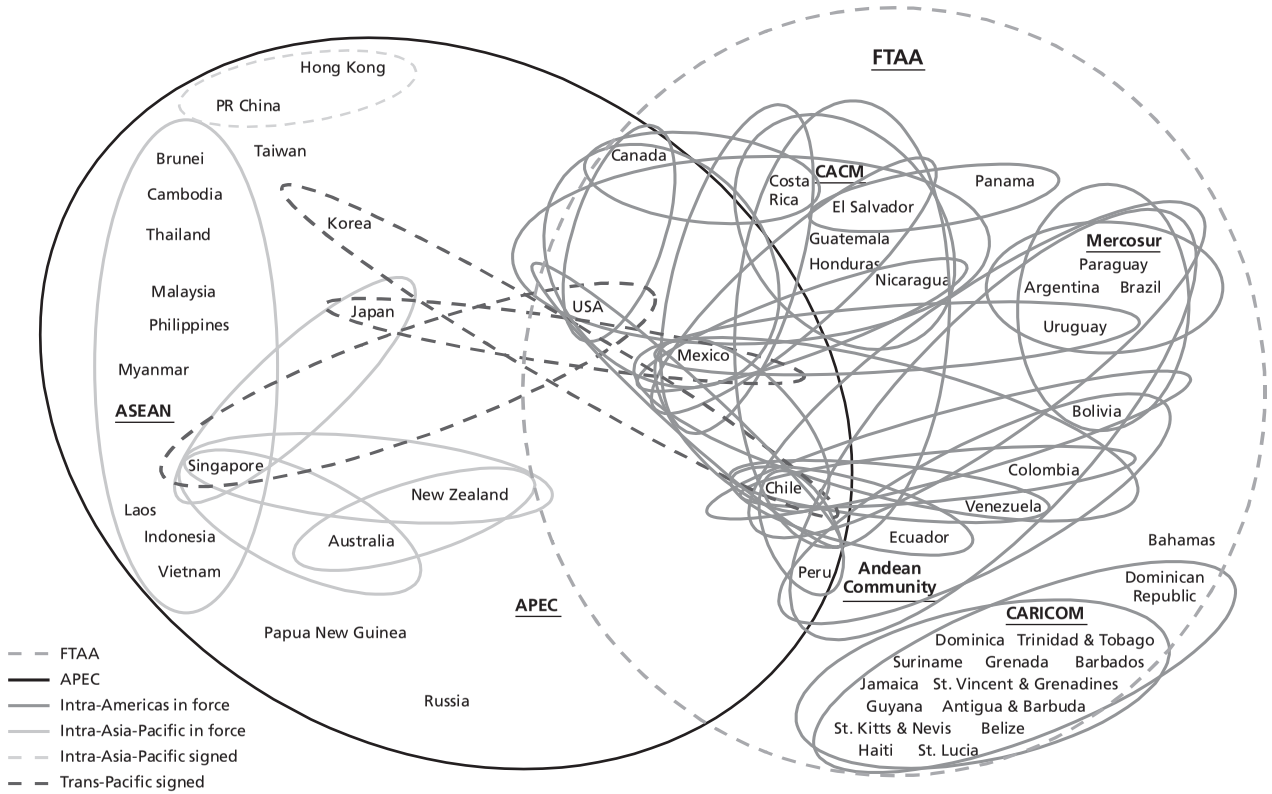
However, there are some factors that detract from subsidiarity. First, it may be more efficient to have institutions with greater geographical reach in the provision of regional public goods to several regions at once because of economies of scale. This argument would favor North-South agreements of the "bloc" variety (i.e., FTAA) in which regional goods are provided on the basis of a large regional agreement. Second, because of economies of scope, it may be more efficient to have a single institution providing multiple regional public goods with no overlapping ranges of spillover. This argument would favor North-South agreement of the "hub and spoke" variety (e.g., EU bilaterals), whereby a Northern institution (e.g., the European Commission) can customize similar regional public goods for different "regions" according to particular needs and specificities. The final potential problem associated with the subsidiarity principle is that there may not be a dominant nation with enough leadership capacity to support the appropriate regional institution, and assume responsibility for some regional goods. This is an argument for strengthening subregional institutional capacity to move beyond trade issues.

There is an additional argument that favors North-South agreements of the "hub and spoke" variety. An important aspect of the EU's bilateral agreements is a three pillar-approach—an agreement consisting of trade, cooperation and political dialogue. This approach can minimize some of the traditional constraints that donors face regarding the provision of regional public goods. This type of agreement facilitates the monitoring of regional goods by donors. Regional public good spillovers in developing countries also tend not to benefit donor countries directly, therefore reducing their interest in provision. In the context of a bilateral agreement, donors can also internalize some of the benefits by coordinating the provision with other global public goods.

Potential Costs of the (T + C) Nexus for Regional Public Goods

One of the major consequences of the proliferation of preferential trade agreements in the world economy has been the formation of the so-called "spaghetti bowl" (see Figure 8.1).

Figure 8.1. Trade and Integration Agreements Signed and Under Negotiation in Asia-Pacific and Latin America and the Caribbean (LAC)



This concept has traditionally been associated with the negative effects of these agreements, especially due to the lack of transparency and complexity of overlapping trade rules among commercial partners. Regional agreements that prioritize (T) over (C) risk aggravating the problem. This could be particularly true in North-South cooperation where the accumulated volume of trade and world "precedent-setting" is large.

While the costs associated with the spaghetti bowl cannot be dismissed, preferential trade agreements in the context of the new regionalism are designed to promote structural adjustment, and all adjustments bear costs. So the discussion must measure the costs against the benefits.

In any event, beyond the economic logic of trade agreements and related arguments about the formation of spaghetti bowls, there are other reasons that support a favorable outcome. From a purely "rationalistic" approach to international cooperation and negotiation, the spaghetti bowl reflects the preferences of developing nations to search for effective political economy instruments to support more interdependence with the world economy. In this sense, the explosion of regionalism may have created the infrastructure, or "wiring," for an effective provision of regional goods. This angle downplays the potential negative effects of the spaghetti bowl.

The final "use" of this "wiring" for cooperation will depend on the joint outcome of two dynamic processes. The first is inter-state bargaining for the provision of public goods, building on existing regional and interregional agreements and the decisions regarding institutional arrangements for such provision. The second is the degree of absorption of "minor" connections by larger ones. North-South interregional agreements can play a major role here by challenging the economic relevance of regional agreements or absorbing them. This is one potential effect of the Free Trade Agreement of the Americas. Meanwhile, a North-South agreement led by preferential trade has low risks of massive trade diversion due to the broad spectrum of comparative advantages it probably encompasses.

Another potential risk emerges in the particular case of North-South regional cooperation. Given the usually great asymmetry in size and bargaining power between the Northern and Southern partner, the cooperation could evolve into coercion. This is more likely to happen if the Northern partner is motivated excessively by mercantilist objectives or precedent setting to achieve dominance in international forums. Thus, welfare-enhancing North-South regional cooperation places a burden on the bigger partner to keep economic development and public goods production at center stage.

Finally, South-South interregional cooperation led by preferential trade always risks trade diversion. This can be mitigated by parallel external opening, including that promoted by North-South trade agreements. Another risk is wholesale reneging on commitments given weak institutions and economic and political volatility in partner countries.

Conclusions: Promoting Regional Cooperation

This chapter has focused on the increasing importance of regional cooperation initiatives and, by extension, the provision of regional public goods. The analysis suggests several policy prescriptions that should be considered for the promotion of regional linkages.

1. Trade is an effective first step to cooperation. Preferential trade agreements, preferably of the reciprocal type, can be an effective beachhead for initiating regional cooperation with ambitious objectives. Whether this is a [T] or a trade and cooperation nexus ([T + C] or [T & C]), the configuration is an outcome of negotiation. In the context of a North-South agreement, a trade and cooperation nexus is conceptually an elegant approach that is functional for development. But it also is complex to administer, and experience shows that there is a risk of the initiative losing its way if the [T] is not front-loaded in the comprehensive initiative.

2. An incremental approach to cooperation is advisable. If one employs a trade and cooperation nexus, it is important not to overwhelm the initiative with too many programs. A better approach is to prioritize a select few endeavors with high probability of success and consolidate them before expanding scope. Experience has shown that these initiatives can suffer from a cornucopia of problems if new programs are added without having consolidated earlier ones. In the context of North-South regional cooperation, lacking the geographical dimension or historical and cultural affinities among parties, initiatives are more effective when developed in an incremental way, beginning with sectors where the interested countries can easily identify and achieve mutual benefits. Moreover, programs should be sequenced to maximize synergies, and should have quantifiable outputs that can be evaluated with periodic benchmark evaluations. Effective cooperation should also have programmed budgets to produce outputs and to provide participants with logistical and technical support.

3. Institutions involved with the provision of regional public goods must be strengthened. The principle of "subsidiarity" in the promotion of interregional cooperation implies a correspondence between the political (decision-making) jurisdiction and the economic domain of the range of spillovers. According to the subsidiarity principle, cooperation at the global or multilateral level should be handled optimally by a global institution, while cooperation at the regional level should be handled by a regional organization. The effective provision of interregional public goods requires an institutional arrangement that promotes interregional cooperation, such as a network of regional institutions with appropriate coordination mechanisms. However, there are factors that detract from subsidiarity. For example, because of economies of scale or scope—as in the case of interregional cooperation on maritime transport regulations, for example—it may be more efficient to have institutions that have greater geographical reach in providing re-

gional public goods to several regions at once. A potential problem associated with overriding the subsidiarity principle in interregional cooperation initiatives, even when it might seem technically appropriate, is when there is no dominant institution that enjoys sufficient political legitimacy among all players to support the appropriate institutional requirements across regions necessary to generate sustainable regional public goods. This is an argument for strengthening coordination mechanisms among regional institutions and global institutions, as part of the approach to generating interregional cooperation for development.

Existing regional institutions clearly can play supportive roles in the development of regional public goods. Their assistance is especially important to South-South regional cooperation, where familiarity and resources are major constraints. More regular contact and coordination is needed among these regional institutions to identify potential regional public goods and join forces to support those already identified by their member countries. As an example, there is growing collaboration between the Inter-American Development Bank and the Asian Development Bank to intensify the now meager cooperation between Asia and Latin America. These institutions can also assist bilateral donors' interest in furthering inter-regionalism. An example of this is the IDB's Japan Fund, which finances initiatives to bring Latin America and Asia closer.

Regional institutions can even provide valuable assistance to North-South regional cooperation when there are large numbers of countries and initiatives. For example, the IDB/OAS/ECLAC Tripartite Committee has provided not only technical and financial support for the Free Trade Area of the Americas and the broader Summit Initiative, but also has served as a de facto institutional memory as governments and personnel involved in these endeavors have changed. Another example is the growing collaboration between the IDB and the European Commission in identifying and designing interregional cooperation projects in Latin America.

4. Financing and evaluation are critical to interregional cooperation. In the production of regional public goods, financing is indeed important. When cooperation involving production is advanced and all parties have identified and reaped the benefits, there is a natural disposition to willingly share the necessary financing. However, in the early stages of such efforts, when there is still uncertainty about benefits and outcomes, this uncertainty can discourage parties from investing in the initial steps needed to launch an initiative. Hence, grant resources from third parties can be essential to "grease the wheels" and get the process rolling. Unfortunately, grant resources are increasingly scarce in an era of budgetary restrictions.

Multilateral and regional financial institutions can be valuable supporters of the production of interregional public goods. For instance, the complex FTAA negotiations and their still uncertain outcome have relied heavily on the OAS/IDB/ECLAC Tripartite

Committee for financial and in-kind grants to underwrite collective logistical and technical support for the process. Many have argued that this support has been critical in keeping the process moving over the past eight years, but this support can also be argued to have raised a problem. Grant resources from multilateral and regional institutions are dwindling just when demand for regional public goods is rising. One would not expect such resource constraints in North-South cooperation, in which the industrialized countries have a direct role, yet budget issues are impinging on their initiatives as well. Hence, more attention to grant funding of regional public goods is a primary consideration in the emergence of these resource as a tool for development. Finally, there might be more willingness by countries to contribute grant resources to regional public goods if there were more effective methods for evaluating their net benefits. Given externalities and intangibles, this is no an easy task.

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CHAPTER 9

Regional Public Goods and Infrastructure

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This chapter examines the applicability of regional public goods approaches to infrastructure such as transport and communication networks. More specifically, it looks at the usefulness of infrastructure-related regional public goods for two major regions of the developing world and some of their major subregions: Latin America, with the subregions of the Southern Cone, Central America, and the Andean countries; and Asia, with the subregions of Central Asia, continental Southeast Asia, South Asia, and the islands of Southeast Asia and the Pacific.

Following Arce and Sandler (2002), regional public goods are defined as goods that significantly benefit consumers in a regional area rather than a single country. In line with the classic definition of public goods by Samuelson (1954), if a pure public good is characterized by non-rivalry and nonexcludability, a regional public good extends those characteristics to consumers outside the boundaries of a single country, although not to the entire world. Examples include defense spending, where, for example, smaller European countries like Luxembourg benefit from French and German defense forces; or the regulation of upstream flows in a river basin shared by several countries.[1]

Infrastructure refers to facilities that provide key production inputs to a wide variety of industries and activities, and which are typically organized as networks due to the technology of supply of the products provided. This applies to transport (by road, rail, water or air), communications (fixed-line and wireless), energy delivery (electricity and natural gas), and water delivery and sanitation.

An argument can be made that some of the benefits of this infrastructure are disbursed beyond a single country, or even that the benefits disproportionately accrue to a region. The extension or concentration of benefits at the regional level is particularly likely in sectors where network benefits (the benefits of interconnectedness) extend beyond national boundaries, but not, as with telecommunications or mail, to the whole world.

[1] Of course, in both of these examples there are public goods and public "bads." The smaller European countries have generally been devastated when warfare erupted between the major powers, and upstream regulation of water flows can destroy wetlands or cause water shortages in downstream areas.

Road Transport

Road transport is not the most efficient means of conveyance for long distances (waterborne transport is better), but for distances at the regional level, road transport has advantages due to its speed and flexibility relative to cost.

One indication of relative efficiencies of different transport modes in a regional Latin American context is that, in 1999, half of trade among Andean Community countries (Bolivia, Colombia, Ecuador, Peru and Venezuela) took place through road transport. Maritime transport accounted for slightly more than a third of trade, air cargo 8 percent, and river transport 4.4 percent (Grupo Consultivo Regional Andino, 2001, p. 15). In the Southern Cone (Argentina, Bolivia, Brazil, Chile, Paraguay, Peru and Uruguay), 39 percent of regional trade in 2000 took place by road transport (IDB, 2001a).

Major road networks in Latin America include the Pan-American Highway in Central America; the Santiago-Bogota-Caracas route; and the Southern Cone network linking the northern half of Chile with Bolivia, Paraguay, Brazil (up to Rio de Janeiro), Uruguay, and the northern half of Argentina (CAF, 2000).

The development of road networks offers enormous potential for the economic development of the landlocked Central Asian countries, where few other alternatives for the transport of goods exist.

All of this means that the creation of a regional road network can significantly increase the efficiency of transportation of people and freight across countries, facilitating trade and population flows of mutual benefit. This is especially true where the potential for trade creation and migration is greater across national borders than within the national borders. For instance, natural resources may be concentrated by country rather than being scattered across all countries, making the potential benefits of regional trade much greater than intra-national trade. One country may have ideal conditions for commercial timber plantations, while its neighbor may be richly endowed with renewable energy resources that allow the processing of wood into paper at internationally competitive costs.

Rail Transport

Much of that said about roads is equally applicable to railroads. Rail transport is particularly suited to bulk solids such as coal or other mineral ores that require means of transport with a low cost per unit of volume or weight. Although this type of infrastructure is

less relevant for Latin America,[2] it is important in continental Asia, where former imperial powers like England, France and Russia built extensive rail networks to link their possessions. A major difference between road and rail networks is that much closer coordination is required for the integration of rail networks, both in terms of physical infrastructure standards (gauge, signals and communications, weight-bearing capacity of the rail bed) and operation of the network (efficiency and safety). In Latin America, the major limitations to the development of regional rail networks are the fact that most railroad lines were originally developed to transport agricultural produce to harbors and thus lack interconnections (IDB, undated), as well as to the effects of decades of underinvestment and, more recently, wholesale exit of the public sector from the rail business, which has meant the elimination of rail lines that were unprofitable beyond repair. In Asia, by contrast, the challenge is to harness the regional integration potential of lines that were developed by foreign colonial powers with other objectives or geographic orientations, such as the linkage to other Soviet territories in the case of the Central Asian republics.

Waterways

Waterways such as the Paraná in Latin America and Asia's Mekong systems provide a superior means of regional transport, but are currently underutilized (IDB, 2000).[3] Well-known examples outside Latin America and Asia include the St. Lawrence waterway between Canada and the United States, and the Danube and Rhine Rivers in Europe, which benefit many countries in those regions. For ocean shipping, regional benefits can exist where exceptionally attractive harbor locations (due to proximity to major shipping lanes, protection from adverse meteorological conditions, or harbor depth) or economies of scale in harbor construction (likely up to high traffic volumes) make it more efficient to rely on a single harbor or a few of them for the entire region. Such a facility can be linked to various types of regional transport networks through a hub-and-spoke structure, as is common in the airline industry (CAF, 2000).

[2] Apart from commuter railway networks at the subnational level in some of Latin America's largest urban areas, such as Buenos Aires, there is a Southern Cone rail network from Santiago to Buenos Aires, and from there to Uruguay, Bolivia, northern Chile, and southern Brazil. However, track gauges differ from route to route (CAF, 2000).

[3] Maximum utilization levels may strongly be affected by environmental impact, given the important habitats found in these basins such as the Amazon rainforest and the mouth of the Ganges.

Air Transport

The considerations for airports are substantially similar to those of harbors—suffice it to add that in Europe, for instance, several key airports (Heathrow near London, Schiphol in Amsterdam, Frankfurt, Zurich, and the Paris airports) function as major distribution points for passenger and cargo traffic throughout the whole continent. But a good case can also be argued for the regional benefits of air traffic control. As the European experience also shows, a fragmented regional control system can result in delays due to the complexities of handling overflights across several control centers. It is certain to be less efficient than an integrated system that can rely on a common technology and smooth internal communication. For intercontinental flights, often across oceans and lasting several hours, fragmentation of air traffic control may have a limited impact on flying times and flight turnaround, but at the regional level, with short flights and the need for rapid turnaround, air traffic control can have a major effect on the cost and quality of airline service. In the case of Asia's Pacific islands, for example, air travel may be the most efficient means for the regional movement of people and many types of goods, given long distances and small populations. Therefore, the impact of regional coordination of air traffic control and airport infrastructure in this subregion is particularly significant.

Energy Delivery

Where distances are moderate and large delivery volumes are involved—as is often the case for hydrocarbons such as natural gas, crude oil, and even oil products like gasoline—pipelines are the most efficient means of transport. At the same time, the distribution of natural gas basins across countries in many regions around the world tends to be rather uneven. Argentina and Bolivia, or the United Kingdom, the Netherlands, and Norway, are blessed with abundant natural gas deposits, whereas their respective neighbors (Chile; France and Germany) are not. The same is true of oil and gas deposits in Central Asia. This creates strong regional benefits for natural gas pipeline networks. Trade in natural gas by means of regional pipeline networks can provide important benefits to a region by providing access to greater reliability of energy supply, possibly at a lower cost, and with a positive or at least limited environmental impact. For electricity networks, regional interconnection can provide similar benefits of greater reliability, lower cost (including more efficient use of production facilities and nonrenewable resources such as fossil fuels), and mitigation of adverse environmental impacts. In Latin America and continental Southeast Asia, where countries often depend on a small number of large hydroelectric plants, regional interconnection can significantly improve reliability, especially if there is

a major difference in hydrological cycles across neighboring countries. This type of analysis has guided the development of the Central American Electricity Interconnection System (SIEPAC) as well as initiatives to create a regional power grid in the Greater Mekong subregion. The SIEPAC system comprises Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, and Panama, while the Greater Mekong subregion includes Cambodia, Laos, Myanmar, Thailand, Vietnam and the southern provinces of China.

Water and Sanitation

The existence of regional public goods in this sector is contingent upon the presence of watersheds and catchment basins that are shared by several countries in a region. In such cases, actions taken by upstream countries, or by countries on the other side of a river, can directly affect the downstream or neighboring countries. In addition to the obvious negative effects of upstream release of pollutants or the excessive pumping of water upstream—as in the case of the Colorado River in the United States and Mexico—upstream flow control measures, such as the development of dams, can prevent floods in downstream countries, but also contribute to the loss of habitats in coastal areas that are sustained by sediment flows. Shared river basins are numerous in Asia with the best-known including the Jordan (Syria, Lebanon, Jordan and Israel), the Tigris and Euphrates (Turkey, Syria and Iraq), the Ganges (India and Bangladesh), the Brahmaputra (China, India and Bangladesh), the Mekong (Greater Mekong countries), the Red (China and Vietnam), and the Yalu (China and South Korea). Latin American countries share several major river basins, including the Paraná (Brazil, Paraguay, Uruguay and Argentina), Amazon (Brazil, Colombia, Peru and Bolivia), the Orinoco (Venezuela and Brazil), and Usumacinta (Mexico and Guatemala).

Last, but not least, it is important to point out that important economies can be obtained by coordinating the various transport networks mentioned above in order to facilitate intermodal route development. Intermodal transport coordination thus constitutes a "super" regional public good in that it encompasses several goods, such as road, waterborne and rail transport (CAF, 2000).

This chapter will thus focus on infrastructure whose benefits spill significantly over national boundaries but remain within a single region. The chapter will examine in greater depth the theory of regional public goods as they concern infrastructure; review the major lessons learned about the development of infrastructure-related regional public goods, particularly in Latin America and Asia; and consider the roles played by multilateral institutions like the Inter-American Development Bank or the Asian Development Bank in meeting the demand for infrastructure-related regional public goods.

Infrastructure and the Theory of Regional Public Goods

Little if any infrastructure is a pure public good. Instead, infrastructure services are excludable in most cases, meaning that it is possible to collect access charges from users. For instance, landing fees can be collected at regional airports to cover the cost of a regional air traffic control system; toll charges levied for the use of waterways and roadways; and transmission charges levied for electricity. Infrastructure is, therefore, not strictly a public good but rather a "club" good. Access charges are feasible, but there is no consumption rivalry up to a point. Once an electricity transmission network is built, marginal costs are very low up to a certain point of the overall level of energy flows through the network.

As with many other club goods, non-rivalry holds for infrastructure only up to a point, usually determined by the design capacity of the infrastructure in question.[4] When the maximum capacity is reached, additional use of the infrastructure creates congestion, that is, a decrease in the quality of the service provided. Congestion can significantly lower traffic speeds in transport corridors, or increase connection time in telecommunications networks, and it introduces an important complicating factor in the design of infrastructure supply—the establishment of efficient design capacities for the infrastructure,[5] and the design of a dynamically efficient congestion pricing scheme, i.e., a scheme that provides incentives for increasing capacity when congestion costs become sufficiently large.[6]

In terms of the typology of supply technologies proposed by Arce and Sandler (2002), the aggregation technology of infrastructure is typically of a "weakest link" or "weaker-link" nature. The quality of the infrastructure service, such as network traffic speed, is determined by the element of the network with the smallest capacity, which can act as a bottleneck. For example, the study by SIECA (2001, pp. 4-6) of transport networks in Central America identified several bottlenecks in Nicaragua and Costa Rica for the main north-south road corridor in the isthmus. Likewise, a study of road transport in the Southern Cone pointed out the decrease in traffic speeds caused by long stretches of unpaved and poorly maintained roads in Bolivia (IDB, undated).

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[4] For certain infrastructure, such as electricity transmission lines, actual capacity can be significantly less than design capacity (given by the maximum temperature the conductor can reach without suffering degradation of its physical properties); actual capacity in this particular instance is a complex function of conditions in other parts of the transmission network.

[5] In general, economic efficiency will dictate a nonzero optimal amount of congestion, because the marginal cost of eliminating the more infrequent instances of congestion may well exceed the marginal benefit of such measures.

[6] Congestion pricing can be nonmonetary, through, for instance, the imposition of queuing (waiting costs). Whatever the pricing system, though, the choice of the optimal level of capacity will require some form of valuation of the cost incurred by users under the scheme when congestion occurs.

Other elements with slightly higher capacity can also influence the overall quality of the network if the network is dense enough to allow parallel paths of network use involving those elements. Some infrastructure services can contain elements of "weighted-sum" or even "best-shot" technologies. An example of a weighted-sum technology would be the development of air traffic hubs. On one hand, the overall efficiency of a hub will depend, among other things, on the quality of the lesser airports at the end of the "spokes" of the air route network. Inefficient airports will impact the hub because their higher airplane turnaround times will decrease the maximum frequency of connecting flights at the hub. However, the specific impact of each "spoke" or "feeder" airport will vary according to its relative importance in the network, i.e., on the passenger volume flowing through that hub-spoke route. Delays in a little-traveled route will have little impact on overall hub operation, while delays in a high-volume route will affect most other routes, as the high-volume route is likely to feed passengers to them.

An example of a best-shot infrastructure regional public good would be a regional seaport. Due to economies of scale or to locational constraints (e.g., existence of deep harbor sites), efficiency may dictate the construction of a single seaport for the region (IDB, 2000). In such a case, the quality of the region's maritime transport to and from other regions will depend on the choice of the location for the seaport, its design, and its operation. According to the IDB (2001a), the successful development of regional seaports requires overcoming four related obstacles: coordination with road networks for intermodal optimization of transport routes; deciding where seaports will be located; minimizing customs and border processing within the region; and minimizing adverse environmental impacts or risks.

A study of infrastructure integration in Central America by Booz Allen Hamilton (2000) identified potential airport hubs (El Salvador, San Jose, and Panama) and regional seaports (Ajacutla, Corinto, Caldera and Puerto Cortez). In Southeast Asia, Singapore followed a deliberate strategy of becoming both a major airport hub and a major regional seaport in order to benefit from the provision of transport-related regional public goods to the Asian region, given the importance of the Straits of Malacca as a major waterway.

The provision of infrastructure-related regional public goods can generally be assigned to the private sector through a variety of arrangements. The inputs needed to construct infrastructure facilities are mostly private goods—such as construction and engineering services, metallic and plastic pipes, and electronic equipment—that can be procured from the private sector. There are a variety of means to structure procurement, the most transparent and economically efficient one being a reverse auction of some kind (i.e., an auction where bidders compete by offering a lower bid for the procurement cost than their competitors).

Another matter is the actual provision of infrastructure-related services through operation of the infrastructure facilities. In this area, perceptions of efficiency have shifted over time between favoring the private or public sector, with the former the prevailing favorite. Various contractual mechanisms have been developed to make private operation feasible, including concessions, build-operate contracts with different provisions upon expiration of the contract (transfer to a public sector entity, full private ownership, and so forth), and regulated or private ownership.[7] The main challenge that any provision arrangement must face is that it is often necessary to have a single provider in a given geographic area, due to the economic nature of infrastructure services (involving very high sunk costs for the construction of supply facilities) or the need for coordination, technically referred to as network externalities (as in the case of electricity transmission). This raises the problem of providing adequate incentives for the provider to minimize operating costs.[8] The lack of competition creates severe informational problems that make it difficult to monitor the performance of the provider and thus to design an efficient incentive scheme (Baron, 1989; Laffont and Tirole, 1993). Nevertheless, advances in the economics of information and regulation, and in other areas such as the measurement of productivity, have opened the door for greater private sector involvement through such means as the use of regulatory menus, price-cap regulation, and other arrangements.[9]

The regional dimension of infrastructure is dictated by the extent of the benefits provided by the infrastructure supply network. These benefits are of two types: those directly provided to the individual or entity joining the network, and those provided to existing and potential network users in the form of network externalities. In addition to being partially non-rival, much infrastructure is such that, by being organized as networks, existing and potential users are affected by the accession of a new user to the network. These effects can be of different kinds. On the positive side, reliability of supply may increase when a new generator connects to an electricity transmission network; a road network will become more valuable to many users when a connection is built to a previously separate area; or watershed management may be facilitated by an upstream user joining a

[7] For a discussion of the relevant issues concerning private vs. public provision, and the modalities under which private provision can be structured, see World Bank (1994).

[8] In addition, if the capital for the construction of the infrastructure facilities is of private origin, the high sunk cost and long useful life typical of such facilities creates a hold-up, or time inconsistency, problem for the private investors that can also be difficult to solve. For the most comprehensive analysis of this issue, see Levy and Spiller (1996).

[9] For analysis and descriptions of these arrangements as applied to infrastructure-related services, see Armstrong, Cowan and Vickers (1994) and Newbery (1999).

regional water and sanitation network.[10] On the negative side, road building can increase deforestation by allowing easier exploitation of forest resources for use in areas of high demand. The ecological balance of important ecosystems in a watershed, such as the Pantanal in the Paraná basin or the deltas of the Mekong and the Ganges, can be affected by the development of waterways to facilitate transport by ship or barge, or by the development of upstream reservoirs that change seasonal flows and downstream sedimentation.

Therefore, the regional extent of infrastructure-related regional public goods is determined to a large degree by the geographic extent of network externalities. This has clear implications for the identification of infrastructure-related regional public goods. In some cases these externalities are of a purely local nature, such as commuter rail networks, while others are of a global nature, such as telecommunications, mail or maritime shipping. But as mentioned in the preceding section, for many infrastructure services, network externalities are of a regional nature, as in the case of surface transport or electricity transmission.

Lessons Learned

If the concept of regional public goods is extended to impure public goods such as club goods, many infrastructure-related services have regional public good characteristics and can be usefully examined from the regional public good perspective. At the same time, the possibility of congestion creates the challenge of designing an efficient congestion pricing scheme, and the provision of these services often contains monopolistic elements that make dynamic efficiency also challenging to achieve.

But even before considering congestion pricing and infrastructure service management issues, the fundamental barrier of infrastructure development must be managed. In the case of regional public goods, this barrier is higher than at domestic levels owing to the lack of an authority equivalent to the state equipped with decision-making and implementation institutions that can more easily solve collective-action problems. Of the existing regional bodies and organizations, only the European Union comes close to having the powers needed to organize the supply of regional public goods. In recent years, the

[10] In contrast with most other infrastructure goods, watershed management (for water supply and sanitation) is nonexcludable but rival. The actions of upstream parties usually impact downstream users. Within a common network, all sides may more easily resolve their differences about quantity and other parameters. In other words, a formal network can, in this case, help correct a significant negative externality.

European Union has developed major initiatives for rail and road transport corridors and provided significant aid to countries with more limited financial resources.

The lack of a pre-existing institutional framework for the development of regional public goods means that the supply of such goods is contingent on the willingness of the countries in a given region to cooperate in supplying them. Although the classic problem of collective action found in pure public goods—the incentive to free ride—is mitigated for infrastructure-related regional public goods by the ability to exclude free riders, the supply of such goods is still limited by the weakest-link nature of most infrastructure-related regional public goods and by the potential for coordination failures. Weakest-link public goods cannot be efficiently provided by clubs—that is, by voluntary associations of countries in the case of regional public goods—because the weakest-link effect is an externality that cannot simply be internalized by charging an access fee. The capacity of the weakest-link country must be improved as well to address the externality. In addition, countries can differ about the quantity to be supplied and over the pricing and management of the services. Recall that the existence of network externalities creates monopolistic pressures in the provision of infrastructure-related services. This makes cooperation unavoidable to decide who will be the service provider and under what terms.[11] An additional complication is the greater weight that national political systems place on domestic actors relative to foreign ones, who are also beneficiaries of the development of regional public goods. This exacerbates coordination failures by decreasing the ability of beneficiaries of these goods to influence national policymaking processes in favor of greater provision of them (IDB, 2001a).

Within the same region, different countries can and do adopt very different institutional structures. This is particularly true regarding the organization—meaning the ownership structure and the degree of reliance on competitive pricing mechanisms—of infrastructure-related services. Institutional choices, as students of institutions like North (1990) have shown, are in large measure determined by country-specific historical paths, which may diverge significantly even within the same region. Consider, for instance, Central America. Despite the small size, geographic proximity, and common colonial and even post-colonial origins, the countries of Central America differ significantly in the dominant arrangements for the provision of infrastructure-related public goods. Whereas

[11] The need for coordination is most acute in the case of energy exchange and, more specifically, electricity. A single system operator (or a highly integrated set of operators) is needed to coordinate plant dispatch operations and to prevent damage to the transmission grid and other equipment due to imbalances between load and production. Market clearance also requires one or more clearinghouses to develop and price products other than real-time transactions (which are set by the operator as it balances demand and supply). Common regulations covering at least system operations, market clearing and transmission pricing are probably necessary as well.

public ownership is the dominant form of organization in Costa Rica, a mixture of public and private ownership can be found in Guatemala, and the greatest reliance on the private sector in El Salvador. In regions with greater historical, ethnic and political differences, as is the case in much of Asia, coordination failures may be even harder to overcome. At the other extreme of the commonalities found in Central America lies a region like Southeast Asia, which differs internally in religion (Buddhist, Islamic), ethnicity (Malay, Chinese, Thai, Cambodian, Vietnamese, Laotian), colonial past (Dutch, English, French, U.S. and Spanish), and political regime (capitalist, socialist).

Not surprisingly, differences in the domestic organization of infrastructure sectors translate into difficulties in terms of agreeing on the provision of infrastructure-related regional public goods. A particularly apt example is that of Central American Electricity Interconnection System (SIEPAC), established to create an electricity transmission framework and associated electricity exchange mechanism. Despite the availability of funds from the Inter-American Development Bank and the Spanish government for the construction of the planned transmission lines and associated elements, the development of the system has been slow, particularly with regard to establishment of common rules for the exchange of electricity within the network (Tomiak and Millán, undated).

Of course, it is important to acknowledge that electricity is a highly visible product. As a result, governments are unwilling to place reliability in foreign hands through regional integration, as it entails loss of control over a politically sensitive sector (CAF, 2000). Even in the European Union, the development of integrated networks for the exchange of natural gas and electricity has been plagued by the resistance of France and Germany to rules they regard as contrary to their own institutional arrangements—and this despite the existence of directives from the European Union, which has far greater policymaking attributions and powers than any regional institution in Latin America.

Problems aside, the European experience—in contrast with the leadership role of chief executives in Central America and Mercosur (IDB, 2001a)—seems to show that relatively informal networks can sometimes be more effective than formal inter-governmental declarations. An example is the "Florence Forum" for European electricity regulation. Also, the transmission utilities of Norway and Sweden jointly developed one of the most successful wholesale electricity markets in the world, Nordpool, despite the two countries' long history of mistrust and conflict (Tomiak and Millán, undated). To be sure, the development of regional energy exchange networks does not require full regulatory homogeneity across all countries, but rather a minimum set of measures such as the elimination of national purchasing preferences and generation subsidies; cost-based transmission rates; a common set of traded products; and, most obviously, a common system of operational control (Mercados Energéticos, 2001). Finally, it is important to point out that in the case of European energy integration, working groups and associa-

tions (such as the European Federation of Energy Traders) are also playing an important role in the delivery of benefits related to regional public goods. To the extent that this approach can overcome intergovernmental rivalries—for instance, by facilitating agreements with greater discretion and hence fewer nationalist pressures—this could be a feasible example for Asian and Latin American countries to follow (Tomiak and Millán, undated).

Even in sectors such as road transport where the organizational structures are more homogeneous across Latin America and typically fall under the governmental purview, there is little coordination. To use again the example of Central America, despite repeated calls at meetings of the subregion's transport ministers to harmonize legal rules across all the countries, harmonization has yet to become a reality. The result is a variety of national rules that favor domestic transport companies and create significant delays at border crossings (SIECA, 2001). The difficulties in this case, and in that of SIEPAC, point to the need to establish mechanisms for government precommitment, so that regional public good projects do not get stalled at the implementation stage. Such mechanisms can range from a lengthy period of national debate to ensure ample societal acceptance of the need for the project (Tomiak and Millán, undated), to entering into financial obligations that will bind the government even if it is delayed in implementing the measures needed to develop the public good involved.

There also has been little progress in harmonizing tariffs among countries operating under common market arrangements, such as the members of the Andean Community, or in developing common customs forms and control systems to facilitate border crossings. According to the Grupo Consultivo Regional Andino (2001), on average more than half of the total transit time of trucks engaged in trade within the Andean Community is spent dealing with border crossings. Transshipments at the border are the norm, although they are only required for imports into Venezuela. Even among the Mercosur countries, a recent study points to delays and lack of facilities at border crossings, although processing times for freight traffic have significantly improved since Mercosur started. Still, many agreements to simplify and homogenize border crossing procedures, as well as vehicle and driver licensing, remain unimplemented by some or all member countries. Transshipments are also common, particularly for trade with Brazil (IDB, undated and 2000). Booz Allen Hamilton (2000) also concludes that in Mercosur, policy initiatives have emphasized the reduction of tariff barriers and financial integration, whereas infrastructure has received less attention and the degree of physical integration attained has been modest. In Asia, efforts to create regional transport networks appear to be even further behind than in Latin America. Regional cooperation has traditionally had a strong security component, as in the case of the Association of Southeast Asian Nations (ASEAN).

As Arce and Sandler (2002) point out, regions often face the additional obstacle to cooperation of competition among the countries in the region for regional hegemony. Such competition is, paradoxically, the result not of differences but of similarities. With similar levels of economic development, population, land mass, and other salient characteristics, national governments feel disinclined to tolerate attempts by other countries in the region to take a leadership role, foreclosing this possibility for the development of regional public goods. Although the canonical example of balance of power dynamics is that of Western Europe, there are similar patterns in both Asia and Latin America—witness, for instance, the ongoing conflict over the Spratly Islands between China, the Philippines, Malaysia and Vietnam.

Historical rivalries and "excessive" similarities have been, in fact, the reasons behind the limited progress so far with regional trade pacts within Latin America,[12] and for the slow progress made by what is called BIMP-EAGA in Southeast Asia, which includes Brunei Darussalam, Indonesia, Malaysia and the Philippines (BIMP) and the East ASEAN Growth Area (EAGA).

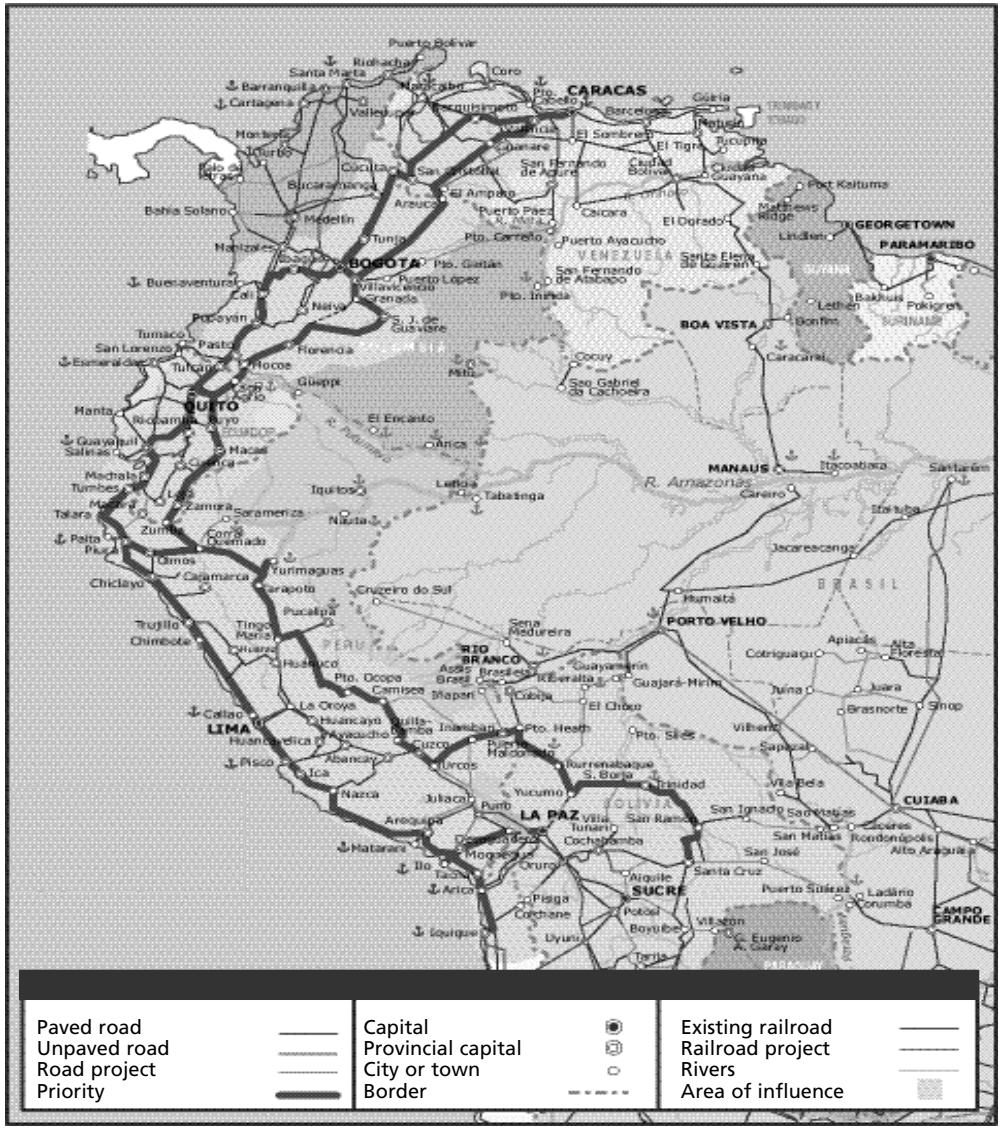
The costs of inadequate provision of regional public goods can be substantial. For instance, a recent study of maritime transport costs by the Inter-American Development Bank showed that these costs amount, on average, to 7 percent of the FOB value of imported goods, versus only 4 percent in the high-income countries (*El Observador,* 2001). Among the various reasons that can account for the differential, a limited port infrastructure may well be significant.

The above limitations and problems notwithstanding, it is important to note as well the achievements to date in the development of regional public goods in Latin America. Improvements in the Pan-American Highway have brought significant benefits stemming from regional trade in Central America and among the Andean countries. In the Andean Community (comprising Bolivia, Colombia, Ecuador, Peru and Venezuela), most trade occurs through the Pan-American Highway. In addition to ongoing improvements to the highway by the countries it traverses, the Andean Development Corporation *(Corporación Andina de Fomento-CAF)* has proposed a second roadway linking Venezuela, Colombia and Ecuador to reduce transport costs in the region (Grupo Consultivo Regional Andino, 2001).

In Asia, efforts to integrate road transport in the context of the economic corridors being developed in the Greater Mekong subregion under ADB sponsorship call for common rules on vehicle registration and weight limitations, border controls and documen-

[12] The exception is Mercosur, which has been gravely impaired to date not by the traditional rivalry between Argentina and Brazil, but by Argentina's specific macroeconomic problems.

Figure 9.1. Pan American Highway and Proposed Second Corridor



Source: CAF (2000)

tation, safety rules, and environmental protection standards. A common framework for the subregion also has been developed—the Framework Agreement for the Facilitation of Cross Border Movement of Goods and Peoples—with a target implementation date of 2005.

Of particular note in Latin America has been the increasing integration of energy markets in the Southern Cone (IDB, 2000), driven primarily by the private sector.[13] Argentina has played a pivotal role in this integration process due to its abundant natural gas resources and the success (at least until the demise of convertibility in 2001) of the restructuring of the Argentine electricity industry. Private initiative has been behind the construction of interconnectors to export electricity to Brazil and Chile as well as several pipelines carrying natural gas to Uruguay, Brazil and Chile (Figure 9.2).[14]

The leading role of the private sector in the creation of a Southern Cone energy exchange network shows that certain infrastructure-related regional public goods can indeed be privately supplied with a modicum of public intervention, mainly in the form of minimally compatible rules across countries. In the Southern Cone, compatibility has been facilitated by common efforts to privatize and deregulate energy supply, and by the development of Mercosur. For instance, Mercosur members and Chile signed a joint declaration in June 2000 with basic principles for energy trading, such as a common regulatory system.

Private initiative can even support development of international electricity grid connections if transmission and market pricing rules confer sufficient arbitrage between the points where the connection links up to other elements of the system. Certainly Central Asia, which has significant and unevenly distributed energy resources, could greatly benefit from the development of such energy transport networks.

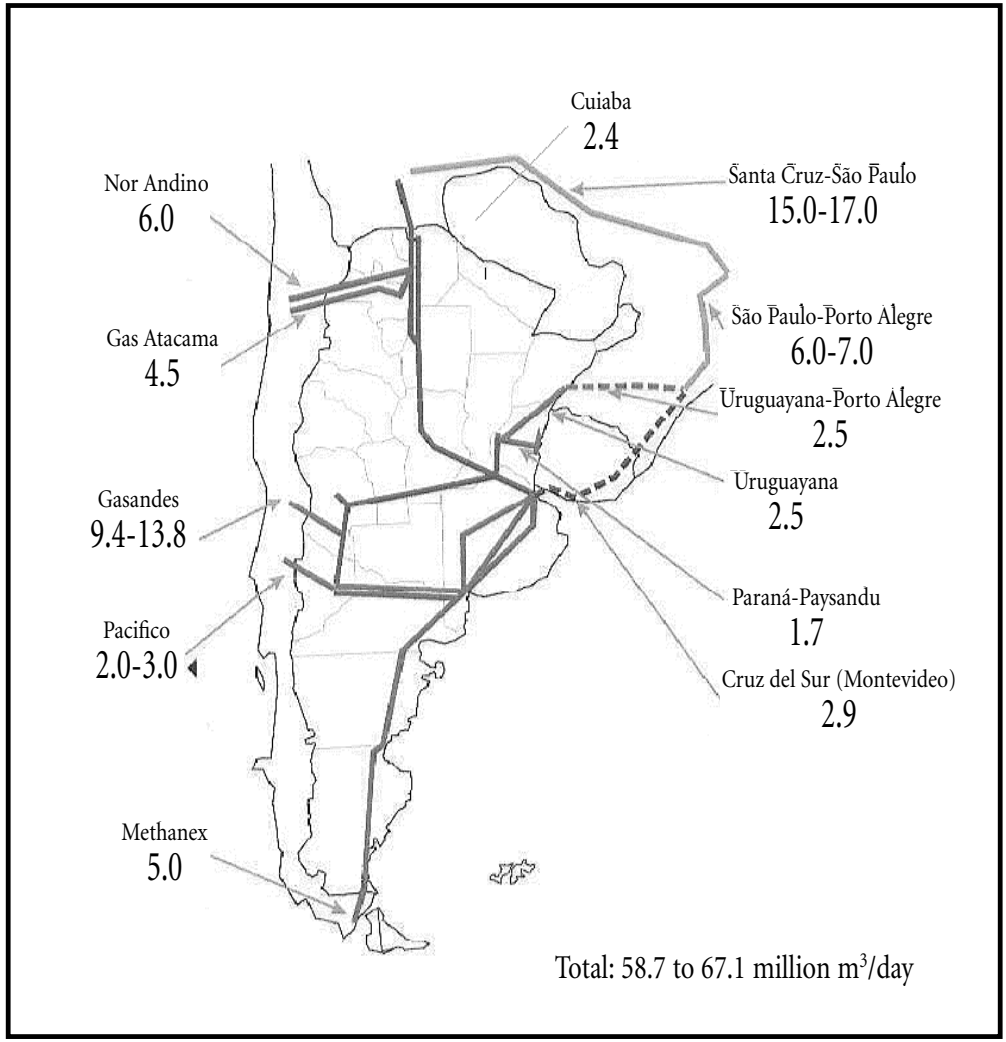
The implication of the weakest-link aggregation technology of most infrastructure-related regional public goods calls attention to the need for capacity building in the weaker countries of the region, lest the availability of such goods be limited to the possibilities of the least capable country. There are at least two reasons for the existence of significant differences in national capacity.

First, countries can differ substantially in their financial or technical capacity to develop and maintain their part of the network required for delivery of regional public goods. For instance, in Southeast Asia, there are significant differences in such factors as per capita incomes and educational attainment, which directly or indirectly impact the ability of national governments to develop, operate, and maintain infrastructure networks. With limited financial resources and policy implementation capabilities, the governments of countries like Cambodia or Laos face major hurdles in mobilizing or

[13] With the important exception of the Bolivia-to-Brazil pipeline, anchored by the Brazilian public oil company Petrobras.

[14] Exports of electricity to other countries, however, have been limited mainly by slow progress in energy sector restructuring, as well as low and limited demand (Mercados Energéticos, 2001). A major constraint to further expansion of international electricity trade is, as in the case of Central America, the lack of adequate regional or bilateral regulatory frameworks for international transactions.

Figure 9.2. Projected Southern Cone Natural Gas Pipeline Network, 2005



Source: Romero (2000).

even finding skilled workers and engineers to plan and execute infrastructure-related projects.

Second, institutional barriers can limit or impair national capacities even in higher-income countries. A major institutional limitation concerns the ability of governments to enter into commitments that extend beyond the term of the administration in power,

mainly through contractual arrangements to be enforced by the courts. There is considerable variation across countries in Latin America, and even more in Asia, regarding judicial independence, the division of powers, and other factors that affect the commitment capacity of the government. This can affect, in turn, the relative ability of governments to arrange supply of regional public goods through the private sector. Countries with low commitment capability will find limited access to private capital for the development of infrastructure. Another closely related institutional characteristic is the degree of corruption and clientelism in the public realm. Corruption and clientelism subvert public policy by exchanging discrete elements of governmental activity—jobs, public works projects, supply contracts—for bribes or strategic blocks of votes. As a result, decisions about the provision of public goods are heavily influenced by such exchanges rather than by societal preferences about the most desirable level of public good supply. Regional public goods can hardly be expected to be free from such pressures—the procurement of road construction contracts, for instance, does not depend on whether the road is purely domestic or part of a regional network. Although the Argentine crisis is the result of a multiplicity of causes, prominent among them is that rampant clientelism among the provincial party machines has repeatedly impeded the attainment of fiscal balance (*Financial Times,* 2002). In turn, the crisis has greatly diminished the effectiveness of Mercosur and its value as a forum for the development of infrastructure-related regional public goods in the Southern Cone. Likewise, the nascent BIMP-EAGA initiative was significantly set back by the 1997 Asian crisis, which was exacerbated in Indonesia by the extreme corruption of the Suharto regime and the political instability that followed the fall of the regime.

Role for Multilateral Institutions

Multilateral institutions are in a unique position to foster the inter-governmental collaboration required for the provision of regional public goods, and especially infrastructure-related goods. There are several ways in which multilaterals can pursue this goal.

First, multilateral institutions, particularly those of a regional nature like the Asian Development Bank and the Inter-American Development Bank, already provide well-established and respected venues for the discussion of issues regarding the economic development of their respective regions. As public sector entities themselves—and because of the involvement of the their member countries' public sectors in the development and financing of infrastructure—multilateral institutions are especially well equipped to foster discussion on infrastructure-related regional public goods, and even to bring together specialists and government officials from several countries. Multilateral institu-

tions can act as central elements in forming networks of relevant actors from private, public and nonprofit organizations, and by leveraging their bilateral relationships with these actors across a particular region. Such networks can be used to develop the trust required for cooperation (for instance, through incrementally more complex collaborative projects), and to exchange the information needed to avoid or minimize coordination failures. In many cases, multilateral institutions already provide conflict resolution mechanisms, which can easily be extended to disputes concerning infrastructure-related regional public goods. Economies of scope in dispute resolution institutions—due mainly to the applicability of conflict resolution tactics to a wide variety of situations—suggest the possibility to deal with conflicts over infrastructure-related regional public goods through the mechanisms that are already in place, which clears an important hurdle for their provision.

Second, the levers available to multilaterals to induce cooperation among countries are not limited to information flows and reputation. Their financial resources constitute an additional tool or inducement to secure cooperation. In particular, the ability to fund projects for the supply of infrastructure-related regional public goods, as in the case of the Kyrgyz Transport Corridor Project supported by the ADB, can make such projects attractive to regional governments by lowering the financial hurdle for the governments.

Importantly, financial resources can be applied in many ways, not just for the construction of physical infrastructure. Given the weakest-link technology of many infrastructure-related regional public goods, financial resources should also be used to develop institutional capacity needed to support regional goods at the country level or, if such capacity already exists, at the level of infrastructure-related regional institutions. At the country level, this can take the form of funding training contracts for staff of the relevant national institution, or financing third-party expertise (such as consultants) at critical junctures, as during rate review periods, or during contract negotiations.

Third, an important output of multilaterals is not only to provide financial services but also high-quality research. The role of research in inducing the supply of regional public goods should not be underestimated. Research can identify opportunity costs (the cost of foregoing an adequate supply of infrastructure-related regional public goods), estimate demand for infrastructure-related regional public goods and optimal supply levels, propose organizational alternatives, suggest pricing and financing schemes, and disseminate best practices for infrastructure supply. Of particular interest is the possibility of conducting research on the design of alternative institutional structures for the supply of infrastructure-related regional public goods such as public-private partnerships, guarantees for privately-financed projects, or private finance initiatives.

Conclusions

Regional public goods are present in numerous infrastructure-related products. The benefits of infrastructure such as road transport, energy delivery, or water and sanitation facilities often extend beyond national boundaries, primarily through network externalities, where the value of participation in a network for an existing user increases with new users joining the network. Most infrastructure-related services, however, are not pure public goods: they are excludable, as users can be required to pay access charges, and they are non-rival only up to a certain point. In other words, most infrastructure-related services are club goods rather than pure public goods.

Another important consideration is the aggregation technology applicable to these services. The technology is usually of the weakest-link type. The network form of supply of these services means that network traffic speeds and other service characteristics will be determined by the weakest elements of the network, or "bottlenecks" in common parlance. Some infrastructure service technologies, however, are of the "best-shot" or "weighted-sum" types. In some cases, economies of scale favor the construction of a single infrastructure for an entire region; in such situations, the quality of service in the entire region will depend on the location, design and operational decisions for the infrastructure. In other cases, such as networks of a "hub and spoke" structure, overall service quality will depend on the quality of each connection between center and outlying elements, weighted by the volume of traffic handled by each such connection.

There are both technical and institutional obstacles to efficiently supplying infrastructure-related regional public goods. On the technical side, the possibility of congestion events with nonzero probabilities requires the design of a congestion pricing scheme to adequately stimulate the development of additional capacity (that is, the right incremental quantity at the right time). Also, high sunk costs and network externalities often make it necessary to organize provision along monopolistic lines, thus creating the problem of incentives for the efficient management of service provision entities. On the institutional side, the key obstacles are the externalities caused by weakest-link technologies, which make club provision inefficient, and the lack of agreement on distribution of the benefits from infrastructure-related regional public goods. Different countries, even those in the same region, will have different historical trajectories, resulting in different domestic arrangements for infrastructure provision. This can make it difficult to reach agreements for provision of regional public goods, as countries may have different views on the best organizational design for the service provider, on the level of the infrastructure service to be provided, and on the computation of prices for use of the service. Some countries may also lack the capacity, such as engineering expertise, or the institutions to effi-

ciently supply infrastructure-related regional public goods. For example, widespread corruption will impair the delivery of quality goods by influencing the choice of contractors or service providers to be based not on merit but on unrelated favors such as bribes or votes.

Multilateral institutions have a key role to play in the provision of sufficient levels of infrastructure-related regional public goods. Because of their role in financing infrastructure at the country level, these institutions generally have significant experience and skill in infrastructure-related services. Their membership and involvement in the governance of multilateral institutions also bring together all countries in a region. These institutions can therefore provide a forum for discussion and negotiation on infrastructure-related regional public goods. The significant financial resources and financial intermediation capabilities of multilaterals provide them with a valuable tool to foster cooperation among countries conditioned by access to those resources. Financial resources can also be used for capacity-building purposes in the less equipped countries in the region. For instance, loans and grants can be disbursed to develop engineering and regulatory skills in these countries and thus minimize the possibility of regional bottlenecks. Finally, multilateral institutions carry out research and disseminate knowledge, which can be used to develop and publicize specific regional infrastructure projects, new forms of regulation and institutional design for infrastructure-related regional public goods, and other issues that facilitate the efficient provision of these goods.

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CHAPTER 10

Environmental Regional Public Goods in Asia and Latin America

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Environmental problems pose a major hazard to the quality of life in Asia and Latin America. While often the byproduct of local economic activity, environmental problems are also sometimes "imported" from nearby nations. Indonesia's forest fires have affected the quality of life in Singapore. Acid rain crosses national borders. Sewage travels down rivers, endangering the quality of life in downstream nations. Air pollution hangs like a specter in the air of almost every major Asian city. In Latin America, industrial waste and untreated sewage pollute large and complex waterway systems, carrying contaminants across borders. Construction of basic infrastructure such as sewers, water treatment plants and hazardous waste dumps is far from keeping up with the region's population growth, particularly in huge informal settlement areas across the continent.

This chapter first investigates the causes and consequences of "cross-boundary" environmental problems in Asia and Latin America, which broadly refers to pollution created in one country that encroaches national boundaries and negatively impacts the living standards of other countries in the region (Lin and Rajan, 2000). Some major environmental regional public goods challenges in the two regions are then presented, followed by a survey of recent research on environmental economics that has measured the size of cross-boundary pollution problems. The chapter then explores how cross-boundary pollution and environmental degradation impose large social costs on "downstream" nations. A major focus is the extent to which problems with environmental regional public goods are affected by economic development. Do economic growth and trade liberalization mitigate or exacerbate these problems? Unfortunately, the potential for national "free riding" raises the possibility that growth will exacerbate cross-regional pollution problems. Any one nation rarely has the right incentives to take costly actions to mitigate the problem. The final section of the chapter sketches opportunities for development banks to play a key role in financing regional public goods and encouraging environmental accountability.

Regional Pollution Problems in Asia

The Asian "Brown Cloud" is a haze over South, Southeast and East Asia, 75 percent of it man-made. Air pollution is so serious that 25 cities in Asia in 1995 had ambient particulate levels that exceeded by three times the World Health Organization's annual particulate standard of 90 micrograms per cubic meter.[1] The major causes of this cloud are wild fires in Indonesia and the combustion of biomass and fossil fuels prompted by forest fires, inefficient cooking fuels, factories, and motor vehicle use. The "victims" are the countries beneath the haze layer (South Asia). The damage caused by this externality includes health effects caused by particulate matter (as in Malaysia), and lower agricultural productivity because of reduced solar radiation. The cloud has altered regional monsoon patterns, causing less rain in northwest India, Pakistan, Afghanistan and western China by as much as 40 percent, and more rain and flooding in other areas such as Bangladesh.

A second major environmental regional challenge in Asia is acid rain. The major polluters are China and India, with the source of the pollution being coal-fired power plants. The "victims" are Hong Kong, Japan, North Korea, South Korea and Taiwan. In 1990, China's emissions accounted for some 37 percent of Japan's sulfur deposition and 34 percent of that of North Korea (Carmichael and Arndt, 1995).

A third environmental regional public good issue in Asia is the Mekong River Basin. The Mekong River originates in China's Yunnan Province, briefly passing though Myanmar, then Laos, Thailand, Cambodia and Vietnam, then into the South China Sea. To meet increasing demand for electricity, all six nations are pursuing development through construction of dams. China and Thailand are ahead of the other countries, implementing large-scale hydroelectricity projects. The "victims" from this development are countries in the lower basin such as Vietnam and Cambodia that suffer the destruction of ecosystems caused by increased river salinity. Vietnam's rice sector has been affected by a lack of irrigation water from the Mekong River. Without sufficient flow from upstream, the Mekong River flowing through Vietnam runs the risk of being over-run by seawater from the South China Sea. The 17 million Vietnamese who live in the Mekong Delta, otherwise known as the "rice bowl," are rice farmers producing half of the country's total rice (Browder and Ortolano, 2000, p. 512).

[1] These cities include Anshan, Beijing, Changchun, Chengdu, Congqing, Guangzhu, Guiyang, Harbin, Jinan, Lanzhou, Liupanshui, Nanchang, Pinxiang, Shenyang, Taiyuan, Tianjin, Urumqi, Zhengzhou, Zibo, Ahmedadbad, Calcutta, Delhi, Kanpur, Lucknow and Jakarta.

Regional Pollution Problems in Latin America

The Rio de la Plata (River Plate) estuary of Argentina represents 80 percent of fresh surface water in Argentina. Various rivers from Uruguay, Brazil, Paraguay and Argentina empty into the Atlantic Ocean through the River Plate. These nations contribute to the river's pollution through extensive agriculture (fertilizer, pesticide, herbicides) and deforestation that contribute to sedimentation and eutrophication.[2] Brazil dumps waste and petroleum into the Uruguay and Paraná rivers. In Montevideo, industrial waste, effluents from oil refineries and solid waste are dumped into the river. Given that 70 percent of Uruguay's population lives within 100 kms of the coast, this local population and the tourist industry (such as the resort city of Punta del Este in Uruguay, and Buenos Aires in Argentina) are adversely affected.

A second regional pollution problem in Latin America is air and water pollution at the U.S/Mexico border. The border region runs over 2,000 miles and is home to over 10 million people living mostly in 14 U.S. and Mexican "sister" cities. Most have recently arrived to work in the maquiladora factories that have acted as magnets to attract millions of people in the past decade with the implementation of the North American Free Trade Agreement (NAFTA). Construction of infrastructure such as sewers, water treatment plants and hazardous waste dumps has not kept pace with the flow of immigrants to the region. The population in this area is predicted to double by the year 2020.

A third important example of environmental regional public goods in Latin America is the Pantanal, the largest fresh water wetland in the world. It is located in Brazil (75 percent of the total Pantanal), Paraguay (15 percent) and Bolivia (10 percent),[3] each of which contributes to its contamination. Brazil is the most notable polluter because of the resources abundantly available near the wetlands and the fact that the area is mostly in Brazilian territory. Use of pesticides by farmers is a major source of the contamination. In addition, inhabitants along the Paraguay River dump millions of gallons of untreated wastewater daily. Cuiabá, the capital of Mato Grosso located in the Paraguay River watershed, lacks wastewater treatment facilities. Ranchers in Brazil who burn down the forest for cattle grazing contribute to soil erosion and the sedimentation of the Pantanal waterways, which in turn increases the risk of floods. Gold mining in Mato Grosso, Brazil causes tremendous problems, especially for the wildlife. Among the "victims" from this water pollution are those who rely on the ecological services of the wetlands for natural

[2] See http://www.ecoportal.net/articulos/contardp.htm, "Contaminación en el Rió de La Plata," by Omar Medina.

[3] See http://www.worldwildlife.org/wildworld/profiles/terrestrial/nt/nt0907_full.html, "The Pantanal of Brazil, Bolivia and Paraguay," The Water Research Institute, and http://www. pantanal.org/book.htm

water treatment and flood control, indigenous peoples who live in the area, and fishermen who have lost income because of declines in the fish population.

In all of these examples, a "free rider" problem contributes to the environmental externality (Arce and Sandler, 2002). In the case of the River Plate, for example, an upstream nation must decide whether to invest in a costly sewage treatment plant or simply dump sewage into the river. The river is a regional public good. Neither the upstream nor the downstream nation can deny the other nation access. The free rider problem arises because it is rational for the upstream nation to underinvest in preserving the water quality, since investment would yield benefits to its neighbor, but the upstream nation would pay the costs.

Recent Research Findings on Cross-Boundary Pollution

Recent research in applied environmental economics on cross-boundary pollution consistently finds just such free riding. Sigman (2002) measures river pollution levels at national boundaries by using biochemical oxygen demand (BOD). Attributable to a range of human activities (especially sewage), elevated BOD can travel far downstream, making for significant spillovers at many stations on international rivers. Sigman's data set covers 1979-96 for 291 monitoring stations across 49 nations. The statistical methodology focuses on the question: "All else equal how much higher is a river's BOD level at a monitoring station at an international border relative to what the river's BOD level is at a monitoring station within the nation?" Monitoring stations upstream of international borders have pollution levels elevated by 40 percent or more, especially outside of the European Union. This is statistical evidence of limited cooperation between nations to tackle the free rider problem.

Research measuring cross-boundary externalities is often limited by data access. Consider the Indonesian fires in 1997. Ideally, one would measure how much higher Malaysia's and Singapore's ambient particulate levels were because of the fires, holding other factors constant. While Rabindran (2002) estimates the cross-national health costs of these fires, these estimates are based on the assumption that all of the increases in these "victim" nation pollution levels was due to the Indonesian fires. In terms of economic cost, Rabindran estimates that the fires caused $12 million of damage to Singapore and $667 million to Indonesia, using pollution dose-response functions linking increased exposure to excess morbidity and mortality, and by taking a stand on what is the value of time and value of life in Singapore.

A rare case where the researcher can measure the quantity of emissions being transferred across national boundaries is the study by Bui (1998) of acid rain transfers between

the United States and Canada. In 1985, the U.S Environmental Protection Agency created the National Acid Precipitation Assessment Program Emissions Inventory. This program led to the compilation of detailed information on every emitter of more than 100 tons of any criterion pollutant located in either the United States or Canada. Using a spatial matrix of estimates of the "source-receptor" relationship, Bui was able answer the question: "If an electric utility in Ohio releases 1 ton of sulfur dioxide, how much emissions will land in Toronto and vice-versa?" She used this data to measure the size of the externality if the United States and Canada do or do not not cooperate in trying to minimize their respective acid rain levels at the lowest possible cost.[4] Unlike the upstream/downstream river case, both nations are polluter and victim. If one nation has a cost advantage in reducing its sulfur dioxide emissions, then there may be gains to trade as the high-cost nation compensates the low-cost nation to engage in greater pollution abatement. Thus, Bui essentially documents the potential for cost savings through cooperation, reporting evidence that the United States could reduce its cost of achieving its sulfur dioxide goal by 30 percent if it jointly cooperated with Canada relative to pursuing its goal independently of Canada and assuming that Canada's emissions will remain at their 1985 levels.

A third piece of evidence of boundary effects comes from comparing ambient air pollution across the United States. Kahn (1999) documents that, all else being equal, counties bordering high manufacturing production centers have higher pollution levels. Building on this work, we use U.S air pollution data from 1995-2000 on ambient particulates, sulfur dioxide and ozone. The data source is the U.S EPA AIRS Executive Plus CD-ROM. The following linear regression model is estimated:

$$\text{Log (Air Pollution)} = \beta_0 + \beta_1 \text{ Log (Pop)} + \beta_2 \text{ Mexico Border} + \beta_3 \text{ State Border} + S + T + \varepsilon \quad (1)$$

S = dummy variable for the county's state
T = time trend
Pop = county population density
Mexico Border = dummy variable indicating whether county is adjacent to Mexico
State Border = dummy variable indicating whether the county is adjacent to another state

Controlling for the year and the population density in a county and state fixed effects, we test whether counties that border Mexico and counties that border other states

[4] Tahvonen, Kaitala and Pohjola (1993) analyze the cost effectiveness of environmental cooperation between Finland and the Soviet Union to reduce sulfur emissions.

have higher pollution levels. Statistically, this tests the hypothesis that B2=0 and B3=0. Table 10.1 reports three regression estimates of equation (1). The left column reports the results for ambient particulates. Border effects are found. All else being equal, a county next to the Mexican border has particulate levels that are 16 percent higher than an observationally identical county not next to the Mexican border. In addition, counties bordering another state have particulate levels that are 7 percent higher than a similar county in the same state that does not border another state. The results for sulfur dioxide tell a qualitatively similar story.

Measuring the Damage from Cross-Boundary Environmental Degradation

Simply documenting that one nation is transferring pollution to another nation is not sufficient for showing that this pollution and environmental degradation is causing significant damage. Damage estimates are needed to determine what types of regional environmental policies would be effective. Who bears the greatest burden from the environmental degradation depends on whether the affected party can adapt and thus cope with the lost environmental assets and additional pollution exposure.

Table 10.1. National and State Boundary Effects Based on U.S Ambient Air Pollution, 1995-2000

Dependent variable	Log(PM-10)	Log(SO2)	Log(Ozone)
Log(population/land area)	0.0408	0.0737	0.0211
	(0.0032)	(0.0061)	(0.0020)
Time trend	(0.0087)	(0.0181)	(0.0090)
	(0.0024)	(0.0042)	(0.0014)
County borders Mexico dummy	0.1637	0.0368	(0.1228)
	(0.0340)	(0.0855)	(0.0133)
County borders another U.S state dummy	0.0733	0.1332	0.0626
	(0.0092)	(0.0163)	(0.0058)
Observations	10,040	3,970	6,340
R^2	0.2860	0.5341	0.2909
State fixed effects	Yes	Yes	Yes

Notes: Each column reports a separate regression. The unit of analysis is a county/year. The omitted category is a county that is not adjacent to Mexico and is not adjacent to another state's border. Standard errors are presented in parentheses. The air pollution data source is the U.S EPA AIRS Executive Plus CD-ROM, Office of Air Quality Planning & Standards. Sulfur dioxide and particulate matter (PM10) are reported as annual mean. Ozone is measured as a monitoring station's fourth highest annual reading. Particulate matter is measured in micrograms per cubic meter and the other pollutants are measured in parts per million.

This section sketches the general approach for measuring the damage caused by cross-boundary pollution, and then discusses key gaps in currently available data for confidently measuring the damage caused by such regional environmental problems as Asia's Brown Cloud and pollution of Latin America's Pantanal. In general, an environmental externality can cause economic damage by lowering producer profitability, increasing the risk of illness and death, and diminishing the quality of day-to-day life.

To focus the discussion, consider what information is needed to measure the damage caused by river pollution. First, suppose that 1 million people in a bordering nation get their drinking water from the river. Individual willingness to pay to avoid the pollution will be higher if these people have no coping strategies. For example, if these million "victims" are aware that the water has been polluted by their neighbor, and if they have access to a self-protection technology such as boiling the water before using it, then they will suffer less from the pollution than if they did not know that the water is polluted and had no access to coping strategies. Two recent U.S studies concluded that people can and do modify their behavior to minimize their pollution exposure when they are notified about a pending environmental risk, such as through a smog alert (see Bresnahan, Dickie and Gerking, 1997; and Neidell, 2002).

Equity considerations arise, however, if in the downstream nation that receives the water pollution there are two types of households—those that are poor and uninformed about the water risks, and those that are wealthy and informed and have access to substitutes such as bottled water and coping strategies such as stoves. In this case, the bulk of the environmental damage from the cross-boundary externality will be borne by the poor.[5] Any public policy that mitigates this problem will tend to be a progressive policy.

A key issue in environmental economics is measuring a person's demand for nonmarket goods such as clean river water. Since there are no explicit markets to observe how much each household demands at market prices, environmental economists have been quite creative in designing ways to measure willingness to pay for environmental goods such as clean water. The contingent valuation approach simply asks people how much they are willing to pay. While this approach has several attractive features, it suffers from the perception that the responses may simply be "cheap talk" and not a revealed preference for a good.

An alternative valuation method would be the health production approach. Suppose that vitamins can offset pollution exposure in such a way that people who drink polluted water must take two vitamins to restore their health. Vitamins are thus a market

[5] In addition, Bresnahan, Dickie and Gerking (1997) and Neidell (2002) both find that the more educated are more responsive to environmental information when they have it.

substitute for the non-market good, clean water. If the purchase price of a vitamin is $5, then the cost of offsetting the pollution damage is $10.

Surely, there are cases where there is no perfect substitute for undoing the damage caused by pollution exposure. An alternative approach to measuring the damage caused by water pollution in this case would be to measure the extra sickness, and thus lost time, caused by cross-boundary pollution.[6] Suppose that each person lost 30 hours of time due to sickness caused by the upstream pollution. One way to value that time is through opportunity cost—if we were not sick, we could be working earning our hourly wage. Suppose that all the victims have an hourly wage of $3. Given these assumptions, the cross-boundary pollution caused $90 of damage per capita, and if 1 million victims were affected, then the total national damage from the regional public good degradation would be $90 million.[7] The general formula for measuring damage this way is:

Damage = affected population*(hours lost to sickness)*Wage per hour.

The total damage that a downstream "victim" nation suffers depends on its level of economic development. In a growing economy where wages are rising, environmental degradation will pose more damage because households will be willing to pay more to avoid excess morbidity and mortality risk. Richer people are willing to pay more for a better quality of life. A recent study of Taiwan's labor market from 1975-2000 reported evidence that the wage premium for working in riskier industries sharply increased over the period (Hammitt, Liu and Liu, 2000).[8] Given that the environment is a key part of daily life, if richer households value the absence of environmental degradation more and more, then cross-boundary pollution will cause even greater damage.

Willingness to pay to avoid pollution exposure is not just a function of health consequences; aesthetic and quality of life impacts can also be quite important. In this information technology age, many cities in developed countries are making a transition from production to consumption centers (Gaspar and Glaeser, 1998; Glaeser, Kolko and Saiz,

[6] A population's ability to cope with this exposure might depend on such factors as nutrition, time spent outside, smoking levels and other attributes, so extrapolating from one nation's estimated health production functions is likely to be a mistake. For estimates of health responses to pollution in Taiwan, see Alberini and Krupnick (1998).

[7] An even more challenging exercise is to value wetlands and fresh water ecosystems. These are environmental goods where there are no good market substitutes for what nature provides, and many people do not even know what services they are receiving from nature. Given that Latin America is richly endowed with such natural assets, researchers from the Inter-American Development Bank (IDB) have faced a valuation challenge. Bucher, Castro and Floris (1997) point out that many people living near such wetlands incorrectly view them as useless.

[8] These authors found that in the 1970s, the hourly wage in high-risk industries was higher than in low-risk industries, holding job qualifications constant. Over time this job risk premium has sharply increased.

2000). Tourism in Hong Kong has been affected by the rise in air pollution partially caused by increased production in China's Quangdong factories. If quality of life in major cities such as Buenos Aires is endangered by regional public goods degradation, then a valuation of this additional damage must be made to calculate the total unintended regional cost of pollution.

Effect of Economic Development on Problems with Environmental Regional Public Goods

Many cross-national environmental problems such as acid rain and river pollution are properly described by a weighted summation production function. As described by Sandler (1998) and Arce and Sandler (2002), total cross-boundary pollution is a function of each nation's own pollution production and the transfer matrix that specifies how much of this "own production" crosses national boundaries.

This section studies how the quantity of pollution produced and "exported" by a nation is affected by economic development. It can be argued that economic development exacerbates the regional pollution problem, but also that development mitigates such problems. In examining both arguments, this section presents new cross-national empirical work on the relationship between environmental degradation and economic development, then returns to the examples given earlier to analyze how these major challenges for Asia and Latin America may evolve as economic development progresses.

Economic development can exacerbate regional public good problems because income growth raises a nation's scale of production and consumption. Rising production of such pollution-intensive products as steel and farming means that common environmental resources such as rivers and the air will be further degraded. Wealthier households will spend their money on goods such as autos, with environmental consequences. Energy consumption also rises with economic development. If this energy is produced using coal-fired electric utilities, then particulate and sulfur dioxide problems will ensue, while providing power using hydropower plants will require new dams that will affect the water quality in downstream nations.

To provide some new facts concerning recent trends in energy consumption in Asia and Latin America, national annual data from 1989-99 from the U.S Energy Information Administration is used.[9] This database provides annual information on each nation's energy consumption, real GNP and population.

[9] See http://www.eia.doe.gov/emeu/international/total.html#Carbon

Table 10.2. Time Trends in National Energy Consumption in Asia and Latin America, 1989-99

	Time trend in energy per capita	Time trend in energy per dollar of GNP
Asia		
Bangladesh	0.0469	0.0173
Burma	0.0406	
China	0.0185	–0.0680
Hong Kong	0.0200	–0.0006
India	0.0348	–0.0021
Indonesia	0.0468	0.0154
Japan	0.0199	0.0068
Kazakhstan	–0.1007	–0.0772
Korea, South	0.0751	0.0253
Laos	–0.0275	–0.0612
Malaysia	0.0423	–0.0076
Nepal	0.0738	0.0498
Pakistan	0.0207	0.0063
Singapore	0.0361	–0.0101
Taiwan	0.0559	0.0048
Thailand	0.0789	0.0383
Uzbekistan	–0.0144	–0.0040
Vietnam	0.0160	–0.0290
Continental mean	**0.0269**	**–0.0053**
Latin America		
Argentina	0.0246	–0.0091
Bolivia	0.0148	–0.0020
Brazil	0.0307	0.0194
Chile	0.0540	–0.0004
Colombia	0.0166	0.0022
Costa Rica	0.0383	0.0175
Ecuador	0.0180	0.0155
El Salvador	0.0434	0.0119
Guatemala	0.0482	0.0361
Honduras	0.0100	0.0091
Mexico	0.0071	–0.0044
Paraguay	0.0462	0.0481
Peru	0.0195	–0.0120
Continental mean	**0.0286**	**0.0102**

Notes: Each entry in the table reports the time trend from a nation-specific regression. The "energy per capita" column represents a nation's annual energy consumption per capita. The log of this variable is regressed on a time trend and the entry in the table represents the OLS coefficient estimate. The "energy per GNP dollar" column presents the OLS estimate from a regression of the log of national energy.

The left column of Table 10.2 examines the time trend in energy consumption per capita for 18 nations in Asia and 13 in Latin America. The right column looks at the time trend in energy consumption per dollar of real gross national product. Each entry in the matrix represents a separate time trend estimate.[10] In Asia, energy consumption per capita

[10] For each nation, the following regression is run: log(energy consumption per-capita) = B0 + B1*trend + U where the OLS coefficient B1 represents the estimated time trend. Table 10.2 reports estimates of B1 by nation.

is rising faster than energy consumption per dollar of GNP. Consumption per capita is growing fastest in Thailand, at 7.8 percent per year, while the continental annual average (not weighted by population) is 2.7 percent. If Thailand's energy growth continues, total energy consumption per capita will double in less than 10 years. In Latin America, surprisingly, per capita energy consumption is growing at the same rate as in Asia, with Chile and Paraguay experiencing the greatest growth. Like Asian nations, energy consumption per dollar of GNP in Latin America has no significant positive or negative time trend. Overall, Table 10.2 documents that in both continents the scale of economic activity, as shown by the per capita energy consumption time trend, poses a challenge to environmental quality. Only if there is a significant shift in industrial composition and technique effects will both regions see the "greening" of their environment as development takes place.

Economic development can mitigate regional environmental problems by shifting the composition of industrial production. Wealthier societies invest more in the education and skills of their workforce. The highly educated do not work in steel mills and do not want to live near them. In the United States, many cities such as Pittsburgh that specialized in manufacturing a century ago are now service sector cities focusing on tourism, finance and cultural synergies with local universities. Since the service sector economy is cleaner than a manufacturing one, this compositional shift greens the economy. Educational attainment also increases the propensity to support environmental regulation (Kahn, 2002). The dramatic increase in educational attainment in developing countries[11] suggests that the demand for more environmental regulation will increase.

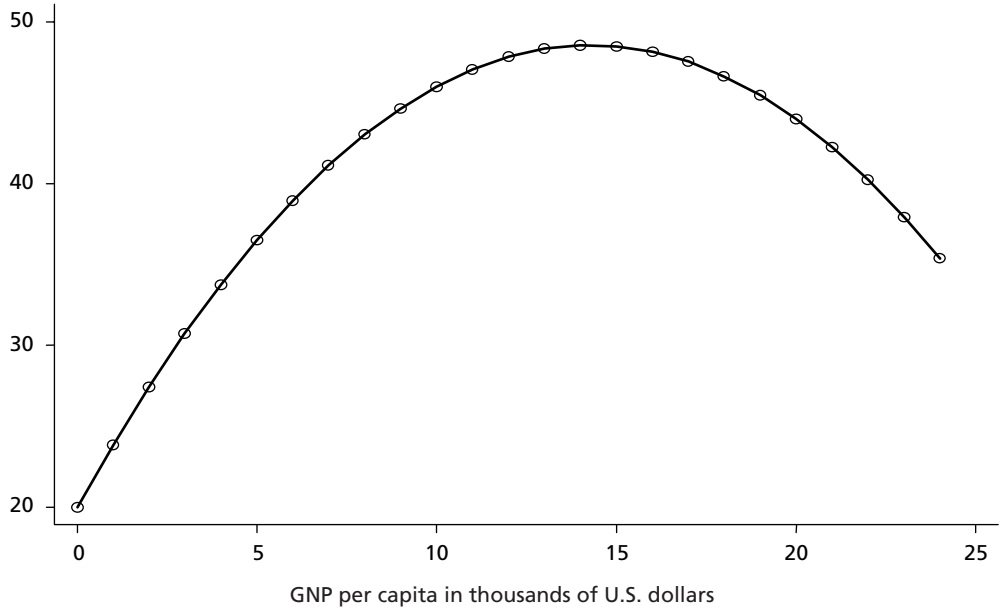
Increased regulation helps green an economy through the technique effect of reducing pollution per unit of economic activity. A wealthier society can afford greater environmental protection, and to invest in improved infrastructure such as water treatment plants that will improve downstream water quality (Seldon and Song, 1995).

Economic development often occurs because of urbanization. If urbanites have greater access to modern fuels, then these households are likely to move up the energy ladder. These households might have used dirty fuels such as dung and wood had they remained in rural areas, but by urbanizing they are more likely to use modern fuels that contribute less emissions to such regional pollution problems as the Asian Brown Cloud. Conversely, however, urbanization exacerbates other regional pollution problems. Richer urbanites demand more electricity and this entails building more coal-fired power plants to supply the power. This in turn could increase acid rain production. In the case of the Pantanal, rapid urbanization along its tributaries such as in Cuiabá in Mato Grosso has led to increased untreated waste and larger dump sites that degrade this natural asset.

[11] See Lillard and Willis (1994) for evidence from Malaysia.

Clearly, then, a case can be made that economic development is both a "foe" and a "friend" of the environment. Environmental economists have appreciated this and developed a nuanced hypothesis that captures it called the Environmental Kuznets Curve (EKC). The EKC hypothesis posits a non-linear relationship between development and environmental quality. As shown in Figure 10.1, the theory asserts that economic development first degrades the environment and then beyond a "turning point," the growth and environment become "friends." The standard explanation for how such a pollution growth path could emerge is that at low levels of economic development, an economy engages in polluting agriculture and manufacturing and invests little in environmental regulation. Consumers in this economy spend their money on dirty goods such as low quality fuels and older capital (used cars). With economic development, the economy eventually reaches a point where the growing middle class is willing to pay higher taxes for a functioning government to step in and start addressing the externality. The same result occurs if the economy makes a transition to services, and consumers buy higher quality capital. Many environmental economists have debated when this "turning point" is reached. The original Grossman and Krueger (1995) paper claimed that it occurs at $6,500 per capita. Harbaugh, Levinson and Wilson (2002) challenge that finding using the same data, but Dasgupta et al. (2002) make a convincing case that many pollutants

Figure 10.1. Hypothetical Environmental Kuznets Curve with a Peak of $14,000
(Ambient pollution)



will follow an EKC path, and that over time the curve presented in Figure 10.1 will shift down (less pollution for any level of GNP per capita) and shift to the left such that the turning point takes place at a lower level of income.

The EKC literature has focused on how a nation's environmental quality co-moves with its income level. But in the presence of regional environmental problems, a nation's environmental quality will be a function not only of its own economic development, but of that of a nearby nation as well. The EKC literature implicitly assumes that there are no cross-boundary spillovers, i.e., that pollution in one nation is solely a function of economic activity within that nation.

To present some evidence on the relationship between pollution levels and economic development, the Global Emissions Monitoring System (GEMS) data from 1971-92 is used. This is the same data used by Grossman and Krueger (1995) and Harbaugh, Levinson and Wilson (2002). The data set provides information by monitoring station on sulfur dioxide readings, and national data on population, the location of the monitoring station, and the nation's real per capita GDP. Equation (2) reports a median regression of ambient sulfur dioxide on a time trend and a quadratic of national real per capita GDP.[12]

$$SO_2 = -1.56t - 3.85\ GDP + 0.19\ GDP^2 \qquad (2)$$
$$N = 2{,}381 \text{ and pseudo } R^2 = .13 \text{ for cross national data from 1971-92}$$

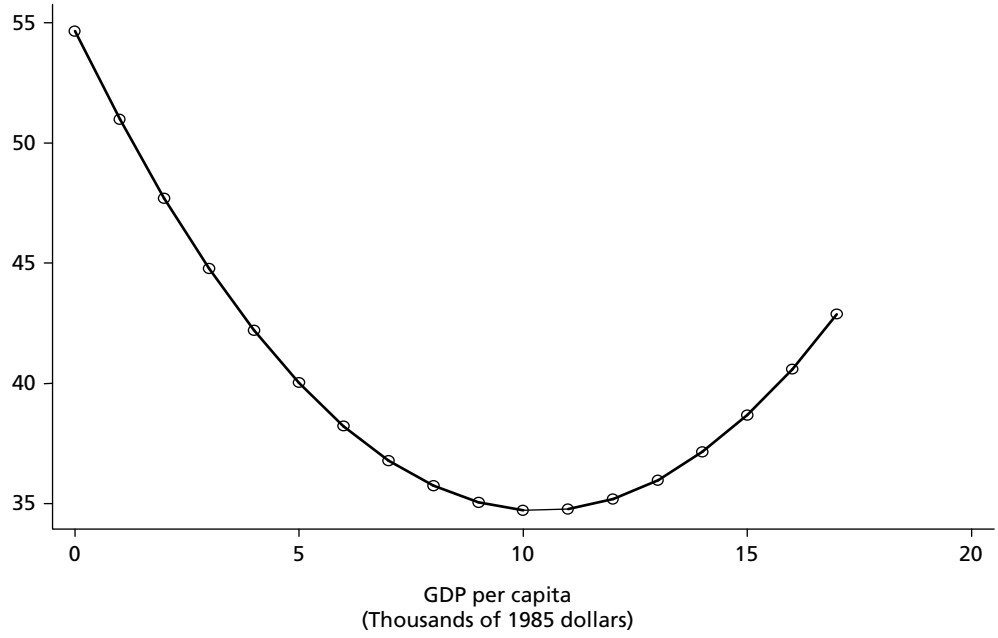
Two points stand out. Across the world, ambient sulfur dioxide is falling by 1.56 micrograms per cubic meter per year. Surprisingly, the opposite of an EKC curve emerges. Figure 10.2 presents the predicted relationship, based on equation (2), between ambient pollution and national income. As nations get richer, pollution levels fall. Figure 10.2 represents just one empirical finding of the relationship between environmental quality and per capita GDP.

A growing amount of environmental economics literature focuses on estimating such functions for a variety of environmental indicators. Hilton and Levinson (1999) find evidence that national lead emissions follow the general pattern presented in Figure 10.1. Sigman (2002) reports that river water BOD levels rise with national GDP per capita up to roughly $11,000, before declining with income. Hettige, Mani and Wheeler (2000) conclude that industrial water pollution rises until a nation's per capita GDP reaches $5,000, and then it does not fall.

Economists are optimistic that ongoing trends are likely to allow developing nations to reduce pollution levels and reach the "turning point" sooner. If this hypothesis is correct, then economic development will mitigate regional environmental problems such as

[12] Equation (2) does not report the coefficients on the constant, national population density dummies for coast, desert and center city.

Figure 10.2. Predicted Cross-National Relationship (data from 1971-92)
(Average ambient sulfur dioxide levels)



the Asian Brown Cloud and acid rain. The best overview of this optimism is presented in Dasgupta et al. (2002), who point to the role of trade liberalization, reduced government subsidies, dismantling of price controls, privatization of state enterprises, and the removal of barriers to trade and investment.

Regional public goods pose a challenge to EKC optimists. If a nation only gains 20 percent of the total benefits of mitigating its emissions because the other 80 percent float away to another nation, then this nation will underinvest in regulation. A nation is more likely to act when a great share of the total benefits are realized by the nation causing the problem.

Since "upstream" nations do not bear the environmental costs of their production, it is intuitive that their economic growth will lead to pollution scale effects. Such a nation may not enact the costly regulations needed to achieve the technique effect to offset the scale effect. In this case, pollution is likely to rise with economic development in "upstream" nations. If the "upstream" nation has a preference for being a good neighbor, or if it is being compensated to mitigate its pollution, then it may green its capital stock even though it does not internalize all of the pollution benefits. Why a nation would choose to be such a good neighbor could be tied to social capital between the nations or issue

bundling such that the upstream neighbor fears future political fallout if the environmental externality grows too big. Future research might examine how neighbor income inequality affects ideas over "fairness" and determines whether regional problems are addressed.

Trade Liberalization

As trade liberalization fosters economic development, Antweiler, Copeland and Taylor (2001) document the relationship between trade liberalization and national sulfur dioxide levels. One possible reason why trade might matter is because it enables a nation to import cleaner technologies. Measuring a nation's trade intensity as the ratio of (imports+exports)/GDP, the authors conclude that increased openness reduces ambient sulfur dioxide levels. A complementary piece of evidence is the case study by Kahn (2002) of pollution dynamics in Eastern Europe. Using panel data for Western and Eastern Europe from 1980-99 created from the parties to the Convention on Long-range Transboundary Air Pollution, Kahn documents that Eastern European nations have experienced a sharper reduction in emissions in the 1990s than Western European nations.[13]

Increased trade between bordering nations could act as a bargaining chip for addressing cross-boundary pollution issues. For example, suppose that the U.S. government purchases goods from Mexican exporters. If some pollutant crosses over the U.S. border from Mexico, and if the U.S. government can credibly commit to reduce Mexican purchases unless the Mexican government regulates the local polluters, then this would provide an incentive for the Mexican government to act. Mexican exporters would lobby their government to take action. Sigman (2002) tests the hypothesis that there are less cross-boundary water pollution problems between nations that trade a lot with each other. Not surprisingly, she finds only weak evidence in favor of this hypothesis, as no individual firm has any incentive to engage in issue "linkage." If Microsoft is importing parts from Mexico, it would never threaten to stop buying them unless pollution imports from Mexico stop. Bill Gates does not have a significant enough stake in Texas environmental quality to credibly make this trade threat. For such issue linkage to be effective, a government must be a major purchaser of the trade goods.

A final important effect of trade liberalization is population migration away from major cities. In Latin America, a large share of most national populations lives in the largest city. Krugman and Livas (1996) argue that manufacturers are more likely to ag-

[13] The data are available at http://www.emep.int/. The data set was created because of the Convention on Long-range Transboundary Air Pollution signed in 1979. The convention establishes a broad framework for cooperative action to reduce the impact of air pollution and sets up a process for negotiating concrete measures to control air pollutant emissions through legally binding protocols.

glomerate in a nation's major city if the economy is closed to trade. The intuition is that most of the firms' consumers will be located in this city, so to economize on transportation costs and building costs it makes sense to build only one factory and locate it there. The authors argue that such manufacturers would be more likely to decentralize if the economy were open to trade. Evidence supporting this hypothesis can be found from Poland's recent experience (Deichman and Henderson, 1999). If trade liberalization reduces urban primacy, is this good or bad for mitigating regional environmental problems? The answer partially hinges on geography. If the city borders another nation, then this is likely to reduce the production of cross-national environmental problems. If the Krugman and Livas (1996) hypothesis is correct, and if a nation's major cities are not near national borders, it is possible that trade liberalization will mitigate national environmental externalities but exacerbate regional public good problems. For example, Mexico City has severe air pollution problems. If NAFTA encourages people to migrate north and not to Mexico City, this will mitigate its problems but exacerbate border pollution.

Globalization, of course, means not only trade in goods but also rising tourism. Increased tourism offers the potential for making sustainable development more profitable. Ecotourism, for example, could provide an alternative source of income for ranchers and farmers who are currently polluting the Pantanal.[14]

Implications for Asia and Latin America

Can economic development solve some of the environmental problems in Asia and Latin America described in this chapter? Consider the Asian Brown Cloud. While both population and economic growth increase fuel consumption, economic development moves households up the energy ladder, so such technique effects could offset the scale effects, resulting in less burning of dirty coal and biomass fuel and consequently less pollution (Chauduri and Pfaff, 2002). Forest fires are one of the most devastating contributors to air pollution. Most are caused by the use of open burning techniques to convert forest into other land uses such as estate crops, industrial plantations and other commercial enterprises; traditional slash-and-burn agriculture; and speculative burning to stake land claims (Goto, 1998). Economic development would provide the resources for credible regulation and law enforcement, as outlined by the Association of Southeast Asian Nations (ASEAN) and the Asian Development Bank (ADB, 2001) for Indonesia.

[14] See http://www.pantanal.org/trent.htm, "Ecotourism in the Pantanal and its Role as a Viable Economic Incentive for Conservation."

In the case of acid rain in Asia and pollution of the Mekong River, economic development would likely exacerbate current regional public good problems. The region's growing demand for energy (see Table 10.2) will require that more power plants be built, some coal-fired and others hydro-powered, which in turn will involve further damming of the Mekong River. The most attractive alternative is shifting to natural gas, of which there are substantial reserves in the region. However, the widespread use of natural gas would require a huge investment in infrastructure to transport and distribute the gas from fields in the region (Zarsky, 2000).

Similar scale effects threaten water resources in Latin America. Mercosur has increased the likelihood of maritime traffic accidents during the transport of hydrocarbons up the Rio de la Plata and along the coast.[15] Traffic along the river will continue to increase as markets open up for South American goods abroad and in the region.

Role of Development Banks in Improving Environmental Regional Public Goods

The donor banks are using their assets to encourage development that has a minimal environmental impact on neighbors. In the case of the Asian Brown Cloud, the ADB is involved in a prevention program that includes scientific monitoring and an assessment of the causes of fires and mechanisms of the haze. To protect the Pantanal, the Inter-American Development Bank (IDB) has provided loans to strengthen local government institutions, as well as to conduct research and monitor wetland trends.[16]

Rather than simply listing what the donor banks have been doing to mitigate environmental problems, however, this section addresses specific issues that these institutions are in a unique position to address. One issues has to do with information, which is an undersupplied public good. Exporters of regional pollution have no incentive to monitor their own pollution levels, and "victim" nations cannot unilaterally demand that the exporters identify and measure who is causing the cross-boundary pollution. In the case of Asian acid rain, subsidized loans could be offered to encourage the collection of continuous time stack emissions from electric utilities. In the case of the Pantanal, geographic information software could be used to map the population density and other demographic characteristics of people living near the environmental asset.

Such information collection will play a key role in establishing accountability of those responsible for the pollution that is taking place, since polluters will know that their

[15] See http://www.ecoplata.org.uy/site/ecrep01.html,"The Rio de la Plata—An Environmental Overview."
[16] See http://www.iadb.org/exr/PRENSA/2000/cp22300e.htm, "Plan to Protect Brazil's Pantanal gets $82.5 million IDB Loan."

actions can be traced back to them. As things stand, environmental economists often are forced to rely on their creativity to determine who is doing the polluting and measure the extent of the damage. For example, economists have searched for "natural experiments" where for some exogenous reason economic activity slowed and pollution readings were available before and after. Ransom and Pope (1995) exploited the fact that labor strikes led to intermittent operation of a steel mill in Utah, which provided a unique opportunity to measure the external health costs of air pollution. Using a nearby valley as a control, the study analyzed data on hospital admissions and daily deaths for the two valleys. Hospital admissions for respiratory diseases and mortality increased significantly when the mill was in operation. Kahn (1999) and Chay and Greenstone (1999) use the 1981 recession that greened the U.S rust belt to see how this greened its manufacturing areas.

Of course, information is necessary but not sufficient for mitigating environmental regional public good problems. For example, Lin and Rajan (2000) provocatively argue that even though Indonesia's fires were foreseen through early warning indicators, little action was taken. They attribute this regional passivity to the "nonintervention" philosophy inscribed in the founding principles of ASEAN, which states that it is unacceptable for member countries to comment on the domestic policies and problems of another member country. Intuitively, regional public good issues will be addressed sooner if each nation has an active free press and nations communicate their concerns about cross-boundary problems.

In the case of acid rain in Asia, collecting real time data on major polluter emissions would be the first step towards creating a regional pollution permit market. Such a market would harness incentives to encourage green innovation and reduce pollution at the lowest possible cost.[17] Stavins (1998) points out that the U.S. sulfur dioxide market has been a success because each of the major sulfur dioxide emitters (coal-fired electric utilities) knows that the regulator can cheaply monitor its emissions and credibly punish any polluter who is caught polluting without a permit. The ADB has the financial clout to encourage power plants in different nations to participate in this market in Asia.

Better data on pollution production would not only aide in designing incentives for polluters, but would also help the development banks evaluate whether their environmental loans have achieved their goals. Without such information, it is difficult to answer the counter-factual, "What environmental progress would have been made in the absence of the loans?" What complicates evaluating the impact of donor loans on regional public goods is the fact that such goods are produced as a byproduct of the actions of many nations. If the ADB focused its lending on one polluting nation and acid rain diminished, it could be that emissions fell in another nation (perhaps due to recession) and that this re-

[17] Cassela (1999) discusses the implementation of a different type of regional permit market in Europe.

duction could be falsely attributed to the loan. If the terms of future loans were partially tied to past progress on mitigating environmental regional public good problems, then this would create dynamic incentives for loan recipients to invest in costly infrastructure and not free ride.

A second general point for development banks to consider is to recognize the potential for both positive and negative synergies between different loans in their portfolios. Development banks and donors give money for several different purposes, including environmental protection, infrastructure construction, human capital development, and even preserving peace between nations. An example of a positive synergy is a loan that encourages peace between nations. During times of war, "tragedy of the commons" problems are exacerbated as people extract more natural resources due to the uncertainty about their future property rights. In addition, if war breaks out between neighboring nations, then cooperation is less likely to take place. The Mekong River is a case in point. In 1957, the Mekong Committee was formed as a regional inter-governmental organization with members from developing countries. It was formulated with UN member nations' support. However, the Vietnam War in the mid-1960s and the communist sweep in South Vietnam, Cambodia, and Laos in the mid-1970s left Thailand as the only pro-capitalist and pro-West country. The Mekong Committee ceased to exist.

Development loans can also have negative synergies. Avoiding this requires careful ex-ante environmental impact statements. For example, some economic development projects such as road building have had significant environmental consequences. New roads built in the Brazilian Amazon and in Thailand lowered the transportation cost, but involved cutting down forests and shipping out logs for sale. Recent academic studies have argued that road building has accelerated deforestation (Pfaff, 1999; Cropper, Griffiths and Mani, 1999; Cropper, Puri and Griffiths, 2001), highlighting an issue with which all development banks must grapple. While sustainable development is a worthy goal, what happens when development threatens sustainability? How do the donor banks trade goals when a "win/win" is not achievable?[18] Beginning the process of addressing these questions would credibly signal Asian and Latin American nations that the development banks are committed to achieving sustainable development.

Unlike for-profit banks, development banks may choose to offer different loan terms for projects that have beneficial regional environmental consequences. For example, the IDB has provided a number of sanitation loans to Bolivia, Colombia, Honduras, Jamaica and Nicaragua (IDB, 2000). Some benefits of these projects will accrue to "downstream" nations, whose water supply quality will end up higher. To encourage such na-

[18] Gutner (2002) provides a qualitative analysis of this issue for the European Investment Bank and the European Bank for Reconstruction and Development.

tions to take such loans, the loans could be made at a subsidized interest rate that ties the subsidy to the expected external regional gains.

Conclusions

In September 2002, *The New York Times* reported that Hong Kong was suffering from very high particulate levels in part because of imports of emissions from the growing manufacturing center in China's Guangdong Province (Bradsher, 2002). Such cross-boundary pollution spillovers are commonplace and predictable. In the absence of explicit incentives or credible threats, nations have little incentive to not "free ride" and to not externalize pollution onto their neighbors. While the theory of regional public goods is well understood, until recently there had been little empirical analysis of the magnitude of these effects. This chapter has surveyed the growing environmental economics literature that focuses on measuring these effects.

The size of the economic damage caused by regional public good problems is a function of the economic development in the "victim" and the "polluter" nation. Regional economic development can mitigate regional environmental problems if developing nations adopt greener techniques that reduce emissions faster than the scale of economic activity increases. Whether such nations will adopt such green techniques hinges on the private benefits and costs that these nations perceive. The development banks can offer incentives to encourage the adoption and diffusion of such green technologies.

Further research at the regional level could investigate which bordering nations have a historical track record for resolving cross-boundary disputes. What is it about these nations that they have been able to address the free rider problem? Perhaps sharing a similar history, culture, ethnic makeup or religious and political institutions, or having a record of peace or relative income equality, all help to build social capital between nations (Alesina, Baqir and Easterly, 1999).

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CHAPTER 11

Regional Public Goods and Health in Latin America

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Two health-related regional public goods that are currently underprovided in Latin America are research and development (R&D) on diseases specific to or concentrated in Latin America, and knowledge regarding which health interventions are most effective in the region.

This chapter argues that the vast majority of the benefits of disease control are realized within national borders, but that knowledge about health problems and policy issues relevant to Latin America is a key health-related regional public good. The chapter examines the roles of "push" and "pull" policies in encouraging R&D; how a pull program could be designed to encourage R&D on vaccines for Chagas' and *P. vivax* malaria; and how the Inter-American Development Bank (IDB) could help produce rigorous evidence on the effects of health programs in the region.

Key Regional Public Goods in Health

The benefits of regional public goods occur outside a single country but within a region. This chapter will focus on goods for which most of the benefits spill over outside a single country but within a single region—in this case Latin America.

Cross-border disease control is sometimes set forth as an example of a regional public good (Commission on Macroeconomics and Health, 2001; Kaul, Grunberg and Stern, 2000). However, standard epidemiological models imply that the cross-border benefits of disease control are typically small relative to the benefits within a country (Anderson and May, 1991). If in a country's environment the net reproductive rate of a disease—the number of secondary infections caused by a single primary infection—is less than one, then cross-border transmission of infection will lead to only a limited number of cases within the country before the chain of infection dies out. If the net reproductive rate is greater than one, then the long-run spread of infection within the country will be almost

identical whether the cross-border flow of infection is a few cases a year or many more. Only if it is possible to virtually eliminate the seed infections flowing across borders will there be a substantial impact on long-run prevalence. When a disease is near eradication in a region, it may be possible to eliminate these seed infections, and hence much of the benefits of control spill across country borders, making disease control an international public good. For example, eradication of polio would allow other countries to cease vaccination, saving them large expenses. Aside from cases like polio today, or smallpox in the 1970s, however, disease control is largely a national, not international, public good.

The two regional public goods discussed in this chapter both fall into the general category of knowledge creation: R&D on health products needed in the region, and research on what health programs and health care delivery systems are most effective in Latin America.

Research and development on products that would be significant to the region, but would be less important outside of it, is a regional public good, since the benefits of successful R&D efforts are widely dispersed.

This public good problem hinders the incentive of countries to invest in R&D on the health needs of Latin America. Because many different countries would benefit from, for example, a new vaccine for Chagas' disease, no single country has sufficient incentive to invest in developing such a vaccine. Moreover, were a private company to invest in developing a vaccine, once the firm's R&D costs were sunk, no individual country would have incentive to pay an amount for the vaccine commensurate with the value of the vaccine to its citizens. Instead, each country would have incentives to try to obtain the vaccine at a price as close to manufacturing cost as possible. Thus, there is a huge gap between the returns that potential developers of needed vaccines or drugs could expect, and the benefits the product, if developed, would provide for society. Indeed, many vaccines and drugs sold in developing and middle-income countries sell for a fraction of their social value. The cheap, off-patent vaccines that more than 80 percent of children in Latin America now receive are estimated to save 3 million lives per year worldwide (Kim-Farley, 1992), but cost pennies per dose. Newer, on-patent vaccines, which at a dollar or two per dose still sell at prices far below their social values, do not reach all countries in Latin America. To get an idea of the extent of the gap between private and social returns, note that a malaria vaccine would be cost-effective relative to other health programs in Latin America at $24 per person immunized (Glennerster and Kremer, 2001a), even if each disability-adjusted life year (DALY) saved were valued at only $100—the threshold often used for the poorest countries. It would be reasonable to use a much higher threshold, perhaps $1,000/DALY, for Latin America, given that the region is largely middle income. The gap between the price at which a vaccine would be cost-effective and the amount that the historical record suggests a vaccine developer would be likely to obtain implies that under current institu-

tional arrangements, potential vaccine and drug developers would not have incentives to pursue socially valuable research opportunities on Latin American health problems.

Research and development of preventative treatments or cures for Chagas' disease provides a good example of an almost pure regional public good for Latin America. According to the World Health Organization (WHO, 1991), Chagas' occurs throughout Latin America, and is a serious health problem in 17 Latin American countries. Transmitted by triatomine bugs, the disease is a permanent threat to almost a quarter of the population of Latin America, or 100 million people, and an estimated 16 to 18 million people are infected with the trypanosome parasite. The disease is chronic and largely incurable, causing cardiac, gastrointestinal and neurological damage.

Current efforts to control Chagas' disease focus on vector control through household insecticide spraying and programs to improve housing to eliminate the environments in which tratomines can live. Another control strategy is screening blood donations. (Of course, establishing the infrastructure for screening in blood banks has important spillover effects for preventing the transmission of other blood-borne pathogens, such as HIV/AIDS.) However, both of these control methods have high and continuing operational costs, and there is a need to develop cheaper and more effective tools to control Chagas' disease (Moncayo, 1994). Though there are multiple strains of the disease, research suggests that an anti-parasite vaccine may be feasible, and antigens have been developed that protect mice against infection. Vaccines are typically easier to deliver than drugs, since they typically require only a few doses to deliver, do not require diagnosis, and can be administered by personnel with limited medical training. The economic cost of Chagas' disease is calculated at over $6.5 billion per year (Dias and Schofield, 1999), so the benefits of a vaccine or other preventative measures or treatments for the disease are significant.

Treatment or a cure for *P. vivax* malaria is a more complicated example of a regional public good. This form of malaria is the most common and is found largely in Latin America and India. *P. falciparum* malaria is the most deadly form of malaria and is thus the subject of most malaria research, but there are more instances of *P. vivax* malaria than *P. falciparum* in India and in several large subregions of Latin America (Malaria Vaccine Initiative, 2002). Further, *P. vivax* is becoming increasingly resistant to common malaria drugs such as chloroquine. It is not clear that a vaccine effective against *P. falciparum* malaria would be effective against *P. vivax* malaria. If the "region" for the public good is construed as the areas affected by *P. vivax* malaria—that is, Latin America and India—R&D on vaccines and drugs for *P. vivax* malaria could also be seen as an underprovided regional public good.

The consequences of underproviding public goods to address Chagas' and malaria are potentially severe. Relative to the enormous burden imposed by these diseases in Latin

America, little research is carried out on them, especially towards vaccines. According to a Wellcome Trust (1996) study, public and non-profit malaria research amounted to about $84 million in 1993, with vaccine research making up only a small fraction of the total. The amount of private sector spending on malaria is unknown, but is generally considered to be far lower than public spending. Most of this research is geared toward *P. falciparum* malaria rather than *P. vivax* malaria (Malaria Vaccine Initiative, 2002). This state of affairs mirrors the global context of R&D on the health needs of developing and middle-income countries. Pécoul et al. (1999) report that of the 1,233 drugs licensed worldwide between 1975 and 1997, only 13 were for tropical diseases. Two of these were modifications of existing medicines, two were produced for the U.S. military, and five came from veterinary research. Only four were developed by commercial pharmaceutical firms specifically for tropical diseases of humans.[1]

Health policy research is another example of a regional public good for Latin America, because programs that are effective in one area of the region are more likely to be effective in other parts of Latin America than in other parts of the world. Latin American countries are often more similar to each other than to most European, Asian, or African countries in culture, income level, and other factors that are likely to influence the effectiveness of health programs. Thus, rigorous evidence on what types of health programs and delivery systems are most effective for Latin America is a regional public good. Research conducted to optimize health care delivery systems in one country may well be relevant to other countries in the region.

One example in Latin America was Mexico's *Progresa* program, which aimed at increasing the health, education and nutrition of children. A subset of communities that participated in the program were phased in randomly, allowing rigorous evaluation. *Progresa* paid mothers for obtaining preventive care and health education. Gertler and Boyce (2001) found that the program increased utilization of public health clinics for preventive care, lowered in-patient hospitalizations and visits to private providers, and decreased incidence of child illness by 23 percent. Studies such as this led Mexico to expand *Progresa* and prompted other countries to adopt similar programs.

Push and Pull Theories on Encouraging R&D

Programs to encourage the provision of the public goods of R&D on the health needs of Latin America and on the effectiveness of health care systems could take two broad forms.

[1] Note, however, that the definition of tropical disease used in their assessment was narrow, and that many of the other drugs licensed in this period were useful in both developing and developed countries.

"Push" programs subsidize research inputs such as grants to researchers or R&D tax credits. "Pull" programs reward research outputs by committing in advance, for example, to purchase a specified amount of a desired product at a certain price. Push and pull approaches for encouraging the provision of the public good of knowledge have different strengths and weaknesses, and each approach is thus more appropriate in certain circumstances.

Push programs are subject to asymmetric information between researchers and administrators and between these groups and the public, giving rise to both moral hazard and adverse selection. Moral hazard arises because funders cannot perfectly monitor the actions of grant recipients, and under a system of grant-financed research, researchers may have incentives to devote effort to pursuing general scientific research or preparing their next grant application rather than focusing on the development of the desired product. In contrast, under a pull program, researchers will not receive payment unless a useable product is delivered, so researchers have incentives to focus on developing the desired product.

Adverse selection in push programs arises because researchers have more information than funders about the probability that their research will lead to successful products. Research administrators or their ultimate employers—donors and the general public—may not be able to determine which research projects in response to certain diseases are worth pursuing, nor which diseases and products should be targeted. Decision-makers may therefore wind up financing ideas with only a minute probability of success, or worse, failing to fund promising research because they do not have confidence that its backers are presenting objective information on its prospects. In contrast, under a pull program in which developers are rewarded only if they successfully produce the desired product, there is a strong incentive for firms considering research investments to realistically assess the prospects for success.

The moral hazard and adverse selection problems with push programs are illustrated by a malaria vaccine development program supported by the U.S. Agency for International Development (USAID) in the 1980s. USAID correctly identified one of the public goods most needed by the developing world, but the incentive structure the agency adopted was not suited to the goal of developing a marketable vaccine. During the USAID program, external evaluators suggested that additional funding should not be provided to two of the three research teams. However, as a result of information provided by the project director, USAID provided substantial new resources to all three teams, and was so confident that vaccines would be developed that it even arranged to purchase monkeys for testing a vaccine. Two of three researchers diverted grant funds into their private accounts and were later indicted for theft and criminal conspiracy. The project director received kickbacks from the contract to purchase monkeys and eventually pleaded guilty to

accepting an illegal gratuity, filing false tax returns, and making false statements. In 1984, before the indictments, the agency claimed that there had been a "major breakthrough in the development of a vaccine against the most deadly form of malaria in human beings. The vaccine should be ready for use around the world, especially in developing countries, within five years" (Desowitz, 1991). By the end of the project, USAID had spent $60 million on its malaria vaccine effort with few results. Though the criminal activity in this case is certainly not typical, the example illustrates the vulnerability of push programs in general to overoptimism and monitoring problems. A pull approach would have better aligned researchers' incentives with USAID's goal of developing a needed public good.

Under pull programs, the public pays nothing unless a viable product is developed. For example, under a purchase commitment, a sponsor could commit to purchase malaria vaccine at $5 per immunized person and to make it available to developing countries either for free or in return for a modest copayment. These programs have several attractive features relative to traditional push programs for encouraging the later stages of product development. Pull programs give researchers incentives to self-select projects with a reasonable chance of yielding a viable product and to focus on developing a marketable product. Moreover, appropriately designed pull programs can help ensure that if new products are developed, they will reach those who need them.

A key limitation of pull programs is that they require specifying the output in advance. A pull program could not have been used to encourage the development of the Post-It Note® or the graphical user interface, because these products could not have been adequately described before they were invented. In contrast, it is easier in relative terms to define what is meant by a safe and efficacious vaccine or drug, especially since existing institutions such as the U.S. Food and Drug Administration (FDA) are already charged with making these determinations. Thus, pull programs may not work well to encourage basic research, because it is typically difficult to specify the desired results of basic research in advance. A program that ties incentives to the development of a product would encourage researchers to keep their results private as long as possible to have an advantage in the next stage of research, so simply rewarding the development of applied products is not a good way to stimulate basic research. Indeed, a key objective of basic research is to provide information to other researchers rather than to develop products. In contrast, grant-funded academics and scientists in government laboratories have career incentives to publish their results quickly.

Thus, both push and pull approaches have important roles in encouraging R&D. However, current policy underutilizes pull programs relative to push financing. The next section examines in greater detail some policy options for encouraging R&D on regional public goods for health in Latin America through pull approaches.

Pull Programs to Encourage R&D on Chagas' and *P. Vivax* Malaria

A purchase commitment in which sponsors commit to buy a specified quantity of a product at a specified price if the product is developed is probably the most attractive way of designing a pull program to encourage development of health products needed in Latin America. An alternative design of rewarding developers with extensions of patents on other pharmaceuticals would inefficiently and inequitably place the entire burden of financing development on patients who need these other pharmaceuticals. For example, giving a patent extension on Prozac for developing a malaria vaccine could prevent some people from getting needed treatment for depression. Another alternative is purchasing more existing products at higher prices in order to signal an intention to provide a market for future products and thus encourage research on desired technologies. While purchasing products such as childhood vaccines might be a highly cost-effective health intervention in its own right, it is unlikely on its own to convince potential developers of vaccines for malaria or Chagas' that historically fickle aid donors will provide funds to purchase vaccines for these diseases 10 or 15 years from now. Explicit purchase commitments would also be needed.

Designing a Purchase Commitment

The credibility and design of a purchase commitment will be a critical determinant of its effectiveness. If potential developers are to invest in research, they must believe that once they have sunk funds into developing a desired product, the sponsors of a purchase program will not renege on their commitments by paying a price that covers only the cost of manufacturing, and not research. Courts have held that similar public commitments to reward contest winners or to purchase specified goods constitute legally binding contracts, and that the decisions of independent parties appointed in advance to adjudicate such programs are binding. For example, in the 1960s the U.S. government pledged to purchase, at a minimum price, domestically produced manganese. After the world price of the commodity fell, the program administrator, the U.S. General Services Administration (GSA), attempted to renege. But U.S. courts forced the GSA to honor the commitment (Morantz and Sloane, 2001). The credibility of a purchase commitment can be enhanced by clearly specifying eligibility and pricing rules and insulating decision-makers from political pressure through long terms of service, and perhaps by including former industry officials on the adjudication committee.

If donor governments, international organizations or private foundations commit to purchase a future vaccine or drug, they should set out in advance the principles for de-

termining the eligibility of candidate products for purchase and the price they would be willing to pay. Eligibility conditions for candidate products would likely include some minimal technical requirements that would ordinarily include clearance by a regulatory agency such as the FDA, or a waiver for products that would likely pass a cost-benefit analysis for use in some Latin American countries. Products that pass these requirements could then be subject to a market test: nations wishing to purchase products might be required to provide a modest copayment tied to their per capita income, so that countries would have an incentive to carefully investigate whether candidate products are appropriate for their local conditions. This provision would also help to assure that limited funds are allocated well and would increase incentives for developers by increasing the payment offered to the successful developer.

A purchase commitment could also include a system of bonus payments for products that exceed the minimum requirements set by the program. To provide potential developers with a credible commitment, the program would need to specify a base price per person immunized. This would be paid for any vaccine meeting the technical requirements and the market test. However, it would be desirable for developers to have incentives to develop products that exceed such a minimum threshold. To some extent, this incentive will be provided by the threat of competition from superior products being developed by other companies. However, it would also be useful to have a system of bonus payments that would depend on the quality of the product. Guaranteeing a base price for products that meet a basic standard would provide the necessary reassurance to potential developers, while a system of bonus payments for products that exceed this standard would preserve the benefits of flexibility.[2]

Pricing and Cost of a Commitment

The total market promised by a purchase commitment should be large enough to induce substantial effort by developers, but less than the social value of the product. The larger the market for a product, the more firms will enter the field, the more research leads each firm will pursue, and the faster a product will be developed. Given the enormous burden of diseases such as Chagas' and malaria, there is little risk that payments made as a result of a purchase commitment could exceed the cost of saving the equivalent number of lives using today's treatments or expanded prevention programs.

A number of prior studies suggest that an annual market of $250 million to $500 million is needed to motivate substantial research on pharmaceutical development (Ket-

[2] See Kremer (2001b) for more detailed information on the design of a purchase commitment.

tler, 1999; Kremer, 2001a; Mercer Management Consulting, 1998). A commitment at this level to purchase vaccines for malaria would be extremely cost effective, costing nothing if a useable product was not developed and as little as $53 per DALY saved if a vaccine were developed.

The Role of the IDB

The Inter-American Development Bank is in a good position to lead a global public effort to encourage private vaccine research for Chagas' disease and *P. vivax* malaria. Other institutions are already spending public funds to finance research by providing grants to academics, conducting vaccine research in public laboratories, and funding joint public-private research ventures. The IDB's expertise and potential role in these areas is limited, but it can encourage private research through its core activity of lending to governments. In particular, the IDB can provide the necessary incentive for private developers to invest in R&D by pledging to provide concessional loans to ensure that countries can purchase suitable vaccines if and when they become available. By helping assure private firms that there will be a market if vaccines are developed, the IDB can encourage R&D investment by the private sector.

This method of encouraging R&D has a number of advantages over direct research funding. A commitment to help finance purchases of suitable new vaccines requires no spending unless and until such vaccines are developed. It avoids the need to choose between research on new vaccines and current needs, such as increasing access to existing vaccines, or fighting disease, using existing technologies. It also allows biotech and pharmaceutical firms and scientists themselves to select which research avenues to pursue, rather than establishing a new bureaucracy to make these decisions. Since the developers have the most information about the prospects for various research projects, they are best suited to make these decisions. Finally, by pledging to make sufficient resources available at concessional rates to countries purchasing the vaccines, the IDB would ensure the accessibility to developing countries of the vaccines once they are produced.

Earmarking future credits for a particular purpose is sometimes regarded as undesirable because it reduces the flexibility of an institution such as the IDB to provide loans where they are most needed and would achieve the greatest benefit. However, in the case of vaccines, earmarking is necessary to address the time consistency problems associated with rewarding R&D and to convince developers that there will be a market for their product. In any case, it would be hard to imagine a situation in which purchasing vaccines for Chagas' disease and *P. vivax* malaria would not be a high development priority.

Purchase Commitments and Current Priorities

An explicit commitment to help finance purchases of new vaccines will not interfere with other initiatives to tackle communicable diseases of the poor. This is because the commitment does not have to be financed unless and until a vaccine is developed. So, for example, the IDB could provide loans now to fight disease using existing technologies, while committing that if and when new vaccines are developed, it will provide concessional credits to countries purchasing these vaccines.

Public Good Issues

Commitments by one country to purchase vaccines benefit other countries by encouraging vaccine research and development. No one country, therefore, has a sufficient incentive to make a commitment on its own, which goes back to the public good problem described earlier in this chapter. In addition, once a vaccine is developed, countries will want to bargain down the price below the level needed to recoup the R&D costs (a time inconsistency problem). Anticipating this, developers have been reluctant to undertake the necessary research.

One solution is for donors to commit to help developing countries purchase the vaccine. Ideally, developing countries would be able to purchase the vaccine at a price close to the production cost, and the donors would pay for the R&D expenditure, which is a global public good.

Maintaining Concessionary Programs

To the extent that countries are restricted in the level of concessionary credits that they can draw on in any one year from the IDB, it is possible that, once a vaccine is developed, countries would be reluctant to use their limited concessionary funds to purchase the vaccine at the price agreed to by the Bank. Instead, they might attempt to purchase the vaccine elsewhere at a price that covers only manufacturing but not R&D costs. They could then use their scarce concessionary credits for other projects.

This is a reflection of the time inconsistency problem. Before a vaccine has been developed, countries may be willing, as a group, to commit to use concessionary resources to purchase the vaccine to help encourage vaccine development. Once the vaccine has been developed, however, countries have an incentive to go outside the terms of the concessionary commitment and bargain for a lower price that does not cover R&D costs. If developers anticipate this, they will be deterred from undertaking the R&D in the first place.

It is essential to provide developers with a credible commitment that a sufficient value of purchases will be made to recoup R&D costs. To provide the necessary assurance to developers, the IDB would need to make a commitment that, once a vaccine that meets the agreed-upon standards is developed, a certain level of Bank resources would be available for purchases of the vaccine. These resources should be reserved for vaccine purchases, and countries that apply for the resources should not suffer a reduction in their concessionary allocations for other projects.

Partnership Opportunities

The purchase commitment approach for vaccine development has attracted interest from policymakers internationally. The UK's Chancellor of the Exchequer Gordon Brown has supported the creation of an advance purchase fund (Elliott and Atkinson, 2001; Brown, 2001), and the UK Cabinet Office has published a report proposing an advance purchase commitment as part of a package of measures to fight disease (Performance and Innovation Unit, 2001). The concept of a vaccine purchase commitment has also received support from other European political leaders, including the German foreign minister and the Dutch development minister.

In the United States, Senators Bill Frist and John Kerry and Representatives Nancy Pelosi and Jennifer Dunn have proposed both a tax credit for sales of vaccines for AIDS, tuberculosis and malaria to nonprofit and international organizations and a purchase commitment in the Vaccines for the New Millennium Act. The tax credit program would match every dollar of qualifying vaccine sales with a dollar of tax credit, effectively doubling the incentive to develop vaccines for neglected diseases. Qualifying vaccines would have to cover infectious diseases that kill at least one million people each year and would have to be approved by the FDA. To qualify for the tax credit, sales would have to be made to approved purchasing institutions, such as the United Nations Children's Fund (UNICEF) or the Pan American Health Organization (PAHO). Although this proposal is structured as a tax credit, it would have effects similar to an expenditure program that matched private funds spent on vaccines. The Clinton administration also advocated the tax credit for vaccine sales, and this program was included in Clinton's FY2001 budget, though it did not ultimately become law.

World Bank President James Wolfensohn has also said that the institution plans to create a $1 billion fund to help countries purchase specified vaccines if and when they are developed (*Financial Times*, 2000). However, the World Bank has not as yet acted on this commitment. Some within the institution have advocated a more general program to combat communicable diseases of the poor. However, for a general program to stimulate research, it must include an explicit commitment to help finance the purchase of new vac-

cines if and when they are developed. Without an explicit commitment along the lines originally proposed by Wolfensohn, it is unlikely that the large-scale investments needed to develop vaccines will be undertaken.

Private foundations could also play a major role in creating markets for new vaccines. Foundations may find it easier than governments to commit credibly to future vaccine purchases, given their greater continuity of leadership. While continuing to fund its other priorities, a foundation could put its principal to use in encouraging vaccine research simply by pledging that if a vaccine were actually developed, the foundation would purchase and distribute it in developing countries. For instance, the Gates Foundation, with $22 billion in assets and a focus on children's health in developing countries and vaccines in particular, is well placed to forward a vaccine purchase commitment.

Evidence on the Effectiveness of Health Programs

This section examines policies that can provide the regional public good of information about what types of health projects are most effective in Latin America. Serious and rigorous evaluations that generate knowledge require time and money, and no single government has sufficient incentive to undertake evaluations that will benefit other countries. While many development projects typically include an evaluation component, these often consist simply of audits, interviews with stakeholders, or before-and-after comparisons. Audits do not measure effectiveness, stakeholder satisfaction is no guarantee of effectiveness, and before-and-after comparisons can be problematic because changes external to the project can influence its measured effectiveness. The correlation of outcomes and inputs may be a misleading guide to the effect of the inputs if measured inputs are correlated with other unmeasured variables that affect outcomes.

One approach to address these concerns is to conduct random prospective evaluations. Before the project is implemented, all suitable project inputs are randomly assigned to treatment and comparison groups. With random assignment and sufficient sample sizes, the two groups should be comparable in all aspects other than the effect of the project. If an organization or government has the funds and the administrative capacity to eventually, but not immediately, implement the project in all sites, prospective randomized evaluations could be conducted by phasing in the project over time to all suitable sites, with the order of phase-in determined randomly and in advance. Indeed, when resources are limited due to budget or personnel constraints, it may be necessary to phase in project implementation rather than roll the project out in all areas simultaneously. In such cases, randomization may be the fairest way of determining the order of phase-in. The sites where the project is due to be phased in later serve as the comparison

group. With prospective random evaluations, the effects of the program can be measured directly, and the results will be transparent to policymakers.

Providing push funding for random evaluations would stimulate knowledge generation on the public good of program effectiveness. If a random evaluation of a pilot rollout shows that a program is effective, the program can then be expanded to the comparison group and to other areas in the region. If the evaluation concludes that the program is less effective than alternative interventions, funds can be saved and put to more effective use.

Prospective evaluations with treatment and comparison groups revolutionized medicine, and they could have a similar impact elsewhere. For example, a study by LaLonde (1986) of job training programs found that a field experiment produced strikingly different results than a retrospective econometric analysis of inputs and results. Randomized evaluations are standard practice in medicine largely because such evaluations are required by regulatory agencies before new pharmaceuticals can be legally placed on the market. This requirement leads to a great deal of useful research. If development institutions could likewise set up institutional requirements to rigorously evaluate programs, more information would be produced on which programs are most effective. This could inform future policymaking by providing a needed public good.

While it is not feasible to undertake random evaluations in some fields—for example, when providing technical assistance to a country to implement a value-added tax—such evaluations are often feasible for health programs, as well as in other areas such as education and microfinance. However, there are currently inadequate incentives for rigorous random evaluations of health programs. Pritchett (2002) argues that in the current institutional environment, public sector programs cannot be implemented without the work of advocates who are already convinced of the benefits of the intervention.

The IDB could encourage such random evaluations by establishing a special fund, comprised of a certain percentage of its overall budget, with which to fund pilot trials with treatment and comparison groups and programs that had proven effective in such trials. An independent committee would evaluate results from the trials, just as the FDA reviews clinical trials before approving drugs. In the strong version of this approach, projects would not go forward unless the external evaluation supported the project. In the weak version, the external evaluators would simply issue a public report on the effectiveness of the project, but would not have final authority. The external evaluation committee should include program evaluation experts as well as authorities from within the field. For example, a committee reviewing a public health program should include statisticians who had not worked in the area.

An organization implementing these reforms would be able to spend its resources more effectively. Moreover, by producing rigorous evidence about what works, the organi-

zation could influence other policymakers, multiplying its influence. Lastly, the public might be more supportive of development assistance if there were more evidence of success.

Conclusions

The provision of regional public goods should be a primary function of regional development institutions such as the Inter-American Development Bank. R&D on Latin America's health problems and health care delivery systems are key regional public goods. The IDB can encourage provision of these goods by committing to provide concessional loans to finance purchases of new vaccines, supporting evaluations with treatment and comparison groups, and institutionalizing requirements for rigorous program evaluation before projects are fully funded and implemented.

More specifically, the IDB could encourage research on vaccines for Chagas' disease and for *P. vivax* malaria by committing to make concessional loans to countries that wish to purchase these vaccines, should they be developed. And the Bank could encourage the development of knowledge about health policy by funding pilot programs with treatment and comparison groups, and making additional funding for larger programs conditioned on demonstrated effectiveness as evaluated by independent monitors.

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CHAPTER 12

Regionalizing the Production of Knowledge in Latin America

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Latin America is in the process of an important transformation. Industries and agriculture are adjusting to the globalization of the world economy. The loci of the new global economy are competition and knowledge. In this context, traditional organizations and types of production that have formed the basis for increasing national wealth are changing. The roles of the state and multinational lenders in supporting economic and social change necessarily need to change as well. Public institutions and public policy approaches designed to complement traditional national import-substitution industrialization are not suited to global competition and the economic and social organizations it is spawning. Multinational lenders accustomed to dealing only with individual national governments need to approach a new set of problems with new solutions.

Since a key element of higher productivity in the new economy is the production of knowledge—formal education, training and scientific innovation—Latin American countries and international agencies should focus more on developing new approaches to these activities. One new approach is to regionalize certain types of education and scientific research—a regionalization of the production of knowledge as a public good. Regionalization of such production is facilitated by the transportability of knowledge.

However, since scientific knowledge and information are increasingly valuable in production, more competition between nations (and regions) struggling to gain advantage for access to markets and global capital is likely to interfere with multinational and multiregional approaches to generating knowledge. Nation-states need to be convinced that in a world where scientific research and high-level training require major resource investments and accumulated expertise—which are highly concentrated in a few developed countries—regional programs have much greater possibilities of success.

This chapter reviews the economic arguments for regionalizing the production of knowledge, especially types of production that require the concentration of scarce human capital. The chapter also provides examples of such regionalized institutions and research efforts, and attempts to draw lessons from these examples.

The regionalization of educational production and scientific research in Latin America can be rationalized in terms of two economic principles: economies of scale and external economies.

Economies of Scale

Economies of scale usually refer to the decline in cost per unit as the scale of production increases. Such economies result from the more intensive use of fixed capital in production that requires large-scale fixed capital investments. In the 1960s, during the heyday of import-substitution industrialization, the larger Latin American countries joined into a free trade association called the Latin American Free Trade Association (LAFTA), while the Central American countries formed a common market. These regional economic arrangements could have resulted in much lower costs of production for many important industrial products, such as automobiles, tractors, lathes, chemicals, steel and electrical and telecommunication equipment, had LAFTA members, to cite one example, been willing to allow production to locate in one country or another, rather than in all countries. Tractor prices were much higher than in the United States because each country manufactured so few tractors. In part, this was the result of foreign ownership of many heavy industries—such as automobile and tractor production—and the strategy of these companies to put small plants in each of the large Latin American countries. In part, it was also the result of a "nationalistic" approach to industrialization and economic development: each country wanted its own automobile plant, steel plant, etc. Since no Latin American country could produce these goods at competitive prices for export, economies of scale could not be realized until the market in each country grew larger.

In today's economic environment, issues concerning economies of scale in industrial production persist in Latin America, particularly in the smaller countries. But many of the problems of economies of scale have been settled by the reduction of protective tariffs and the globalization of trade. Brazil and Mexico are, for example, world suppliers of Volkswagen cars, Ford engines, and other automotive inputs. These products are produced in large-scale and highly automated plants indistinguishable from similar plants in the United States or Europe (Shaiken, 1987).

Today, the issue of economies of scale has shifted from traditional heavy industry to a different kind of production that depends on the intensive use of human rather than physical capital. Economies of scale from more intensive use of human capital usually occurs in the production of goods and services that require large investments in expensive forms of human capital—for example, specialized research scientists, medical specialists, software developers, social scientists, specialized engineers, international financial spe-

cialists, business analysts, production specialists, or marketing experts. Production of scientific innovation, products that require a high degree of quality control and organizational innovation, or specialized knowledge in a formal educational setting is often prohibitively expensive unless the fixed human capital needed for such production can be sufficiently utilized to keep costs relatively low.

Medical training at universities is a good example of knowledge production that becomes prohibitively expensive when done on a small scale (a small number of students). Every Latin American country and most regional universities have high-cost medical schools because of the need to employ specialists who end up teaching relatively few students. Creating a much smaller number of large regional medical schools could reduce the cost of medical training substantially in the smaller countries or in regions that have relatively small numbers of students going into medicine.

Similarly, inputs into education might be subject to economies of scale. For example, high-quality curriculum might require large capital investments, so producing curriculum in subject areas such as mathematics and science might be done better regionally. This could include the production of educational software and videos both for student learning and teacher training. In this case, the production of high-quality educational content is the regional public good subject to economies of scale, whereas implementing the content is a local issue. In the United States, a good example of this is the development of standard off-the-shelf curricula such as Chicago Math and the Slavin reading program (Roots and Wings) used by many schools nationwide, including all the Edison-managed schools.

Economies of scale might also influence the dissemination of information if the fixed costs of collecting information are sufficiently high. Thus, it may make sense to conduct education research and collect information about successful educational reforms in regional institutions, and then disseminate that information regionally. One issue is whether, given current and future access to the Internet, it is in fact expensive for each country to collect information about ongoing research. A second issue is that a major cost associated with using information is interpreting it and verifying its validity. Regional institutions may be better at interpretation and validation because of a greater concentration of highly-skilled researchers. But much interpretation of information in the social sciences is filtered through ideological lenses, and regional institutions are just as subject to "filtered" interpretations as local institutions. This suggests that regionalization of research may require multiple institutions collecting and interpreting similar information.

One of the major facilitators of regional approaches to knowledge production in a region such as Latin America is language. Most people in the region speak Spanish. The second most spoken language is Portuguese, and it is relatively easy for Portuguese speakers to learn fluent Spanish. A high proportion of people in the Caribbean are native Eng-

lish speakers. At least one important regional university, the University of the West Indies, serves this English-speaking population. Common native languages eliminate the most important barrier to realizing economies of scale in knowledge production across countries.

External Economies

External economies are another rationale for regionalizing education and scientific innovation. They refer to the greater productivity that occurs when a critical mass of skills is concentrated in one place and those with the skills cooperate with each other in production. Perhaps the most famous recent example of this phenomenon is Silicon Valley in California, where large numbers of talented engineers and scientists congregated beginning in the 1950s, promoted by Stanford University, and began innovating around new silicon chip technology. Their willingness to discuss these innovations informally and create more and more firms that in turn expanded the innovation infrastructure in the valley apparently produced a high-level of external economies. According to Saxenian (1996), these external economies explain the extraordinary innovativeness and profitability of the Silicon Valley model. Thus, the concentration of specialized human capital, plus the atmosphere of cooperation, combine to yield much more output than the sum of smaller efforts in a variety of locations.

Economists have recently focused on models in which productivity increases are the result of learning that is endogenous to certain kinds of production (Harris, 1995). This is another way of saying that if work is organized so that workers can learn from each other or from just doing their jobs, productivity increases can derive from the work process itself. When highly-skilled workers are concentrated in one location, learning is more likely to take place—hence greater productivity increases—than in situations where one or two highly-skilled workers are producing, but apart from other skilled workers. The more knowledge-intensive the product or service, the greater the opportunity for endogenous learning.

A counter argument to the Silicon Valley model is that recent advances in information and communication technologies have made it less necessary to concentrate a critical mass of intellectual resources in one location in order to produce innovations or highly valued knowledge. These new technologies, it could be argued, could produce the same results through instant and regular exchanges of knowledge and expertise between remote locations and the creation of virtual teams and communities.

New technologies have certainly contributed to a better exchange of knowledge and information. There are a number of examples of efforts to create networks of researchers

among Latin American universities. However, working in the same physical environment must still have a high payoff in innovation, as evidenced in the way work and learning continue to be organized by both profit-making and non-profit institutions. There are few virtual high-tech companies, and few, if any, virtual research institutions. One could also raise issues about the quality of virtual universities compared to a university that collects the same faculty and students in a full-time, classroom-based, residential university.

Another form of economies from regionalization is risk reduction in potentially high-yield but risky investments. Much of scientific research falls into this category. In most countries of the world, basic research is financed by the public sector (usually using university researchers), and government assumes the risk (Okimoto, 1984). While the previous section examined the economies of scale argument when, say, scientific research requires large-scale investment in physical and human capital, the issue here is whether, because of imperfect information or other market imperfections, risk can be reduced by regionalizing research projects or educational training. The most obvious form of risk reduction is in the choice of research projects. If five countries agree on the value of a certain kind of research, the likelihood that the research will be useful if it is successful should be greater than if one government makes the decision alone. A similar argument could be applied to educational projects. Although labor markets tend to be more localized than the markets for scientific innovation, regionalizing the choice of the types of graduate education in which governments should invest might bring about risk reduction economies.

Regionalization of scientific research and high-cost educational projects could also reduce capital costs to Latin American governments because it lowers the political-economic risk to international lenders. If several governments are involved in a scientific research project, there is less likelihood of political and economic turmoil in one country ending the project.

Regionalization of scientific research and graduate training can produce yet another type of external economy. Jennings (1988) and Marglin (1996) have questioned the neutrality of scientific innovations in agriculture. These arguments have also been applied to other sectors. Marglin (p. 187) contends that "politics and economics shape the application of science whether or not individual scientists are aware of it," and the developed country institutions that organize research and development for Latin American applications—such as the Rockefeller Foundation's agricultural research in Mexico in the 1940s and 1950s—"are themselves shaped by the politics and economic interests of the societies in which they are imbedded." Because of this non-neutrality, the new knowledge emanating from a different economic and political context may indeed produce positive changes—the Rockefeller research brought great increases in maize production—but it

displaces local knowledge that could have also been harnessed to produce similar increases in productivity with lower external diseconomies. Rooting scientific research and training in regional knowledge and practices, the argument goes, could result in lower external diseconomies. Since the scientific expertise required to develop a more "decolonized" form of knowledge based on Latin American conditions would necessarily have to be organized at a supra-national level, whatever net positive effects "decolonization" produces should be associated with regionalization.

However, there is no guarantee that Latin American science would produce smaller external diseconomies than the imported version. Soviet science was autonomous for 70 years and had tremendous successes, but on the whole, this "decolonized" science produced even greater ecological problems, for example, than did Western science. In the best of circumstances, regional science and scientific training situates itself in the collective needs of the region's inhabitants, including focusing on scientific innovation that can be utilized as effectively by local producers as by large foreign firms, and on innovation that has minimal external diseconomies. But regional science may situate itself in the narrow interests of powerful regional groups, and these interests may be even less concerned with external diseconomies than developed country science. An important question to ask is whether regionalized research and training is less likely to reflect narrow interests because these interests are mainly national, and unorganized at a regional level. If so, regional research and training may indeed be more likely to be "authentically" Latin American, designed for broad applicability among regional producers and focused on preserving the region's distinct ecology.

Resistance to Regionalization

The resistance to regionalizing public investments in education and scientific research comes from three sources:

- National governments generally consider education an important element of national cultural development. This may be especially true of university education, and it is university-level education where economies of scale and external economies rationales for regionalization are most applicable.
- National governments are acutely concerned with accruing the benefits of human capital formation and scientific research for their national private sectors. In a world of intense economic competition, where knowledge and information is rapidly becoming a key input in national development, "ownership" of valuable knowledge is an important form of private and public wealth. If govern-

ments underrate the economies of scale and external economies associated with regionalization, they will resist giving up the perceived benefits of sole ownership of knowledge. In a world of imperfect information, such perceptions (and the traditions behind them) influence the behavior of public decisionmakers. Examples of regional research efforts are almost entirely restricted to social sciences rather than the physical, computer or biological sciences, where perceived opportunities for income and job generation are much higher. In part, this is the result of less Latin American research in general in these latter sciences. But it is also the result of intellectual mercantilism—nations believe that certain kinds of knowledge translate into money and power. Apparently, social science knowledge does not fall into that category.

- Although regionalizing knowledge production gives Latin America more local control over the nature of scientific training and research—particularly when compared to "importing" scientific research from the United States and Europe—countries within the region vary in their needs and culture. Regional knowledge production could end up being dominated by researchers from one or two countries, giving others the sense of substituting the importation of "colonized" regional knowledge of lower quality in the place of "colonized" U.S./European knowledge of higher quality.

Regionalization of institutions is not free of potentially serious problems. There are considerable coordination costs that may entail external diseconomies. Economic and political volatility in almost every country is a fact of life in the region, and this can make coordination between governments on regional projects difficult, time consuming, and possibly costly in terms of realizing high-quality output from regional efforts. The political and financial manner in which regional programs are built is therefore crucial to their viability. It is also one of the main reasons why most actual regional institutions in Latin America are associated with large international organizations such as UNESCO or the United Nations.

Scientific Research and Innovation in Latin America

Before turning to examples of regionalization, it is worthwhile to assess briefly the condition of scientific research and higher education in Latin America. Arguments for regionalization might still be applicable if Latin America were a world leader in its capacity to form high-quality scientific cadres and produce scientific research. However, the current situation in the region is not nearly this positive.

Research and Development (R&D)

Investment in research and development has always been a feature of economies focused on innovation. Such investment has now taken on added importance. The new economy increasingly relies on innovations in products and processes.

Table 12.1 shows that in the 1990s, Latin American countries spent more on research and development as a percentage of GNP than many Asian economies and Turkey, but not as much as countries such as Korea or Singapore or the lower-income European countries. Brazil reports that it spends almost as much of its GNP on R&D as Singapore. Given the size of Brazil's economy, this represents a major investment in innovation—about $6 billion in 1999.

Furthermore, the structure of the source of spending on R&D is changing in many Latin American countries toward a greater proportion coming from private business. In the 1980s, according to UNESCO data, the source of almost all R&D spending in Latin American countries was the national government. This shifted somewhat in the 1990s to at least part of R&D spending in Argentina, Brazil, Chile and Mexico coming from the private sector itself. This suggests that Latin American economies are following a historical pattern wherein government is initially the main financier of R&D, while private enterprises gradually account for an increasing share. Nevertheless, except for Brazil, the private business share of R&D in Latin America is currently smaller than in many Asian and OECD countries.

One way of understanding the implications of these different structures of R&D spending for higher education is to briefly compare Korea and Mexico. Acquisition and development of technology in Korea results mainly from R&D undertaken in firms. Much of this R&D is informal, in the sense that Korean firms import capital and the technical assistance to install it, then learn how to use it, then learn how to make further expansions in capital equipment themselves, then learn to produce the capital equipment, and then export it to others, all on-the-job (apprenticeship). More recently, in the 1990s, some Korean firms have been engaged in cutting-edge R&D, a process driven by large financial and "persuasion" incentives from the state to pass through each stage. It is also facilitated by market protection, state control of the banking sector, and the purposeful development of huge conglomerates with the capital to take the risks involved in developing new products and moving into export markets.

Formal R&D in Korea is promoted and facilitated by the same system, financially and strategically controlled from the top by the developmental state. By 1995, 84 percent of R&D was funded by the private sector, and firms undertook more than 65 percent of all R&D. Research institutes still did about one-fourth of the R&D in the late 1980s (Altbach et al., 1989). The role of these research institutes and their relationship to the

productive sector is therefore the second key to understanding Korean scientific and technological development. The institutes are specifically organized to support industry and receive the bulk of public monies for research. Of government funding for R&D, only about 15 percent went to university research in the 1980s, and 80 percent to research institutes (Kim, 1989).

The structure of R&D in Mexico is quite different. Except for state-owned companies such as Pemex and the electrical utility company, the government does not provide research and development funds or incentives for R&D in firms. Total public expenditures for R&D were never high: .5 to .6 percent of total domestic expenditure in 1980-82; .3 to.5 percent in 1983-84; .4 percent in 1985-86; .3 percent in 1987; .2 percent in 1988-89; and back up to .33 percent in 1995 and .36 percent in 1998.[1] However, the source of funds for R&D changed significantly in Mexico from almost exclusively federal government funding in the late 1980s to about 20 percent private sources in the mid-1990s (Valenti, Varela and Castillo, 2000). The research and development effort is, however, still centered in federal and state research projects (primarily in energy, or more specifically petrochemicals, and agricultural and medical research), and in the public universities. About 40 percent of all public university R&D is at the National University of Mexico (UNAM). One-third of all the researchers registered in the late 1980s at the national system of researchers (SNI) worked at the UNAM. In 1996, more than 1,300 researchers and 1,000 academic technicians worked at UNAM and its research centers (CONACYT, 1999).

Thus, outside of agricultural, petrochemical and medical research carried out in specialized public institutions, publicly financed R&D is still highly concentrated in public universities and research centers, and much of that research is connected to one university. Indeed, UNAM is not only the main institution for scientific research in Mexico, but perhaps in Latin America as a whole (Guevara Niebla, 1990, pp. 445-52). According to the President of Mexico's 1990 State of the Union Message, from 1976 to 1990, UNAM carried out almost 37,000 research projects and 1,500 technology development projects, including 16,000 in exact and natural sciences, 10,000 in social sciences and humanities, 6,000 in medicine and 3,500 in engineering (Martínez and Ordorica, 1991, p. 91). The research is done in 24 academic institutions and a number of research centers. Several new research centers were established in the 1990s, but UNAM still plays a singularly important role in Mexican R&D and represents one of the single largest research systems in the developing world.

The respective situations of Mexico and Korea represent two poles of R&D systems. Almost all Latin American countries and some Asian countries (including China) are at the Mexican end of the spectrum. In these systems, almost all R&D funding comes directly

[1] Mexican Government Finance Office (NAFINSA), 1990, and Valenti, Varela and Castillo (2000).

Table 12.1. R&D Personnel and Spending and Telecommunications Infrastructure in Latin American, Asian, and OECD Countries in the 1990s

	R&D scientists and engineers per 10^6 pop.	R&D spending as % of GNP		Distribution of gross domestic expenditures on R&D by source of funds (%)				Telephone lines per 10^3 pop.	Mobile phones per 10^3 pop.	PCs per 10^3 pop.	Internet hosts per 10^4 pop.
Country	**1987-97**	**1985**	**1995**	**Business**	**State**	**Univ.**	**Foreign**	**1998**	**1998**	**1998**	**2000**
Large economies											
Argentina	660		0.38	11	85	1	3	203	78	44.3	38.5
Brazil	168		0.84	40	57		3	121	47	30.1	26.2
Chile	445		0.67	15	71		6	205	65	48.2	26.4
Colombia		0.12						173	49	27.9	9.6
Mexico	214	0.44	0.33	18	66	8	7	104	35	47	40.9
Peru	233	0.25			82	18		67	30	18.1	3.6
Venezuela	209	0.32	0.49		100			117	87	43.0	5.9
Mid-size economies											
Dom. Rep.								93	31		7.9
Ecuador	146		0.02					78	25	18.5	1.5
Guatemala	104	0.16			37	46	17	41	10	8.3	1.6
Uruguay								250	60	91.2	76.1

Small economies											
Bolivia	172		1.67(?)					69	27	7.5	1.1
Costa Rica	532		0.21		100			172	28	39.1	20.5
El Salvador	20				47		53	80	18		1.5
Haiti								8	0		0
Honduras								38	5	7.6	0.2
Jamaica		0.04			100			166	22	39.4	1.4
Nicaragua					81		19	31	4	7.8	2.0
Panama		0.01			100			151	29	27.1	4.3
Paraguay								55	41	9.6	3.0
East Asia											
China	454	0.67	0.61					70	19	8.9	0.6
Indonesia	182	0.27	0.07	76	16		7	27	5	8.2	1.0
Korea	2,193	1.46	2.71	84	16			433	302	156.8	60.0
Malaysia	93		0.24	43	53	2	2	198	99	58.6	25.4
Philippines	157	0.13	0.22	2	3	70	25	37	22	15.1	1.6
Singapore	2,318	0.53	1.13	62	31	2	4	562	346	458.4	452.2
Thailand	103	0.34	0.13	12	80	5	3	84	32	21.6	6.46
Europe											
Greece	773	0.28	0.47	26	44	4	30	522	194	51.9	73.8
Ireland	2,319	0.89	1.61	35	57	4	4	435	257	271.7	159.2
Poland	1,358	1.00	0.77	32	64	2	2	228	50	43.9	47.2
Portugal	1,182	0.38	0.62	20	65	4	12	413	309	81.3	90.7
Turkey	291	0.55	0.38	33	62	3	2	254	53	23.2	13.9

from the central government and goes mainly to public research institutions. For example, the public sector in large oil producers, such as Venezuela and Mexico, funds major petroleum research institutions. Most governments fund agriculture extension research, and some, such as Brazil, have national telecommunications and software development research centers. In Chile, much of the R&D budget goes to fund university research. Cuba has mounted a large effort in biotech research, again through a publicly-funded research center.

Singapore, Malaysia and Indonesia are closer to the Korean end of the spectrum, although there are important differences between those systems. European countries are somewhere between the two.

Despite this usual Latin American pattern, two countries, Mexico and particularly Brazil, are moving in the direction of more developed countries, where innovation systems are largely financed by the private sector for proprietary product development. Brazil's R&D is now about 60 percent private-industry financed (Table 12.1). This movement, plus other conditions, such as Mexico's proximity to the United States and its membership in NAFTA, and the two countries' size, makes it less likely that either would be prime candidates for regional scientific research arrangements, although there are a number of persuasive reasons that they should be, especially in certain fields. For example, Brazil's common interest with Peru, Colombia, Venezuela and Costa Rica in the search for new drugs from rainforest plants would logically result in a regional biotech research program in this field. Research in telecommunications and software would be highly beneficial to the region as a whole. Regional medical or agricultural research programs could also be much more productive than smaller efforts in individual countries.

Higher Education

Higher education in Latin America, as in other countries of the world, will shape the labor force and the basis for research and innovation for the new economy by forming a well-trained cadre of scientists and engineers; increasing the general knowledge base and achievement levels in language arts and mathematics of the labor force as a whole (i.e., developing the problem-solving capacity needed for a range of production and service jobs); and serving as a locus of research and development activities linked to private and public sector enterprises and regional economic development programs. Research and development could also link to training science and engineering cadres.

Are nationally-based Latin American universities and other tertiary education institutions organized to undertake these tasks? Higher education plays a crucial role in technology transfer and development at two levels. First, it has the capability to develop the production and management skills required to use and organize the new technology.

Therefore, in terms of the analysis above, higher education is important to the technology transfer process in those industries that use and produce information technology. Second, with the spread of science-based industries, the university is the site that can combine the basic research needed for the advance of such industries with the training of researchers and appliers of research for industry.

However, in most industrialized countries and those developing countries well along in their industrialization, this has not been the traditional role of the university (Ben-David, 1977). "Far from being a natural match," observes Joseph Ben-David, "research and teaching can be organized within a single framework only under specific circumstances."[2] Scientific and technological development has, in many countries, taken place largely outside universities in firms and specialized research institutes, while universities have provided professional training, often not basing the training on scientific research (Schwartzman, 1984).

This analysis suggests that in developing countries, the re-conceptualization of the university and higher education system as scientific research-based institutions not only faces great difficulties, but also may be detrimental to their primary manpower training and elite formation functions. Furthermore, it may not produce the desired effect, since simply making the university research-oriented does not fulfill the conditions required for technological development or even for professionalizing science as an activity. Most relevant, universities located in a Latin American national context may not have the human capital resources needed to develop a world-class scientific research and training program.

Despite the potential difficulties for Latin American universities to redefine themselves in the face of the traditional concept of them as bases of political activity and the education of elites—universities in East Asia face the same difficulties—a number of universities in the region, or at least certain university faculties, have managed to become centers of research and research-based training.

In terms of the production of scientists and engineers, the main problem for Latin America is not in the proportion of scientists and engineers among university graduates, but rather in the relatively low total numbers of university graduates in the largest countries, Brazil and Mexico. An even more significant problem is the generally low quality of education in the region.

Tables 12.2 and 12.3 and Figure 12.1 describe the quantitative aspect of the problem. Table 12.2 shows gross enrollment rates in higher education in Latin American and Asian countries. Although higher education expanded rapidly in Latin America in the 1980s and 1990s, two of the countries best positioned in the new global economy, Brazil and Mexico,

[2] Ben-David (1977, p. 94) cited in Schwartzman (1984, pp. 199-200).

Table 12.2. Latin American and Asian Economies: Gross and Net Enrollment Ratios in Primary and Secondary Education, and Gross Enrollment Rates in Tertiary Education, 1980 and late 1990s

(Percent of age cohort)

	Primary		Secondary		Higher		% of female age cohort in higher education	
Country	**1980**	**1996-98**	**1980**	**1996-98**	**1980**	**1996-98**	**1980**	**1996-98**
Large economies								
Argentina	106	113	56	77	22	36		
Brazil	98 (81)	125 (90)	33 (16)	62	11	15	11	
Chile	109 (91)	101 (89)	53 (40)	75 (58)	12	30	29	
Colombia	112 (75)	113 (85)	39	67 (46)	9	17	8	17
Mexico	120	114 (100)	49	64	14	16	9	15
Peru	114 (87)	123 (91)	59 (46)	72 (53)	17	26	12	
Venezuela	93 (82)	91 (84)	21 (14)	41 (22)	21	28		
Mid-size economies								
Dom. Rep.	118 (74)	94	42	52 (22)	18	23		27
Ecuador	117 (85)	121	53	50	35	20	26	
Guatemala	79 (58)	88 (72)	19 (13)	26	8	8		
Uruguay	107	109 (93)	62	85	17	30	17	
Small economies								
Bolivia	87 (77)	95	37 (16)	37	15	21		
Costa Rica	105 (89)	104 (89)	47 (39)	49 (40)	21	30	28	
El Salvador	75 (58)	93 (78)	24	34 (22)	9	18	7	18
Haiti	77	48 (22)	14	21	0.9		0.5	
Honduras	98 (74)	111	30	32	7	10	6	9
Jamaica	103 (96)	102 (96)	67 (64)	65	7	8		
Nicaragua	94 (73)	101 (78)	41 (23)	57	12	12		12
Panama	106 (89)	105	61 (46)	69	21	32	23	
Paraguay	106 (87)	111 (91)	27 (21)	47 (38)	9	10		11
East Asia								
China	113	123 (100)	46	70	2	6	0.5	
Indonesia	107 (88)	113 (95)	29	56 (42)	4	11		8
Korea	110 (100)	94 (92)	78 (69)	102 (97)	15	68	8	52
Malaysia	93	103	48	61	4	12	3	
Philippines	111 (93)	114 (100)	64 (45)	77 (59)				
Singapore	108 (99)	94	60 (58)	74	8	39	8	
Thailand	99	87	na	56				

Source: UNESCO, 1993, 1995, 1999, 2001.
Note: Net enrollment rates in parentheses.

have relatively low percentages of their young labor force completing higher education. Another of Latin America's larger economies, Argentina, has a highly developed higher education system. Chile, a country well positioned in the new global economy, has underinvested in university education because of its emphasis on private financing of tertiary education (Carnoy et al., 2001). Colombia and Peru also have relatively high percentages of their younger populations with at least some years of post-secondary school. At the other

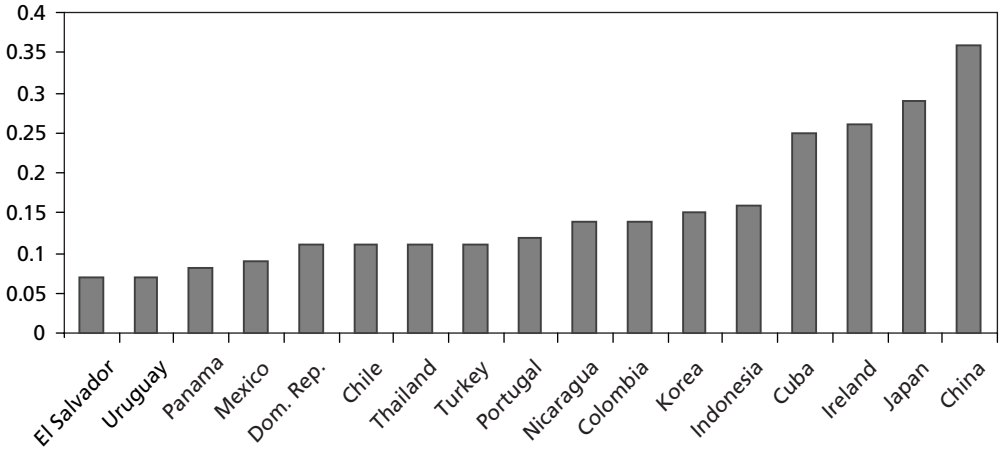
Table 12.3. Latin America and Asia: Percentage of Students and Graduates in Tertiary Education by Field of Study, 1980, 1988 and 1996

	Law and social sciences			Natural sciences, engineering, and agriculture			% female in science and engineering
Country	**1980**	**1988**	**1996**	**1980**	**1988**	**1996**	**1996**
Large economies							
Argentina	30	36	42	27	41	30	na
Brazil	31	42	44	18	21	23	34
Chile	15	29	37 (43)	37	40	43 (34)	34
Colombia	47	37	43 (42)	20	29	31 (26)	29
Mexico	32	41	41 (51)	29	36	31 (33)	28
Peru	42	43	na	29	30	na	na
Venezuela	27	36	na	25	26	na	na
Mid-size economies							
Dom. Rep.	na	38	48 (50)	na	28	25 (17)	na
Ecuador	26	30	na	28	30	na	na
Uruguay	45	46	42 (30)	16	24	24 (17)	na
Small economies							
Bolivia	41	32	na	30	22	na	na
Costa Rica	25	32	32	23	20	18	na
El Salvador	38	41	41 (25)	40	26	20 (16)	na
Haiti	38	48	na	28	23	na	na
Honduras	45	42	41	29	29	26	26
Jamaica	24	34	45	16	23	20	50
Nicaragua	23	28	43 (47)	18	35 (26)	31	35
Panama	44	39	46 (35)	15	24	27 (27)	36
Paraguay	na	42	40	na	33	22	47
East Asia							
China	4	12	9 (22)	47	47	53 (35)	na
Indonesia	42	48	46 (50)	21	21	28 (27)	24
Korea	18	30	25 (28)	49	36	34 (38)	17
Malaysia	25	32	na	30	26	na	na
Philippines	37	28	(31)	29	38	(28)	na
Singapore	12	14*	na	53	51*	(58)	na
Thailand	na	na	60 (56)	na	na	21 (18)	na

Sources: 1980: United Nations, Statistical Yearbook, 1990, Table 3.12; 1988: UNESCO, World Education Indicators, 1991, Table 9; 1996: UNESCO, World Education Indicators, 2000, Table 9.
Note: Percentage of graduates in parentheses.

end of the spectrum, young people in the poorer Latin American countries have low levels of education, and few of them have post-secondary studies. In all countries, completion rates of university studies are relatively low, even though students remain students for many years. On the other hand, Table 12.3 shows that while Brazil may be producing too low a percentage of scientists and engineers among its students, most Latin American countries do not seem to have a proportionality problem.

Figure 12.1. Ratio of Graduates to Enrollment in Higher Education, mid-1990s
(Ratio)



The more important factors that distinguish how well tertiary education is responding to new demands are how quickly education is able to increase enrollment and how well it is able to maintain quality during such an expansion. The low percentage (about 15 percent) of Brazil's age cohort in higher education seems to be more relevant to understanding whether the system is producing enough human resources for the new economy than whether 20 or 30 percent of the student body is in engineering. This second factor is more easily alterable than the first. Nor is the problem just a Latin American one—China seems to have much greater difficulty expanding higher education than almost any Latin American country. With only 6 percent of the age cohort in China in higher education, and 40 percent in science and engineering, only 2.4 percent of the age cohort is preparing itself in these fields. In Brazil, the corresponding percentage is about 3 percent—low, but not as low as China. Compare this figure to the 10-12 percent of the age cohort in Chile and Argentina that is studying science and engineering.

The main problem in higher education in most Latin American countries, however, is not the total quantity of graduates or even the numbers of science and engineering graduates, which compare well with many of Latin America's Asian competitors. Rather, the problem is the quality of the graduates. Latin American universities take in secondary school completers who are relatively poorly prepared—especially in math—compared to their Asian and developed country counterparts.

Recent assessments across Europe, Asia and Latin America, as well as an intra-Latin America comparative assessment, provide enough information to show that students in the more developed Latin American countries, such as Argentina or Chile, score lower in

mathematics and science than most developing countries in East Asia (even some with lower income per capita), but about as well as North African and Middle Eastern countries, such as Turkey or Iran, most with higher income per capita. Students in the less developed Latin American economies, and even those in some of the larger economies, such as Mexico, Peru, Venezuela and possibly Brazil, do worse. In contrast, students in one Latin American country, Cuba, appear to do as well in mathematics as students in Europe and East Asia.

Latin American countries have participated in three recent international assessments: the Third International Math and Science Study (TIMSS) in 1996 (Colombia and Mexico, but Mexico never reported results); TIMSS-R in 1999 (Chile); and PISA, conducted by the OECD (Brazil and Mexico). The TIMSS test was given to seventh and eighth graders, TIMSS-R to eighth graders, and PISA to 15 year-olds. In the two TIMSS tests, eighth grade students in Colombia and Chile scored more than one standard deviation below the developed countries of Europe, the United States, Oceania, and East Asia. In the PISA mathematics test, students in Mexico and Brazil scored more than one standard deviation below the OECD mean. In a test of reading comprehension by PISA, Brazil and particularly Mexico did somewhat better comparatively, but students there still scored about one standard deviation below the OECD mean.

The PISA results show that even when the results are "adjusted" for level of income per capita or accumulated spending per student in primary and middle school in each country, students in Brazil and Mexico do far worse on these tests than students in the developed countries (OECD, 2001, Figures 3.7a and 3.7b). The results also show that students scoring in the top 10 percent of all students taking the mathematics test in Mexico and Brazil score below the OECD mean, and even the top 5 percent of students in Brazil only score at the OECD mean (OECD, 2001, Appendix B1, Table 3.1). The Brazilian and Mexican results are better (above the OECD mean) in reading comprehension for the top 10 percent).

Considering that not all Mexicans are in school at age 15, that a much larger proportion of Brazilians have already dropped out, and that the top 10 percent of students in Brazil and Mexico generally attend rather elite private schools, the relatively poor performance on PISA suggests that the quality of schooling is even lower in these large Latin American countries than the overall score differences imply. Further, they suggest that the problem is not just a public school issue, but much more endemic to the educational system, particularly to the quality of teaching and educational standards and expectations.

These data suggest that the main payoff to regionalizing high-level education is and will continue to be in improving the quality of scientific training, not the quantity. Regionalization also has its primary rationale precisely in being able to bring together high-quality personnel in specific fields and combining them with the physical resources and

research funding to realize both economies of scale and external economies in producing such world class training at reasonable cost per student.

Latin American Regional Educational and Research Programs

The first part of this chapter examined the rationale for regionalizing certain kinds of activities in scientific research and education, which can be viewed as "public goods" because of the social benefits (externalities) associated with their production. Such public goods might be better produced regionally because of the economies of scale and external economies associated with concentrating them in a regional location rather than dispersing them over a number of national locations.

The examples reviewed here may or may not qualify strictly as regional public goods, but each represents a model for thinking about how the production of such goods might be organized and structured. Thus, the cases of graduate schools sponsored by international organizations—such as the Latin American Faculty of Social Sciences (FLACSO)—may not be considered a regional public good because Latin American countries did not come together to agree to produce social scientists and social science research on a regional basis. But FLACSO could easily be a model for and may de facto represent a regional public good. Similarly, the Monterrey Institute of Technology is becoming a multinational technological university and may not be a regional public good, but it is an interesting model for a regional technological university. The summaries that follow examine examples of regional research efforts across the region.

Rockefeller Foundation Agricultural Research Program in Mexico

An early example of a regional research effort was the Rockefeller Foundation's agricultural research program in Mexico that produced the Green Revolution in wheat output throughout Latin America (and India as well). Hybrid corn was developed in the United States during the first three decades of the 20th century and commercialized in the 1930s. This seed manipulation was exported to Mexico in the 1940s. Then, in the 1950s, the Rockefeller Foundation sponsored the development of new wheat varieties in Mexico. This effort became the basis of the Green Revolution both in Mexico and the Punjab region of India and Pakistan. The expansion of fertilizer production as an outgrowth of munitions production in World War II pushed the development of maize, corn and, later, rice.

The Rockefeller program began at the suggestion of then U.S. Vice-President Henry Wallace, who had previously been Secretary of Agriculture. Although there was criticism at the time of transforming Mexican agriculture through importing U.S. hybrids and of

developing yet more hybrids through research, the program went forward (Marglin, 1996). As part of the research, Norman Borlaug, who later received the Nobel Peace Prize for his work in Mexico, helped organize a system to train a new generation of Mexican scientists in research techniques. The best were sent abroad for post-graduate studies. However, the agricultural science research model employed under the program was definitely imported, and the training provided was intended to reproduce that model through local researchers. The main researchers, despite later disclaimers, were interested almost exclusively in raising agricultural productivity, disregarding distributional and environmental issues. Nevertheless, although many of the criticisms of the program and its effects were in some ways valid, they have to be tempered by the positive effect of the program on agricultural productivity, eventually even for small producers, and its implications for the standard of living and population growth in rural Mexico and the rest of Latin America (Marglin, 1996).

The Rockefeller project is instructive for regional scientific research efforts in Latin America not so much because of whether development of the new seeds was helpful or harmful to the region, but in terms of drawing on the experience to answer the question as to whether it is viable (and desirable) to bring together world class scientists to work on new products and processes, and then apply those innovations in ways that benefit the mass of producers and consumers. The issues raised by the question are complex ones, but one factor that makes the process of finding solutions more feasible, if not easier, is that there is more awareness today than in the 1940s of the political nature of science as applied to economic change.

Latin American Faculty for the Social Sciences (FLASCO)

FLACSO is a prestigious teaching and research program founded in 1957 through a UNESCO initiative supported by several governments in the region. It presently has 14 member countries, and its largest centers are in Buenos Aires, São Paulo, Santiago, Quito, and Mexico City, with additional centers in Costa Rica, Guatemala, El Salvador, Cuba and the Dominican Republic. The centers work closely with local universities and other research entities not only in the country where they are located but also in surrounding countries. FLACSO activities are coordinated through its General Secretariat in Costa Rica.

FLACSO awards doctorate, masters and graduate degrees that are recognized throughout Latin America. The centers attract research proposals and students from all over Latin America and from the developed countries, having graduated more than 2,500 students. The centers often partner with U.S. universities to provide short courses for U.S. students interested in Latin America. The seven FLACSO centers and three programs form a locus of researchers in social sciences who partner with local and foreign scholars

to produce high-quality research and training, especially in economics (its largest program area), political studies, cultural and gender studies, and sociological research. Over time, FLACSO has gradually shifted its activities from teaching more into research. The three Central American academic units do almost exclusively research.

FLACSO is an excellent example of a research program that has gained prestige precisely because it is regional in nature and forms a region-wide network of researchers and graduate training programs. The fact that FLACSO regularly attracts many of the best Latin American and developed country social scientists to work and teach in its centers fulfills one of the most important conditions of such regional efforts.

University of the West Indies

This university is an autonomous regional institution supported by and serving 15 different countries in the West Indies: Anguilla, Antigua and Barbuda, the Bahamas, Barbados, Belize, British Virgin Islands, Cayman Islands, Dominica, Grenada, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, and Trinidad and Tobago.

The university was founded in 1948 at the Mona campus in Jamaica as a university college under a special arrangement with the University of London. The St. Augustine campus, in Trinidad, which was formerly the Imperial College of Tropical Agriculture, was started in 1960. The university achieved independent status in 1962, and the Cave Hill campus in Barbados was established in the following year. In addition to the three main campuses, the university has centers in all of its non-campus Caribbean countries.

The courses and examinations for the university's general degrees are common to all three campuses. Of the professional faculties, agriculture and engineering are located at St. Augustine, law at Cave Hill, and medical sciences at Mona. There are schools of medicine, dentistry and veterinary science at the St. Augustine campus.

UWI has a number of specialized regional research centers:

- The Centre for Advanced Training and Research in Fertility Management conducts research into human reproduction and population issues and trains doctors, nurses, paramedics and other health care professionals to enable them to meet the training and service needs of their respective countries. Many of the courses are conducted using distance-training techniques.
- The Centre for Environment Development undertakes and facilitates research on themes relating to the environment and development, designs and supports graduate programs, organizes public education seminars and workshops, and

provides advice for governments in the region on issues relating to sustainable development.

- The Centre for Gender and Development Studies conducts research and a program of seminars and workshops to increase awareness of gender issues in the academic community and the wider society.
- The Sir Arthur Lewis Institute of Social and Economic Studies offers a multidisciplinary academic program on development in a Caribbean context. Its current research program emphasizes the interrelationship between social development, poverty reduction and environmental management.
- The Tropical Medicine Research Institute (TMRI), launched in 1999, is an amalgamation of three pre-existing research units: the Tropical Metabolism Research Unit, which studies childhood malnutrition; the Sickle Cell Unit, which since its establishment at Mona in 1965 with funding from the British Medical Research Council has built a reputation as the leading research facility in sickle cell disease worldwide; and the Chronic Disease Research Centre, established in 1992 at Cave Hill. The immediate goal of the TMRI is to promote better management and expansion of medical research, especially in those areas having the greatest impact on the health of the peoples of the region.
- The Education Research Centre, located in the Faculty of Arts and Education at Mona, undertakes research on behalf of a number of local and regional bodies, including the Ministry of Education and UNESCO.

UWI is a true regional institution and exemplifies how such an institution in the Central American, Andean or Mercosur countries could work. The main features of such a regional institution are the centralized location of the costly faculties, such as medicine, the creation of research centers on issues relevant to the region at different campuses, and a strong emphasis on Caribbean issues in both teaching and research. Because the total population and resources of the small countries in the region are limited, and because UWI itself is quite small, the extent of the research and the size of the centers is much more like it would be in a Central American university. In larger regions, such as the Andean or Mercosur areas, one could imagine similar research centers as at UWI—fertility, economic development, medical and environmental—but also computer science and software development, biotechnology and telecommunications.

University of Guadalajara Medical School

The Universidad Autónoma de Guadalajara (UAG) is the oldest and largest private university in Mexico. Its medical school, founded in the same year as the university itself,

1935, has the distinction of training not just Mexican and other Latin American students, but more than 8,000 graduates who reside in the United States. U.S. students are an important source of enrollment and revenue for the UAG. In this sense, the UAG medical school is a regional institution—the way that the UAG has worked with U.S. certification institutions provides an important lesson for regional institutions that would need to certify graduates for work in countries with varying certification requirements. It is also a good example of how a regional university that wants to attract students from other countries has to organize itself to provide support and assistance to non-nationals.

The U.S. citizens studying at the UAG medical school have to complete the same requirements as Mexican and other nationals. But in addition to earning the degree, U.S. students must pass an examination administered by the Educational Commission for Foreign Medical Graduates (ECFMG) in order to be permanently certified. Step 1 (basic sciences) and Step 2 (clinical sciences) of the United States Medical Licensing Examination (USMLE), created jointly by the National Board of Medical Examiners (NBME) and the Federation of State Medical Boards (FSMB), are being used by arrangement with those institutions by the ECFMG for its certification purposes. Passage of these two components of the USMLE and the ECFMG English test, plus submission of the required documentation, result in the graduate physician's certification by the ECFMG. That certification in turn allows the doctor to enter accredited postgraduate residency training programs in the United States.

However, most U.S. citizens follow an alternative route to certification. Those who have completed their pre-medical college education in the United States can take the "Fifth Pathway" to ECFMG certification, which is a program established by the American Medical Association in 1971. The U.S. citizen who has completed four years of UAG medical training can return to the United States and enter a year of supervised clinical training at a U.S. medical school that has an approved Fifth Pathway program. UAG, in turn, honors this Fifth Pathway year as fulfillment of the internship requirement if the student registers for internship with the UAG.

UAG handles the language problem by giving examinations and using handbooks and textbooks in English for the first two years. Except for the clinical clerkship, 60 percent of classes are in English. English-speaking students take intensive Spanish courses, and by the end of the fourth semester, all classes are in Spanish. This provides the added benefit of graduating as a bilingual physician.

For Mexican students, the UAG medical school is one of the best in the country, with excellent laboratories and clinical facilities; for U.S. citizens, UAG medical school is a clear second choice to a U.S. medical school, so it serves as a less prestigious alternative. Certification in the United States through UAG is not easy, mainly because certification

standards are very high and the students applying are not as qualified as those entering U.S. medical schools.

But the two most important features of the UAG arrangement are, first, that by providing certifiable training for clientele able to pay high tuition fees, UAG can generate the revenue to upgrade the overall average level of training to international standards; and second, that a large, high-quality training program can serve countries with very different certification requirements, producing higher quality yet lower-cost quality than if each country individually tried to reach the same goals.

Instituto Tecnológico de Monterrey

The Tec, as it is known, is the major (private) technological university in Latin America. Although it is essentially a Mexican institution, with 32 campuses in that country, its highly developed videoconferencing system not only enables it to use interactive video classrooms in its Mexican campuses, but also to extend these classrooms to other Latin American countries ("virtual university"). The Tec offers engineering and science first level degrees, 42 MA programs, and nine doctoral programs in humanities, engineering, computer science, management, economics, food technology and medicine. It is a huge university, with 95,000 students and 7,600 professors.

The Tec provides yet another model for regional provision of high-quality university education. Its virtual university, based on its experience in augmenting traditional classroom work in its 32 Mexican campuses with interactive distance learning from its Monterrey home campus, now has centers in Miami and seven Latin American cities: Bogota, Guayaquil, Medellin, Panama City, Caracas, Lima, and Quito. Video conferencing facilities are available in a number of universities in Central America, Colombia, Venezuela, and Peru.

By spreading its costs over a large number of students in other localities, the Tec is able to maintain lower costs per student in its main campuses. Whether the students in other countries or even on other campuses in Mexico are getting the same quality experience as the full-time students in Monterrey is a major question about this approach.

Regional Associations with Research Activities

There are a number of associations that attempt to regionalize research across national autonomous universities. Besides the two mentioned here, there are many others, some as projects within larger, worldwide associations such as the International Federation of Catholic Universities, which will be discussed in the next section.

By far the largest of these regional associations is the Latin American Social Science Council (CLASCO). Founded in 1967, it is composed of 100 social science research centers and post-graduate programs throughout the region. CLASCO has 21 working groups that bring together approximately 3,000 researchers in a program of academic interchange, debate and publication. CLASCO's virtual campus offers them a telecommunications infrastructure and computer and video conferences, as well as publication facilities.

The Asociación de Universidades Grupo Montevideo (AUGM) is a virtual university whose objectives are to strengthen and consolidate the critical mass of high-level human resources, taking advantage of the comparative advantage in certain fields of scientific and technological research in universities and research centers in the region, and to fortify the management structures of the universities that are members of the association.

International Agencies

The United Nations and UNESCO area the main international agencies with regional research centers in Latin America. The UN Economic Commission for Latin America and the Caribbean (ECLAC) was established in 1948 by the UN Economic and Social Council. Headquartered in Santiago, Chile, it is one of the UN's five regional commissions and was founded for the purposes of contributing to the economic development of the region, coordinating actions directed towards this end, and reinforcing economic relationships among the countries and with the other nations of the world. The promotion of the region's social development was later included among its primary objectives. ECLAC's subregional headquarters in Mexico City was established in 1951 to serve Central America, and the subregional headquarters for the Caribbean was founded in 1966 in Port-of-Spain, Trinidad and Tobago. In addition, ECLAC maintains country offices in Buenos Aires, Brasilia, Montevideo and Bogota, as well as a liaison office in Washington, D.C.

ECLAC's impact on regional economic policy was enormous in the 1950s and 1960s. Under the leadership of Raúl Prebisch, this regional economic policy institution developed and rationalized the notion of "import-substitution industrialization," which became the economic engine that led Latin American development into the early 1970s. Although ECLAC is no longer as influential in the region's economic policies, it continues to publish extensive analyses on the region's economic conditions and develop policy papers on a variety of economic issues.

UNESCO's Regional Office for Education in Latin America and the Caribbean (OREALC), located in Santiago, focuses on educational policy and regularly initiates and publishes research on education in the region. One recent OREALC activity was to test third and fourth graders in 13 Latin American countries. The results of the tests and their

subsequent analyses contributed significantly to increasing understanding of the quality of education in the region. Only a regional institution could have undertaken such a study.

Finally, two additional international agencies warrant mention: the International Federation of Catholic Universities (IFCU) and the Partnership for Educational Revitalization in the Americas (PREAL). Each is a different form of international network that coordinates Latin American regional activities.

The IFCU is a worldwide organization with members on all continents. Currently, the federation consists of some 200 Catholic universities and institutes of higher learning. Its central office and general secretariat are in Paris. Strictly speaking, the IFCU does not coordinate activities among Catholic universities in Latin America, but it does organize joint research projects among groups of universities and regular meetings in the region that try to create a sense of cooperation among universities.

With offices in Washington, DC, Santiago and Lima, PREAL promotes educational reform in the region by publishing newsletters and occasional papers, and organizing meetings with academics and high-level ministry officials from various countries. Strictly speaking, PREAL cannot be considered a research organization, since it only presents the results of others' research in a policy format; that is, it uses research to make the case for certain kinds of educational reform.

The United States as a Regional Higher Education Center

Latin Americans do not like to think of the United States as a regional education center for their region, but in fact, since World War II, the United States has trained large numbers of Latin American scientists and engineers who then returned home and took leadership roles in business, government, research centers and universities.

The main attraction of U.S. universities for Latin American students has been the relatively high quality of training offered. However, U.S. universities are also much more expensive than universities in Latin America, so the rate of return to investing in a U.S. undergraduate education for a student who returns to work in Latin America may be lower than the payoff to studying in a much less expensive Latin American university. Thus, most undergraduate education for Latin American students in the United States is largely limited either to students who are relatively wealthy or to those students with close U.S. ties—for example, students who lived in the states at some time in their childhood, or those with family there.

In graduate education, however, the situation is much different, especially over the past 25 years. Latin American countries have long realized that they need more scientists and engineers, and over the past two decades have produced increasing numbers of university graduates in these fields. Yet, if these graduates want high-level jobs in Latin Amer-

ica, particularly in universities, research centers or science-based industries, they need advanced training. With the enormous increase in federal funding of university research, U.S. universities have been short of graduate students in sciences and engineering. Salary differences in the United States between holders of graduate degrees and those with bachelor's degrees in sciences and engineering have not been high enough to attract sufficient students to go on, particularly for the Ph.D. The need to staff research projects has meant generous fellowships for foreign students, including many from Latin America. Unlike students from China and India (the largest supplier of graduate students to the U.S. in science and engineering), graduates from Latin American countries tend to return to their home countries after completing their degrees (Carnoy, 1999). This translates into large numbers of highly-trained science and engineering graduates with advanced degrees returning to work in the region.

Although the emigration of young, well-educated Latin Americans to U.S. universities raises the specter of a "brain drain" from developing economies to a highly developed one, the evidence suggests the movement is better characterized as an educational "interdependence." U.S. universities need the young Latin Americans to work on research projects, while Latin American countries in the innovation-driven information age need well-trained scientists and engineers to teach in their universities and work in research centers and research-based industries. The U.S. universities and their well-developed research training programs can be viewed as acting as a regional center specializing in high-level scientific training for students from all over the world, including Latin America.

The difficulties with this interdependence are many, but let us focus on two. The first occurs when the young graduates train in fields that do not match Latin American research needs, and when Latin American countries do not sufficiently develop research facilities or promote research in industries. In either case, highly-trained Latin American graduates return to their countries only to be employed in work that does not utilize their research skills.

A famous example of this problem is the alliance of Brazilian computer scientists and electrical engineers with the Brazilian military government in the 1970s to create the "reserva do Mercado" in personal computers. Although heavily criticized by Brazilian industry, which had to pay much higher than world market prices for PCs in the 1980s and into the 1990s, the program served to create a major software industry in Brazil and a globally competitive ATM industry. But more importantly, the conflict over reserva do Mercado was in large part caused by the combined refusal of computer producers such as IBM and DEC to put part of their research facilities in Brazil and the failure of the Brazilian government to invest adequately in research so that it could more fully utilize its major resource of highly-trained scientific expertise. Indeed, a regional research effort based in Brazil beginning in the 1970s might have produced even better results without

the need to so drastically protect the production of PCs, or, alternatively, reduced the number of years necessary to extend protection of local computer production. Furthermore, if Brazil had combined with other countries, notably Mexico, Argentina and Chile, in a regional effort to produce personal computer hardware and software, the costs would almost certainly have been lower and the quality of the result much higher.

The second difficulty occurs when the U.S. training is specifically organized to achieve certain ideological objectives. During the Cold War, much of the purpose of financing studies in the United States was to develop pro-U.S. leadership in the region. The best-known example of graduate training with a particular ideological bent was funding by the U.S. Agency for International Development for the University of Chicago's economic programs at the Catholic University of Chile and the University of Mendoza in Argentina. These programs were specifically oriented toward training a cadre of free-market economists who would form the intellectual underpinnings for conservative governments in Chile and Argentina.

There are several characteristics of this regional training scheme that can serve to inform future training programs. The most important is that high-level science and engineering training cannot develop independent of well-organized and well-financed basic research. Graduate students can only learn to be good problem solvers by solving difficult problems. Another is that such training needs to be organized around subjects that have real meaning in the regional context. For example, Latin America should have among the world's best graduate research training programs in tropical plant pharmacology, ecological sciences, petroleum engineering, biotechnology, infectious diseases and development economics. The third is that the training should be eclectic, with considerable discussion of the ideology of science but no particular ideological position. Finally, Latin American governments also have to invest in or give incentives to the private sector to invest in R&D in industry. Countries such as Korea, Taiwan and Singapore have done an enormous amount to promote local research efforts, both in industry and in specialized research centers. If Latin American economies are to better utilize their foreign- or locally-trained scientists and engineers, they need to invest more in the research activities that will employ them. Doing so in regional projects will probably increase the chances of success.

Financing Regional Projects

A major challenge in organizing regional projects is the method of financing them. Multilateral institutions such as the Inter-American Development Bank are one logical source of funds for financing regional public goods. The IDB played an important role in fi-

nancing one of the regional education institutions discussed in this chapter, the University of the West Indies. In that case, the IDB made loans to individual countries to build the various campuses that make up the university. This is one approach to financing new regional institutions: lenders—both international and bilateral—can make a series of loans to individual countries to build, say, regional research centers in different fields of science that would recruit scientists from various countries. Thus, Chile, Argentina and Brazil, for example, could each build a major scientific research center in specific and perhaps complementary fields. The issue would always be whether individual governments would contribute to each other's research centers, both by continuing to pay scientists' salaries even though they were working for a regional center in another country, and by helping fund regional research projects, perhaps matching international funding.

Alternatively, international and bilateral lenders might contribute to an international fund that would focus on investing in regional projects in R&D and education. The board of the fund would make choices among proposals for regional projects. This manner of funding would still face the issue of coordinating contributions from national governments and therefore would still require a political commitment from national governments to regional education efforts, regional R&D, regional information dissemination efforts, and so on. The IDB or any other international or bilateral lender would still have to solve the problem of assuring the commitment of national governments to regional projects even when regimes change.

Does that mean that regional projects require regional political arrangements, such as the European Union, to get off the ground financially? Probably not, although they may require an outside arbiter to judge quality and assure continued national participation. Recent initiatives such as the Argentine-Chilean-Uruguayan joint research project financed by the IDB and the three Ministries of Education (through cost sharing)—in which a group from the Stanford School of Education also participated and contributed through cost-sharing—make it easy to envisage longer-term regional research and dissemination programs that survive changes in government. (That very project survived three changes in the Argentine government.) Latin American democracies seem to be at the point where commitments to regional institutions transcend a particular regime. However, a key element in maintaining the integrity of such projects is an outside financial institution, such as the IDB, that also has long-term relationships with national governments that those governments want and need to preserve. In this sense, the international lender (or a bilateral lender) has to act as the "assessor" of the regional project and as its "guarantor." Thus, as long as that regional project continues, in the objective opinion of the international lender, to spin off regional public benefits, the lender would assure its continuation, in part by pressuring national governments to continue participat-

ing financially. In the best of all worlds, each national government participating in the regional project also values these regional benefits. But in case there is differential valuation among participating countries—often the case, especially with regime changes—the outside lender serves as an objective third party evaluator of the overall regional benefits. This represents a new role for international lenders—one where the lender adjudicates among nations that have particular interests but can also gain from subsuming their national interests to the larger (regional) public good.

Conclusions

There are convincing economic arguments for regionalizing the production of knowledge. But there is also much resistance by nations to investing in potentially high-yield research or research training, particularly in fields that may result in large economic payoffs if successful. It is one thing to agree to a FLACSO, with its research in social sciences, and another to "share" in research that may produce breakthroughs in new drugs from tropical plants.

There are relatively few regional scientific research programs in Latin America that are organized to produce benefits for many countries. Those that do exist have generally been initiated by institutions outside the region, such as the United Nations and UNESCO, as well as developed country nongovernmental organizations such as the Rockefeller Foundation in agricultural research.

This is not unusual. The very idea of formally regionalizing university training or scientific research is a new idea, made much more feasible with new means of communication and information sharing. The computer/telecommunications revolution also allows for new forms of organizing training and research, in ways where time and space are compressed.

This chapter has discussed a number of different models for regionalizing knowledge formation and has made some suggestions about their financing. The cases cited are working examples that can serve to inform future efforts. The University of the West Indies, for example, with its research centers spread around its member countries, could be reproduced in the Mercosur or Andean regions or in Central America. The Instituto Tecnologico de Monterrey could join with other major engineering schools in Latin America to create a number of high-quality regional engineering programs. Adding electrical engineering research laboratories around the region to support engineering training, for example, would improve the quality of the programs even more. The Universidad Autonoma de Guadalajara developed a "regional" medical school and used the higher tuition rates it could charge North American students to build high-quality clin-

ical facilities and training programs that greatly increased the benefits to local medical students.

The key to the success of such efforts is choosing the "right" R&D and training investments to make on a regional level. Nation-states have to agree to support such efforts with major resources—in doing so, they give up some control over the benefits of successful results. At the same time, they share in any expanded benefits that result from a larger collective effort. The latter may indeed be large. Regional programs in scientific research and world-class quality training may, in many fields, be the only way that Latin American countries can begin to develop their own scientific research base in new products and production processes. This approach also presents opportunities to develop a distinctly Latin American approach to scientific applications in agriculture and the environment. Yet, countries have to be convinced of these benefits in order to support such a regional strategy in knowledge production.

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CHAPTER 13

Regional Public Goods, Governance and Capacity-Building

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While there already have been major contributions towards designing a systematic approach, accumulating ideas, and bringing together different perspectives about regional public goods, some of the issues involved are just beginning to be examined. There has been ample analysis of regional public goods with respect to the environment, health, and the production and dissemination of knowledge, but the role of governance and capacity-building requires further consideration, particularly to clarify concepts and find ways to facilitate the coordination of actors and policies (Stalgren, 2000).

Several factors explain the growing importance of global and regional public goods. The opening up of economies and the processes of globalization render interdependencies ever more intense. New systemic risks highlight the lack of an adequate institutional framework to address problems such as resource degradation, market volatility and instability aggravated by widening gaps between social groups and countries. Solving these problems depends on the conduct of states and non-state actors such as transnational corporations and civil society organizations, whose aspirations and activities impact on the processes, content and effectiveness of regulations and national policies. Institutional framework problems and this increasing social complexity highlight the need for effective designs and coordinated actions to address issues of global and regional governance (Kaul, Grunberg and Stern, 1999).

This chapter draws on the conventional concept of public goods as goods, services or resources with shared benefits whose two defining characteristics are nonexclusion and the lack of rivalry in their consumption. Ferroni (1999) writes: "Rules and standards, infrastructure, public sector institutions, property rights, and, generally, political and social cohesion are resources for development in the nature of public goods." Certainly most goods identified as global or regional public goods are mixed, with national elements of exclusion in consumption and rivalry in production (IDB, 2002a).

One concise definition is that public goods are resources for development that can generate positive externalities or mitigate negative externalities (Ferroni, 1999). Given the all-encompassing nature of public goods, this chapter employs the World Bank's defini-

tion of global public goods as commodities, resources, services and systems of rules or policy regimes with substantial cross-border externalities that are important for development and poverty reduction and that can be produced in sufficient supply only through cooperation and collective action by developed and developing nations. This definition is flexible and action-oriented, and includes activities that aim to mitigate negative externalities and promote the positive externalities of problems whose importance goes beyond national borders. It recognizes that nation-states have jurisdiction and control over policy instruments within their borders, but that those policies have consequences on other countries. It underscores the need for collaboration between national and international actors, as well as agreements on actions to be taken and their financing.

This chapter focuses more specifically on regional public goods, which, by their nature, are intermediate goods. They provide the infrastructure that undergirds the operation of the economy and society, such as information, knowledge and technologies; shared and coordinated policy frameworks; and institutions and organizations that facilitate the articulation of policies, actions, financing and investment (Arce and Sandler, 2002).

The possibilities and dangers associated with technological developments, the globalization of markets and production, and the greater interdependence among national activities all give rise to a demand for regional public goods that significantly outstrips supply. The difference between supply and demand is due to problems that involve (i) collective action, which refers to the inadequate and slow response to serious issues affecting efforts to work on shared interests, (ii) the capacity to adopt national measures that incorporate the regional dimension in their objectives and contents, and (iii) multilateral instruments for precipitating action, given the limited mandates of multilateral institutions and their traditional orientation to organize cooperation along national lines. This mismatch between supply and demand is a source of tension that negatively affects the harmony, stability and equitable growth of all countries, making it necessary to find methods and mechanisms to define priorities, procedures and obligations that facilitate more intense and productive cooperation among national actors and across borders.

In order to contribute to the discussion of these issues, an analysis is put forth of the externalities that derive from government capacity, the governability of societies, and the qualities of governance, understanding governance as the arrangements for coordination and convergence among different actors. Just as cross-border processes and dynamics have repercussions for the governance of states, global and regional governance are based on national governance, which is the initial condition that must be met to sustain and consolidate cooperation and integration. Similarly, taking advantage of the opportunities created by regional integration and globalization depends on the attributes of the national societies, and on the consistency and persistence of the strategies they adopt (French-Davis, 2002).

The chapter proposes that these dimensions be incorporated into the design of cooperative efforts to foster joint development and make better use of existing capacity. The section that follows puts forth certain concepts toward this end, as well as a rationale for addressing governance in the context of regional public goods. There is discussion of state capacity and its contributions to governance, followed by presentation of two successful capacity-strengthening initiatives that highlight the progressive nature of the process and the role of networks and horizontal cooperation mechanisms. This analysis then leads to some strategic and policy consequences.

Governance and Regional Public Goods

Governance has been addressed in the context of globalization and the management of global and regional public goods. The key issue is the incongruence between political institutions organized based on the territoriality of states and the nature of the cross-border problems. This incongruence highlights certain phenomena that constitute the backdrop for considering regional public goods. These include: (i) the erosion of the conventional distinction between domestic and foreign policy; (ii) the growing importance of "shared sovereignties" among states; (iii) the new forms of interaction among social spheres within and across borders; (iv) the proliferation of intersections and complementarities among the policies adopted at the regional, national and local levels; and v) the changing power structures among mobile actors (corporations, populations) and immobile actors (institutional structures) (Messner, 2002).

Resolving this incongruence requires that mechanisms and capacity be available to articulate distinct levels and areas of action. These mechanisms and capabilities include international and regional organizations, public, private and social institutions, policies, and actors whose constraints, content and conduct have consequences that are felt across national borders. Accordingly, the effectiveness of instruments and actions will depend on the contributions of the participating actors. The institutional quality and capacity of each country will determine the possibility of such articulation, convergence of policies, effectiveness in implementing actions, incorporation of the regional dimension in policies, design of incentives, and the sustainability of the efforts deployed.

Consequently, the supply of regional public goods in areas such as those identified, and the ability of some of the actors mentioned, such as the multilateral development banks, to make special and priority contributions, is highly conditioned by the issues addressed in this chapter. These areas include actions to eradicate infectious diseases, improve the global environment, promote the movement of merchandise, capital and knowledge across borders, stimulate international financial stability and a propitious in-

vestment climate, and create and disseminate knowledge on issues related to development (IDB, 2002a). Institutional quality and state capacity cut across all these issues, constituting, therefore, an additional public good.

National Bases of Regional Public Goods

The supply of regional public goods is associated with decisions processed by national political systems. Hence the issues involved with government capacity, governability and governance are critically important.

The first issue involves the capacity and quality of the government structures and decisions with respect to the problems that make their way onto the public agenda, either at the state's initiative or as a consequence of the demands and actions of social actors, whether internal or external, public or private.

The second, governability, is shaped by the correspondence among government decisions, the processes of implementation, and the consequences for society (Reinicke, 1998). Governability refers to the institutions, policies and arrangements that constitute the framework of social action. It is expressed in the country's capacity to produce and implement the regulations needed to provide stewardship to the development process. It includes the normative, political and administrative aspects of public policies, as well as their impacts and the social responses. There may be different types of governability, with democratic governability just one possibility.

Governance is broader in scope—it is the existing capacity for actors of different sorts and with different orientations to be able to act in "concert" in the framework of an established institutional system. It refers to the sum of interactions between civil society and government, and expresses the effective exercise of power and the government's authority to carry out its policies, and to mobilize and channel the actions of actors that it does not "govern," but whose conduct is crucial for society. Governance refers to the quality of the practices and relationships within the state, and horizontally among different actors (Mayntz, 2001; Rhodes, 1997). It includes sets of networks and their reciprocal articulation, as well as cooperative problem-solving processes.

Certainly, governments with weak capacity, and societies with notorious shortcomings in terms of governability, low-quality institutional frameworks and problematic governance, will not have the basic rules for a working political arrangement that provides stability, confers security on the markets, and controls and channels risks. In other words, one cannot expect such governments to make significant contributions to the production of regional public goods; moreover, they may have problems capitalizing on specific cooperation actions (Ferroni, 1999), and they will generate negative externalities with regional and even global consequences.

Institutional Quality

To this sequence of increased conceptual complexity involving government, governability and governance is added the idea of institutional quality, expressed by institutions' systems of rules, the incentives associated with them, and their social validation. Good institutional quality is found when there is a system of rules that is coherent, relatively stable, well known, and with few if any ambiguities. The system meets with compliance backed by a set of incentives and sanctions whose application is foreseeable and certain, and it has the legitimacy to ensure its social sustainability, such legitimacy being rooted in the culture.

Widespread instability, impunity for breaches of the rules, and systemic corruption are expressions of low institutional quality. This line of reasoning affirms the importance of the institutional realm as a critical dimension in considering regional (and global) public goods, since the quality of institutions determines the attributes of national policies and actions, as well as the extent of governability problems that give rise to negative externalities. In addition, the weaknesses in the governability of a country jeopardize possibilities of interacting with other countries and arriving at agreements that are sustainable over time.

State Capacity

State capacity contributes to institutional quality, since it is that capacity that determines the consistency of the policy framework, the coherence and efficiency of its design and implementation, and articulation with the social actors. This state capacity is relevant at the regional level, as it is the basis for the reliability of government actions on issues such as border controls, credible law enforcement, compliance with environmental and sanitary regulations, and stable financial markets. In addition, state capacity may contribute to joint negotiations and certainty in compliance with their results. In other words, the weaker the state's capacity, the more difficult it will be to coordinate and harmonize policies between countries; the greater the likelihood that externalities will negatively impact neighboring countries or the larger community of nations; the greater the instability of the arrangements designed; and the smaller the capacity to make use of regional and global public goods.

Strengthening State Capacity

In recent years, there has been a range of initiatives in many countries to strengthen state capacity, backed by a major commitment of international technical and financial cooperation. These initiatives have aimed to reformulate the role of the state, activate civil soci-

ety, deploy local initiatives, and further decentralize public decision-making. Public sectors have been transformed by privatization and deregulation, the redistribution of functions among levels of government, new forms of financing, the incorporation of various forms of outsourcing and delegation to civil society organizations, and the opening up to participation in the mechanisms for carrying out policies. Furthermore, old, closed organizational schemes that were hierarchical and centralized, and which proved incapable of operating effectively in situations that require selective interventions to address unique social and territorial characteristics, were the subject of major changes in programs to modernize the public administrations. While that restructuring sought to reduce public spending, modernization sought to reduce the gap between the performance of state organizations and societal expectations.

The experiences of state reform and modernization of public administration have yielded important lessons. Despite some accomplishments—including implementation of results-oriented approaches that make administration more flexible and establish competitive mechanisms within the state apparatus—there is abundant evidence that restructuring did not make a substantial impact on efficiency or effectiveness, decentralization or social articulation. Some maintain that the result of the reforms has been a "remnant state" with serious shortcomings and without satisfactory gains towards the initial objectives of transforming administration (Piñeiro et al., 1999; Martínez Nogueira, 2002). Clearly, the capacity to anticipate and respond to changing needs and social demands was not improved, nor were state services enhanced. Little progress was made in identifying and taking advantage of opportunities, in terms of innovation, or in the state's potential to mobilize social resources or provide strategic guidance.

Despite the conceptual developments in this field, the programs and actions undertaken have not abandoned the mechanistic and reductionist notions of how the state works. There remain political problems to overcome the bureaucratic model, break with centralist tendencies in decision-making, open up to social participation, and leave behind sectoral inertia for addressing problems such as poverty, employment, the environment, or the lack of innovation. Evidence of the ineffectiveness of the instruments that have been employed to address these issues can be found in the results of the institutional strengthening components often featured in external cooperation projects, which focus on bolstering the "inputs" of state action and have not succeeded in significantly improving the quality or sustainability of administration, much less broad social participation in it.

Evaluating Capacity Strengthening

The foregoing brings to light the conceptual limitations of redefining government functions and restructuring the administrative apparatus. Those limits derive from looking at

the problems from a closed perspective, internal to the public sector, without considering the rationales at play or the actors involved. The programs designed in line with this conceptual framework may have an immediate impact in terms of changing organization, procedures and technologies, but experience shows that the transition to institutionalizing change and innovation has not been successful.

As institutional quality has not been changed, it is not surprising that there are no significant improvements in governability or governance. There are several reasons for this lack of progress. First, the reforms have been designed with scant consideration of the conditions of implementation. Thus, there has been a dual "policy transfer" and "institutional isomorphism," assuming homogeneous situations, and ignoring the specificities of each institutional context. The result has reproduced the contents of programs throughout the region, as well as the methods used to carry them out, with only limited accumulation of experiences and exchange of lessons learned. Indeed, in many cases the actions carried out in some spheres of the public sectors were localized in implementing agencies isolated from the rest, and so face major problems establishing and consolidating new forms of administration (Martínez Nogueira, 2002).

The second reason why progress has been limited is because the reforms have given little consideration to the specific demands of public policies. The starting point has been the premise that there are universal challenges that can be overcome by implementing homogeneous models of organization and management, without addressing the particular demands of different types of substantive policies, the different tasks that must be carried out, or the technologies used.

Finally, serious reform requires a long-term time horizon, emergence of new social actors, consolidation of a culture of participation, and a more developed and articulated civil society. By limiting the scope of the reforms to the state apparatus and to the time horizon of programs and projects, the reforms themselves, in many cases, were socially isolated and lacked significant support.

These limitations and the cumulative failures cast light on the need to adopt more integrated perspectives on the development process, formulate programs with a longer time horizon, articulate program contents with public policy orientations, and create mechanisms to facilitate, socialize and deepen the lessons learned.

Externalities of State Capacity

Systematizing and socializing learning involves building institutional memory about the processes that have been undertaken, developing analytical skills for conceptualizing and understanding them, sharing experiences that make it possible to evaluate the factors at play, disseminating new knowledge and technologies tested in different situations, and or-

ganizing exchanges to train actors and take stock of new practices. Here, the regional dimension can make important contributions.

In this sense, learning itself may be a regional public good, but for this to be the case the following must be in place:

- Availability of a framework of policies, institutions and actors at the national level, built through the progressive accumulation of capacity and networking;
- Understanding of the institutional and governance dimensions involved, with special attention to the structural, administrative and technical levels, a place for social participation to ensure the sustainability of results and impacts, and dialogue and points of consensus regarding how to conceptualize the problems and ways to resolve them;
- A shared understanding that the problems of governability and governance are critical to attaining the objectives of development with equity, and that overcoming them is a necessary condition for ensuring the effectiveness and sustainability of the impacts of policies and actions;
- A shared evaluation of regional problems and the need to adopt a common approach; and
- Joint action-oriented programming to design strategies for complementarity and cooperation.

Accordingly, projects to modernize the state, although they necessarily must answer to national demands and definitions, can be enhanced by adopting a broader perspective that, for conceptual reasons related to operability and economy, should include a regional view. This presupposes reaffirming a process already under way, while further exploring the path already taken. Paradoxically, the policy transfer and institutional isomorphism cited above offer an opportunity to generate knowledge that can be shared. For decades, the policy networks and communities that have been formed—by design and by chance—have been made up of organizations that share an interest in a certain issue, and of various actors (technical experts, academics, professionals) who exchange information, compare experiences, and debate perspectives. All this generates a relatively shared discourse, a dialogue across borders, and affinities that constitute a vehicle for such social learning.

State Capacity and Civil Society

Institutional quality depends not only on state capacity, so it also is necessary to incorporate the contributions of other actors as well. This consideration has led to acknowledg-

ment of the impact of private and social organizations on governance (Knill, 2000). Such organizations perform different functions, including representing interests, mobilizing social groups for articulating demands, regulating and monitoring state performance, and implementing actions for the well-being of certain segments of the population. Their contributions to policies and decision-making, monitoring of public organizations, transparency, and preserving the rule of law have an important impact on governance.

In Latin America, civil society has re-emerged with the retrenchment of authoritarian governments, and with the emergence in the public arena of new issues tied to acquiring and reaffirming rights and developing the capacity for solidarity. Civil society was enriched through greater organizational density and by taking on new roles, with ever-greater contributions to efforts to fight poverty and democratize society. Moreover, the processes of state reform and modernization have involved social organizations in the design and implementation of policies. The programs have incorporated competitive mechanisms to address the demands of civil society organizations, evaluate results, foster social learning, and consolidate new social actors.

In the framework of these processes, networks have been forming nationally and regionally. These networks facilitate the movement of information and the sharing of experiences. Through them, social management experiences are socialized, and shared perspectives are developed. Alongside these processes have unfolded yet other processes involving greater communication and mutual recognition among actors with a longer standing tradition, such as business organizations, trade unions and cooperatives. These processes are fundamental to promote, produce, demand and finance regional public goods, and to contribute to consolidating processes of convergence and policy coordination.

Regional Actions related to Public Goods

Latin America has a long history of integration policies and international cooperation. The fact that they were not framed in terms of regional public goods does not mean that the externalities were historically absent from the analysis of policies, programs and projects. There have been many examples of regional and subregional organizations, coordinated projects aimed at two or more countries, albeit independently, actions carried out in one country with a regional objective, and national projects with cross-border externalities. Various actions based in a particular country with explicit objectives limited to that country have had an unquestionable impact on others.

The integration processes that Latin America has pursued for decades have left behind an institutional infrastructure that is largely shared and used, along with negotiated

policies, reaffirmed identities, and visible consequences for growth and integration. Collaboration among countries has given way to greater complementarity and cooperation aimed at expanding trade and investment, taking advantage of synergies, and capitalizing on opportunities created by the new global situation. While those processes are as yet incomplete, replete with tensions, and have frameworks and mechanisms that are only just emerging, they do point the way down a path from which there may be no turning back.

This history, then, highlights relevant experiences that have helped generate regional public goods, in the process strengthening the capacity of countries, facilitating access to knowledge in fields directly related to governability, and establishing critical mass across national borders. Information exchange programs, horizontal cooperation projects for technological transfer and learning, and collaborative efforts to make mutual use of capacity all have consequences in terms of the nature of regional public goods. All of these actions related to promoting public goods can serve as precedents for the mechanisms aimed at articulating actors, coordinating actions, transferring knowledge, and designing new ways of managing regional public goods.

It should be noted that institutions such as the Inter-American Development Bank have played an extremely important role in this historical process in Latin America. By institutional mandate, lending operations and technical cooperation have been directed toward promoting the development of the countries of the region, fostering externalities in a wide variety of areas and in some cases explicitly aimed at creating regional public goods. In the cases of both of the regional public goods discussed below—building state capacity and supporting creation of agricultural research products—the IDB played an important role in fomenting action, strengthening the sustainability of efforts by various organizations, and building networks for cooperation.

Building Government Capacity: The Latin American Center for Development Administration (CLAD)

The Latin American Center for Development Administration is an intergovernmental body with 25 member countries from Latin America, the Caribbean, and the Iberian Peninsula. It is governed by a view that the modernization of public administration is a strategic factor in the process of economic and social development. CLAD promotes technical cooperation and the training of public sector managers, and is a forum for analysis, debate and sharing of experiences and research on state reform and the modernization of public administration.

CLAD plays an integrative and multiplier role. In terms of cooperation, mobilizing the technical resources and capacity of some countries makes it possible to satisfy the demands and support the needs of other member countries. CLAD's General Secretariat is

a mechanism for articulation and coordination, and its congresses, symposia and workshops afford opportunities to analyze and evaluate efforts to modernize the public apparatus in the countries of the region. In collaboration with other institutions, CLAD carries out applied research on problems related to modernizing the state apparatus. Higher education in public administration is aimed at building management capacity in the public sector. CLAD's information and publication services are an essential point of reference on state reform, administration and public policy.

CLAD has accorded priority to developing institutional networks as an effective means of sharing information and experiences, serving as a means of pulling together a genuine state reform policy community in the region. These networks include establishing graduate programs in public policy and administration, and supporting schools of public affairs as well as efforts to combat corruption. Furthermore, CLAD has entered agreements with numerous prestigious national and international institutions that contribute technical and financial cooperation resources, including the IDB, the World Bank, Spanish International Cooperation, UN Economic Commission for Latin America and the Caribbean, Latin American Social Science Council, Andean Development Corporation, UNICEF, German Foundation for International Development, Ibero-American Institute for Public Administration, Latin American and Caribbean Institute for Economic and Social Planning, International Development Research Centre of Canada, Pan American Health Organization, Organization of Ibero-American States for Education, Science and Culture, International Labor Organization, United Nations Industrial Development Organization, and the United Nations Development Program.

CLAD also has been important in the development of administrative capacity in the countries of the region. It has supported efforts to share experiences, update knowledge, and take a more rigorous approach to modernizing public sector management. CLAD has become a center for designing public policies and analyzing their results and impacts, and its meetings have furthered a new appreciation for the complexity of public administration and its institutional contributions. The center has also made it possible to move beyond old propositions and concepts, creating a community of public sector managers, experts and researchers who are interconnected through various networks and enrich the debate on and the quality of policies.

CLAD's institutional history shows it has gradually drawn in new actors, acquired capacity, and performed new functions. From a network implemented by a few countries and focused on the participation of governments, it now encompasses the entire region as well as nonregional actors, and has the legitimacy to bring together people from academic and professional circles. The center's history shows that the production of regional public goods is part of an evolutionary process, with actions setting processes in motion that in turn give rise to new joint and increasingly complex activities.

Regional Fund for Agricultural Technology (FONTAGRO)

Another example of this evolutionary process is the regional arrangements for agricultural research, which stem from the explosion in the number and diversity of mechanisms in this field in the second half of the 20th century in Latin America. As a result, today there is scientific and technological infrastructure made up of established institutions and arrangements with different degrees of consolidation and mutual collaboration. This infrastructure finds its expression in the national research systems and in a variety of regional undertakings and consortia.

The infrastructure has had to face increasingly complex challenges because of changes in the international context of agricultural research and the emergence of a new paradigm that has modified the scientific and technological scenario. All this has meant that the institutional mechanisms and forms of cooperation are ever more important in order to meet efficiency objectives, increase production, improve productivity, preserve resources, and promote equity. To this end, there has been greater recognition of the need to take advantage of economies of scale and the specialization facilitated by institutional strategies that make use of the complementarities between national systems and between a national system and the international system.

There are many cooperation networks in the region that aim to strengthen scientific and technological capacity by training human resources and ensuring the availability of new knowledge through international ties. They help increase the effectiveness of the national systems by affording access to the critical mass of people for making significant contributions, and enhance productivity by making better use of available resources. The networks also have played a key role in facilitating access to inputs for research, the mobilization of information, physical facilities, genetic material, normative guidelines and methodologies, and in making it possible to share the advances of the national programs. Finally, the networks have had a positive impact on the legitimacy and stability of the institutions and programs involved, provided access to additional resources, and helped identify and take advantage of opportunities.

These cooperation networks are evidence that the regional system has advanced significantly. A highly varied set of entities participates in them, with very different mandates, institutional identities and levels of capacity. Their mechanisms mobilize a community of actors with close relationships and shared visions, evolved with the growth and cooperation of the regional and subregional integration process.

Through the specialization of the members of these institutions, knowledge is pulled together and use is made of forms of action that are appropriate for different substantive and institutional issues. In turn, spatial differentiation makes it possible to attend to certain issues that mobilize specific actors or resources in light of shared problems.

The multiplicity of spheres in which these relationships unfold reduces the vulnerability of the whole system, since uncertainties in financing or operational problems do not alter the systemic relationships.

In the formation of this system, one can observe a progressive advance, with the incorporation of more activities and greater integration in their implementation. A process of institution building can be identified whose goal is a fully integrated system, with joint projects and arrangements for institutional division of labor. That path has made it possible to develop institutional synergies by integrating programs based on common needs, and to move towards a differentiation of tasks, gaining efficiency by recognizing and taking advantage of economies of scale and scope, fostering the formation of critical masses of researchers on priority issues, and specializing to increase the efficiency of investments and optimize the use of comparative and strategic advantages.

This experience casts light on a key issue—that the networks and arrangements for collaboration cannot be considered static achievements. In this case, their dynamic has sparked new initiatives, involving inter-institutional and international cooperation. In addition to collaboration on research inputs, processes and results, there have been other mechanisms seeking dialogue, consensus building and coordination among actors for research and technological development, as well as the financing of joint projects. These arrangements and networks are mechanisms for developing scientific and technological capacity.

The establishment of the Regional Fund for Agricultural Technology in 1998 represented the culmination of the process described above. It is a consortium to promote strategic agricultural research of regional interest, with the direct participation of the countries in setting priorities and financing research projects. The member countries are Argentina, Bolivia, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, Nicaragua, Panama, Praguay, Peru, Uruguay, Venezuela, and the International Development Research Centre (IDRC).

FONTAGRO provides financing for carrying out projects of regional interest aimed at generating technologies that constitute public goods that are transnational in nature. Its purpose is to promote increased competitiveness in agriculture while ensuring the sustainable management of natural resources and reducing poverty. FONTAGRO develops technologies that are transnational public goods, facilitating the sharing of scientific knowledge both within the region and with other regions of the world. In terms of financing, member countries provide the capital for the fund, and the annual income it generates is used for the non-reimbursable financing of strategic regional research projects.

The countries and organizations (public and private) that contribute to FONTAGRO participate in its administration through a Board of Directors that is responsible for identifying priorities and establishing policies and operational procedures to select proposed research projects. Research areas are identified based on studies and consultations

with specialists, and research is carried out by national entities of the member countries (research institutes, universities, foundations, and private organizations) as well as by regional and international research institutions, in partnership with national technology development organizations.[1]

Cooperation and the Development of Governance

Producing regional public goods requires national capacity and policies, the development of which poses certain challenges and raises certain questions. The first matter that must be addressed is the articulation between the national and regional levels, with a strategic vision that considers the complementarities and possibilities of integration of countries and the role of cooperation. The consequence is a new configuration of the national public sectors and their institutional support structures, with forms of administration more attuned to developing networks and alliances and to overcoming the current divide between the internal and the external.

Articulation between the institutional, political and administrative realms is a condition for effectively translating intentions into actions, and for taking advantage of cooperation. As experience shows, this depends on institutional quality, a concept that, as indicated, is much more encompassing than "state capacity" or a "policy framework."

Priorities for shared action need to be defined and delineated through a process that leads to identifying the contributions of various national actors and cooperation agencies, both public and private, to solve problems (Gwin, 1999).

The cooperation agenda should include specific issues, such as how to best involve the relatively smaller countries, or those countries in which the critical factor entails rebuilding institutions. In addition, in designing this agenda, it is crucial that all actors be involved. In all cases, producing regional public goods requires integrating and coordinating the contributions of multiple national and regional actors, as well as developing processes for framing national policies.

Different Emphases in Conceptual Frameworks

If one recognizes the importance of institutional quality as an intermediate public good, the logical consequence is to bring to the fore the issues associated with state capacity, conditions of governability, and the nature of governance.

[1] A similar mechanism is being designed for joint work among the agricultural sectoral planning offices of the Southern Cone countries.

Clearly, the most significant advances in these fields will be the consequence of the strategies and conduct of national actors. Nonetheless, it is possible to drive the processes by taking steps toward international cooperation actions and by forming cross-border networks of actors. The cases indicated above, which involve managing development and agricultural research, are evidence that the following five processes are at play:

- Socializing information is an essential tool, but it must involve more than simply transmitting data between organizations and countries and rather become a process of sharing knowledge that is the basis of learning. Such information refers to policies, programs and projects, strategies and forms of implementation, and mechanisms for monitoring and evaluation. In each country, the production and dissemination of this information is a condition for transparency and a means for attaining the accountability demanded by democratic processes. It is critical to bring about the institutional conditions for more precisely defining action and assignments of responsibilities.
- Creating and disseminating knowledge relevant to development through the research projects and associations of the actors involved.
- Fostering the growth and maturation of networks so that they can assume increasingly complex tasks that entail more collaborative and integrated actions. These networks should be designed as progressive mechanisms, with ever more interactions and functions performed, and as means to identify and make use of knowledge and capacities available regionally, to take advantage of synergies and to mobilize resources.
- Taking concerted actions that make use of differentiated capacities and specialties, exploit economies of scale and scope, and make possible an efficient division of labor in certain fields.
- Harmonizing and coordinating policies and procedures, making use of forums for discussing, analyzing and reviewing the regional consequences and impacts of national and regional policies, programs and projects.

Financing Regional Public Goods and Coordination Mechanisms

The issues related to the financing and design of mechanisms for coordinating and harmonizing the policies needed to support regional public goods are extremely complex. Both the financing and the mechanisms refer to actions to build capacity and generate and transfer knowledge and technologies useful for the activation and social management of regional public goods, as well as for problem-solving. In this regard, the experiences considered as examples suggest possibilities that can be replicated in other fields.

Those experiences show the role of domestic financing with contributions from international organizations, while leveraging cooperation for mobilizing national and subregional funds.

As the literature on the topic indicates, cooperation resources should be integrated in different ways depending on the key features of public goods. Drawing on the typology put forth by Kanbur and Sandler (1999), which makes it possible to illustrate different ways individual contributions determine the total quantity of the public good produced, some propositions can be formulated regarding contributions and financing.

While national governance is an issue that depends on the deployment of forces and capacity in each country, with components focused on policy and management,[2] one can identify localized and focused actions with significant financing aimed at attaining a product or result that is later disseminated to all countries ("best shot" efforts, according to that typology). The establishment of regional centers of excellence for study, research, training and technological development has such attributes. Such centers should be complemented by networks that facilitate the transfer of and wide access to goods.

In the case of club goods, with substantial benefits that are easily identifiable to the countries, the contribution of both public and nongovernmental parties appears to be sufficient, with assistance from cooperation agencies to mobilize those resources, start up the process of producing such goods, and expand the number of beneficiaries.

When the process of producing regional public goods is the "weakest link" (cases related to safety, or epidemiological issues, in which total vulnerability is associated with the limited investment and actions of whomever has the least capacity), the efforts must be directed to reducing asymmetries, with considerable involvement by international, regional and subregional cooperation agencies.

In the case of aggregative technologies (in which the good depends on the coherent conduct of a set of actors), efforts should be geared to creating the stimuli for international rules that meet with compliance in all national contexts.

As for designing the mechanisms, some criteria appear also to apply in the case of contributions to governance. When economies of scale and scope for the production of goods with regional externalities are high, efficiency follows from larger-scale arrangements, with some centralized impetus, guidance and mobilization of the exchanges, as was pointed out above for the first case ("best shot"). Where economies of scale are delimited to subsets of countries, the most appropriate coordination mechanisms are those

[2] With this type of aggregation technology, a significant individual contribution whose results are available to other members of the community of countries has a major impact on supply.

closest to where the problems to be addressed are manifested, and closest to the jurisdictions to be coordinated.

The corollary is that investments in capacity-building should be subjected to an analysis that determines the cost-effectiveness of various alternatives at the subnational, national and regional levels. Accordingly, the regional spheres should be designed or strengthened for addressing such highly general issues so as to make it possible to pool efforts and resources. To a large extent, the role of regional mechanisms is to promote and facilitate this coordination and aggregation. The subregional and bilateral mechanisms should address the issues more specifically of interest to these participants.

Role of Cooperation

International cooperation has an important role to play in encouraging capacity-building at the national and subnational levels, articulating actors, making significant contributions to adequately address identified regional needs, and designing programs that go beyond the conventional country-focused perspectives, with support for analysis, technical assistance and training. Cooperation efforts are helping to bring about a clearer delineation of the areas of competencies and responsibilities, so as to facilitate better allocation of resources, internalize more positive externalities, and contribute more to the integration of countries (Stiglitz, 1998). Accordingly, the regional and subregional mechanisms should clarify the current schemes of functional specialization and spatial differentiation to take on a clear profile that reaffirms their legitimacy for the countries and donors, the political decision-makers, and all other social actors. The means for accomplishing this will include the participation of stakeholders, setting consensus-based priorities, and articulating the national and regional strategies.

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Part III

Experiences from Selected Projects and Programs

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CHAPTER 14

Monetary and Financial Cooperation in Asia

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Globalization of commodity and factor markets has led to increased interdependence between countries. Transborder challenges, including the spillover of policies across national boundaries, have become important forces with which to contend. These externalities can be global, such as malaria or HIV/AIDS control, or regional, as in the case of financial contagion. In this context, national and international policies have to be complemented by regional responses, because a single country cannot fully internalize the benefits and costs of its actions.

The regional public good aspect of financial crisis was highlighted very starkly by the Asian financial crisis of 1997. The East Asian crisis had ignited the debate between the macrofundamental and the investor panic views. According to the former, the crisis resulted from weak macroeconomic fundamentals; in other words, it was a question of solvency. The competing view held that the crisis was an outcome of self-fulfilling prophecies and financial panics, including bank runs and an outflow of hot money, because of structural weaknesses in financial and governance systems. The consensus view favors the crisis-of-confidence-cum-structural weakness stance. The East Asian crisis differed from previous crises in several key respects. First, it was a capital account crisis, not a traditional current account crisis. Second, unlike other crises of confidence of the 1980s and 1990s, its root causes were structural: premature financial sector liberalization, weak governance, and policy mistakes in managing private capital flows. Another important characteristic of the crisis was that financial contagion tended to be mainly regional, requiring regional solutions to complement global and individual actions.

This chapter focuses on the collective efforts in East Asia, highlighting the regional response to the crisis and actions to promote monetary and financial cooperation in the region. It also outlines support provided by the Asian Development Bank (ADB) in the context of a regional development institution, with particular reference to the Regional Economic Monitoring Unit (REMU).

Regional Response: Promoting Monetary and Financial Cooperation

In the aftermath of the crisis, regional cooperation led many East Asian economies to promote closer monetary and financial cooperation with a view to achieving greater regional financial stability. These efforts have ranged—in ascending order of intensity in the sense that they involve progressively increasing constraints on the amount of discretion that individual countries can exercise in the design of macroeconomic policies—from information exchange and regional economic surveillance to establishing regional financing arrangements and coordinating exchange rate policies.

There are three major ongoing initiatives in the area of information exchange and economic surveillance. First, the Manila Framework Group was formed in November 1997 for the purpose of regional surveillance. Under this process, deputies from the finance ministries and central banks of member countries meet semi-annually to discuss regional economic issues of common interest. Second, the Surveillance Process of the Association of Southeast Asian Nations (ASEAN) was established in October 1998 to strengthen policy-making capacity within the group, based on the principles of peer review and mutual interest. This process monitors exchange rates and macroeconomic aggregates, as well as sectoral and social policies, and includes provisions for capacity building, institutional strengthening, and information sharing. Under this process, the ASEAN finance ministers meet twice a year for policy coordination. Third, the ASEAN+3 finance ministers process was established in November 1999. This process involves the 10 ASEAN countries plus the People's Republic of China, Japan, and South Korea (henceforth Korea). Under this initiative, the ASEAN+3 finance ministers meet semi-annually to exchange information and discuss policy issues. Steps have also been taken to enhance cooperation in monitoring short-term capital flows and developing regional early warning systems to help detect emerging macroeconomic, financial and corporate sector vulnerabilities.

Progress has also been made in setting up regional financing arrangements. During their May 2002 meeting in Chiang Mai, Thailand, the ASEAN+3 finance ministers came up with the Chiang Mai Initiative to expand the existing ASEAN swap arrangements (ASA) to all ASEAN member countries, set up a network of bilateral swap and repurchase arrangements (BSA) among ASEAN+3 countries, and establish a regional financing facility to supplement existing international facilities. In November 2000, ASA was expanded to cover all ASEAN member countries. The total amount of ASA was increased from $200 million to $1 billion. Twelve BSAs with a combined size of about $30 billion, plus another $9.45 billion under the Miyazawa Initiative, are now in place,[1] while there has been significant progress on two other BSAs (China-Philippines and Japan-Singapore).

[1] The 12 BSAs are Japan-Korea, Japan-Thailand, Japan-Philippines, Japan-Malaysia, China-Thailand, China-Japan, China-Korea, Korea-Thailand, Korea-Malaysia, Korea-Philippines, China-Malaysia, and Japan-Indonesia.

Efforts are also under way among East Asian countries to go beyond the Chiang Mai Initiative and coordinate exchange rate policies. An ASEAN Currency and Exchange Rate Mechanism Task Force was set up in March 2001 and is expected to deliver its recommendations soon. Under the Kobe Research Project, an initiative of the Asia-Europe (ASEM) finance ministers, studies were undertaken by institutions and experts in Asia (including the ADB) and Europe to explore ways to improve regional monetary and financial cooperation. The ADB conducted a study on monetary and financial cooperation with the objective of developing a roadmap of policy options to carry forward ongoing efforts and to identify the transitional steps (see Table 14.1).

ADB Support: Regional Monitoring System

The ADB's mandate to promote closer cooperation among its developing member countries places the institution in a unique position to help facilitate the supply of regional public goods. Its country and regional focus enables the Bank to have intrinsic knowledge about individual economies, thus helping to align national actions with regional ones, such as preventing cross-border contagion of financial crises. The combination of the ADB's role to provide technical and financial resources, facilitate the exchange of knowledge and information, and serve as an "honest broker" to harness country commitments and resources endows the regional institution to help promote monetary and financial cooperation.

The Regional Economic Monitoring Unit (REMU) was established by the ADB in early 1999 in response to emerging needs for closer regional economic monitoring in the wake of the 1997 Asian financial crisis. Its mandate is to assist the ADB's developing member countries in harnessing the full benefits of global financial integration and international capital flows, while minimizing their disruptive effects. REMU supports the evolving efforts among the developing member countries to promote regional monetary and financial cooperation.

REMU has the following responsibilities: (i) to monitor and prepare high-frequency (including early warning) reports on economic and social sector trends and policies, conditions of markets (especially financial markets), and macroeconomic performance and prospects in a regional context, with a view to promoting peer review and analysis; (ii) to assist developing member countries in strengthening regional economic policymaking and associated institutional capacity through technical assistance; (iii) to support regional surveillance processes through special topic studies; and iv) to develop and maintain the Asia Recovery Information Center (ARIC) website.

Currently, REMU is supporting five regional groups—ASEAN, ASEAN+3, Manila Framework Group, Asia-Europe Finance Ministers, and Asia-Pacific Economic Cooperation—through high-frequency monitoring and policy dialogues, capacity building, special studies, and the development and maintenance of the ARIC website.

Table 14.1. Roadmap for Promoting Monetary and Financial Cooperation in East Asia

	Information exchange and surveillance system	Resource sharing	Exchange rate coordination	Financial sector cooperation
Short-term (within the next two years)	Establish an independent regional policy dialogue unit to prepare reports for peer review meetings. Early warning system should be an integral part. Monitor regional financial developments (including adoption and implementation of best practices). Develop terms of reference and conditionality to be associated with lending from a centralized reserve pool (to be established in the medium term).	Expand the Bilateral Swap Agreement Network under the Chiang Mai Initiative, and consider earmarking a portion of foreign exchange reserves for financing short-term liquidity needs of member countries.		Cooperate on post-crisis management of the financial sector. Technical assistance should be provided to individual countries where appropriate.
Medium-term (three-five years)	Develop alternative conditionality for BOP support.	Replace bilateral swaps under the Chiang Mai Initiative with a centralized pool that seeks to prevent financial crisis in the region.	Explore the feasibility of exchange rate coordination by conditioning drawings from the reserve pool on exchange rate policies.	Set up general regional guidelines for prudential regulation, enhancing cooperation on these issues by establishing an East Asian Banking Advisory Committee. Extend the supervisory function within each country to all institutions that engage in banking activities.
Longer-term (more than five years)			If warranted, implement regional exchange rate arrangements to promote stability of intra-regional exchange rates. Begin with soft pegging to a basket, then move to hard pegging. Eventually a European Monetary System-type arrangement (that includes Japan) could be considered. The adoption of common currency would be the last step.	Implement whatever degree of regional harmonization of regulations is required to eventually permit the full unification of regional financial markets. Establish an East Asian Financial Area.

High-Frequency Monitoring and Policy Dialogues

As a major part of high-frequency monitoring activities, REMU prepares the ADB's quarterly Asia Economic Monitor (AEM). The AEM, which replaced the Asia Recovery Report in December 2001, is a quarterly review of East Asia's growth and recovery, financial and corporate sector reforms, and social developments. While it originally focused on the five countries most affected by the 1997 Asian financial crisis, the AEM now has expanded its coverage to include all 10 ASEAN countries plus China and Korea. The analysis in the AEM is based on high-frequency economic and social indicators from the ARIC website. The AEM is posted on the ARIC website, and widely used by the ADB's member country governments, the ASEAN Secretariat in Jakarta, and the general public. Within the ADB, AEM is used by management and staff as one of the primary documents on regional economic developments and policy challenges.

REMU has also developed a regional early warning system prototype for East Asia. The prototype comprises four components: i) a set of macroprudential indicators; ii) a nonparametric early warning system model; iii) a parametric early warning system model; and iv) a set of leading economic indicators of business cycles. REMU is assisting ASEAN+3 countries in implementing the regional prototype, which will then be modified to suit individual countries' circumstances.

Based on the AEM and REMU's work on the early warning system, REMU regularly makes presentations on regional economic prospects and policy challenges at the meetings of the ASEAN and ASEAN+3 finance deputies, ASEAN+3 finance ministers, Manila Framework Group, ASEM finance ministers, and APEC finance ministers. REMU presentations provide key inputs to the regional economic monitoring and surveillance processes in East Asia.

Capacity Building

REMU provides capacity-building support to the three institutional pillars of ASEAN's Surveillance Process: the Ministries of Finance of the ASEAN member countries, the ASEAN Surveillance Coordination Unit (ASCU), and the ASEAN Surveillance Technical Support Unit (ASTSU). The finance ministries of the ASEAN member countries are responsible for providing data and analytical inputs to ASCU. ASCU is located in the ASEAN Secretariat (Jakarta), and acts as the clearinghouse for all economic inputs from ASEAN members. ASTSU is located at the ADB in REMU.

REMU is implementing a number of technical assistance projects to support the establishment of national surveillance units in the finance ministries of the ASEAN member countries (so far in Cambodia, Indonesia, Laos, the Philippines, Thailand and Viet-

nam). Under these technical assistance projects, various workshops have been conducted (on general surveillance issues, leading economic indicators, and early warning systems), equipment purchased (including computers, fax machines and statistical software), and local staff trained through the provision of long-term consulting services.

Capacity building support to ASCU has been provided mainly through long-term international consultants who helped the unit improve the quality of the surveillance reports prepared for the ASEAN high-level meetings, special issues studies, and the development of systems that would help sustain the surveillance process.

Support for the third pillar, ASTSU, has been provided mainly through on-the-job training of finance ministry and central bank officials of the ASEAN member countries on economic surveillance and policy analysis. So far, 27 officials (from eight of 10 ASEAN countries, except Malaysia and Singapore) have completed the three-month training program conducted by REMU. In addition, 32 officials have been trained under REMU's three-week training program and 10 officials under its six-week program intended for mid-level ASEAN officials with a view to providing an intensive review of macroeconomic analysis, national income accounting, and specialized topics of economic surveillance, including early warning systems and leading indicators.

Other Activities

At the request of the ASEAN finance deputies, REMU has conducted a number of special studies over the past few years, including the following: Development of an Early Warning System to Help Understand and Monitor the Economic Crisis (1999); System of Leading Indicators for the Surveillance Process (1999); and Issues in Banking Sector Safety and Efficiency (1999). REMU also organized a workshop on monitoring capital flows in 2000 at the request of the ASEAN+3 finance deputies.

More recently, REMU conducted three studies to support the Kobe Research Project of the Asia-Europe finance ministers: (i) Monetary and Financial Cooperation in East Asia, under which a roadmap of policy options for enhanced monetary and financial cooperation is being developed; (ii) Regional Early Warning System Prototype; and (iii) Bond Markets in East Asia: Issues and Challenges. REMU developed and currently maintains the ARIC website, which monitors Asia's economic growth and recovery and policy developments. It provides high-frequency economic, financial and social indicators and acts as a clearinghouse for web-based information on 12 East Asian economies, namely, the 10 ASEAN members, China and Korea. Its target users are government officials of concerned developing member countries, development donor agencies, private sector users (including investors and market analysts), policy and academic researchers, and journalists.

CHAPTER 15

Regional Public Goods and Small Economies: The Caribbean Regional Negotiating Machinery

Anneke Jessen, Inter-American Development Bank

In 1947, contemplating the future of Great Britain's Caribbean colonies, then Colonial Secretary Arthur Creech-Jones argued that "it [is] clearly impossible in the modern world for the present separate communities, small and isolated as most of them are, to achieve and maintain full self-government on their own."[1] His remark captured the prevailing attitude among colonial government officials at the time, namely that for a colony to achieve and sustain sovereign status, it had to fulfill some minimum criteria of economic size. None of Britain's Caribbean dependencies appeared to do so. Thus was born the idea of a West Indian Federation, which, by combining the economic resources, populations and territories of the small Caribbean islands, would enable these territories to attain self-government—and ultimately independence—as one unit. Formally though reluctantly endorsed by Caribbean leaders, the federation was established in 1958. It lasted just four years.

History has since demonstrated that small states can be viable both in political and economic terms. But ever since independence, the constraints of small size have been painfully evident to the Caribbean states, and despite the failure of the federation, the idea of Caribbean unity has endured. It is reflected in a long tradition of regional cooperation and integration among, first, the English-speaking Caribbean countries and, later, between these and their Dutch, French and Spanish-speaking neighbors. Such collaboration has generated a series of regional initiatives, prominent among them the establishment of the Caribbean Community (CARICOM) in 1973. In its almost 30 years of existence, the community's membership has grown from 12 to 15 countries.[2] It has moved from being

[1] Memorandum on the Closer Association of the British West Indian Colonies, Cmnd 7120, London 1947, Part II, Paragraph 11.

[2] Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname and Trinidad and Tobago.

a simple free trade area towards pursuing an ambitious single market goal, and it has greatly strengthened foreign policy coordination among its members. Caribbean integration is much more than just an economic undertaking. Regional cooperation is evident—and has borne fruit—in almost every area of public policymaking, including major initiatives in health, education and disaster management.[3]

The establishment in 1997 of the Caribbean Regional Negotiating Machinery (RNM)—an agency to formulate and implement a joint Caribbean negotiating strategy in international trade fora—falls within this long tradition of regional collaboration. It is a clear example of how small countries can pool their scarce human and financial resources to create a regional asset that is of benefit to all its members. The subject of this chapter is why the RNM came about, how it works, what benefits (and costs) it brings to its members, how it is supported by external donors, and what operational questions have arisen out of that support. The aim is to contribute to an understanding of the specific nature of regional (as opposed to purely national) development initiatives, both from a policy and technical assistance point of view.

Background, Structure and Performance of the Regional Negotiating Machinery

By the mid-1990s, CARICOM was facing a host of new challenges on the external front. The European Union's preferential trade agreement with Europe's former African, Caribbean and Pacific colonies (ACP), which for decades had guaranteed Caribbean countries virtually free access to the EU market, was being threatened on several fronts, and it was clear that the EU would seek significant changes in the relationship once the existing Lomé-IV agreement expired. At the same time, Caribbean exports to the United States were facing growing competition from Mexico following the entry into force of the North American Free Trade Agreement (NAFTA), and it had become a matter of urgency for the countries to seek "NAFTA parity" in order to redress that situation. The rapid dismantling of trade barriers among Latin American countries was creating further pressures on CARICOM to adjust to, and participate in, an increasingly liberal trading environment in the Western hemisphere. The Free Trade Area of the Americas (FTAA) process, under way since 1994, promised to accelerate that trend. Meanwhile, the agenda of multilateral trade talks had expanded, and in order to reap the benefits of their membership in the new World Trade Organization (WTO), Caribbean countries had to ensure participation both in ongoing and future talks.

[3] The CARICOM Secretariat's website provides an overview of the various initiatives. See: www.caricom.org

For the Caribbean countries, these were significant but unavoidable challenges. Non-participation was not a serious consideration—even as many political leaders in the region continued to question the real benefits of increased global trade liberalization for their small and fragile economies, the perceived costs of non-action seemed by far to outweigh the costs of active engagement on all negotiating fronts.

The difficulties of such engagement lay not only in the need to negotiate on several fronts simultaneously, but also in the fact that the new negotiations were going to be technically more complex—and potentially far more influential in their outcome—than any previous trade talks in which the Caribbean countries had participated. To secure a satisfactory outcome, the countries' trade negotiators had to be present at all meetings, technically competent in all areas covered by the negotiations, and forceful in their negotiating capacity. They faced problems on all three accounts.

Why Go Regional?

In theory, of course, each country could have decided to face these challenges, and address the related capacity problems, on its own. But the decision to adopt a regional approach made sense—it was indeed necessary—for several reasons.

As in all cases of Caribbean cooperation, the constraints of small size were a key element driving the decision to go regional. The trade ministry of Trinidad and Tobago, the largest CARICOM country in terms of GDP, has a professional staff of just 12. In Dominica, one of the smallest countries, the trade and foreign affairs ministry employs just four full-time officials to deal with all trade matters. By way of comparison, the Office of the U.S. Trade Representative has a technical staff of around 120. Canada's Department for Foreign Affairs and International Trade has some 100 professionals working on the negotiation and implementation of the country's trade agreements. The European Commission's Directorate for Trade, which conducts EU trade policy under the direction of the EU Trade Commissioner, has more than 300 full-time technical staff. These are CARICOM's negotiating partners. Because of limited budgets, most Caribbean governments are unable to increase their trade and foreign affairs staff to even the minimum necessary for ensuring their countries' presence in the various negotiations.

The human resource constraint also means that governments lack an adequate pool of technical specialists to deal with each specific area of the negotiations (agriculture, services, etc.). Whereas one public official in a Caribbean country often has to cover several issues simultaneously, larger countries usually have a number of specialists for each technical area of the negotiations; they also have enough resources to establish specialist teams for each of the major negotiations (multilateral, regional or bilateral) in which they participate. The cost of hiring external consultants to fill the staffing gap is prohibitively

high for most countries in the Caribbean. In addition, there is the budgetary constraint relating to travel or, alternatively, the establishment of permanent representations in the main locations of the FTAA, EU/ACP and WTO negotiations.

The resource constraints alone thus made it attractive for the Caribbean countries to adopt a regional approach to the new negotiating environment. In addition to pooling their own human resources, the countries could save costs by sharing the expenses of specialized consulting services and of representation at the negotiating meetings. Moreover, by speaking with one voice in those fora, the countries hoped to increase their negotiating power, which was vital for achieving a satisfactory outcome in the talks.

But going regional was also necessary for another reason. CARICOM was in the process of establishing a single market and economy, which involved, among other things, the adoption of a common external tariff, and hence required a common foreign trade policy. The idea of a single market sprang from the need to increase domestic productivity through greater regional competition, thereby preparing the Caribbean economies for more effective participation in the international economy. It was itself a response to the constraints of small markets, evidenced in the lack of a diversified range of domestic resources and a very narrow export base in most CARICOM member states. Although the common external tariff was not fully implemented when the decision to establish the RNM was adopted (and it remains fairly "uncommon" to this day), the very goal of the single market made it increasingly necessary to adopt common positions in external trade.[4]

Finally, experience also played a role. In previous negotiations with the EU, the Caribbean had successfully negotiated as a group (within the larger ACP group), and certain inter-governmental structures conducive to such collaboration were already in place. But it was also clear to Caribbean leaders that the existing form of cooperation was not sufficient to deal with the new negotiating environment. Even if it had worked reasonably well in previous negotiations, those negotiations had been limited to traditional aspects of market access and therefore were technically easier. Moreover, the system itself had shown certain weaknesses, including lack of transparency in the decision-making process, inefficient channels of communication among national governments, and the absence of an organized cadre of technical specialists to draw on in the preparation of common positions. As a result, Caribbean countries often found themselves reacting to proposals presented by their external trade partners, rather than participating proactively in defining the joint negotiating agenda.

All this led to the call for a new mechanism that would maximize the region's capacity to deal with the changing external environment. To that end, the RNM was for-

[4] For a recent status report on the single market, see Institute for the Integration of Latin America and the Caribbean (INTAL), *CARICOM Report No. 1*, Inter-American Development Bank, Buenos Aires, 2002.

mally established in April 1997 with a mandate from the heads of government to bring a systematic and focused approach to the region's trade negotiations.

How the RNM Works

To fulfill this mandate, an RNM core negotiating team was created, comprising a chief negotiator, a chief technical adviser, a lead adviser and a small team of technical advisers in specific issue areas. The chief negotiator was responsible for developing and coordinating an overall strategy for the various negotiations in which the region was involved, for leading the negotiating team, and for being the region's main spokesperson in the negotiations. The chief technical adviser was responsible for coordinating and supervising the technical work of the RNM, for the overall management of donor-funded projects, and for overseeing areas of bilateral negotiations. The lead adviser was to provide technical advice to the senior officials in designated areas of competence, and conduct outreach activities aimed at civil society and the private sector. Members of the technical unit were responsible for the preparation of position papers, technical analyses and negotiating briefs. For the FTAA negotiations, the RNM also created a special negotiating team made up of about 20 officials from member states to act as lead and alternate negotiators for each of the groups and committees in the process. In other areas of negotiations, ad hoc arrangements, coordinated by the RNM, were made with member states and other parties, including the private sector, labor and the nongovernmental community.

The chief negotiator was accountable to the region's heads of government and reported to them through the Prime Ministerial Sub-committee on External Negotiations. The Sub-committee was responsible for giving overall strategic guidance to the negotiating process, and was supported by an advisory group that included the heads of key regional institutions such as the CARICOM Secretariat, the Secretariat of the Organization for Eastern Caribbean States (OECS), the Caribbean Development Bank (CDB), the Eastern Caribbean Central Bank (ECCB) and the University of the West Indies. In devising regional positions and conducting the various trade talks, the RNM's core team was to work in conjunction with the Community Council on Trade and Economic Development (COTED), which includes ministers of trade and foreign affairs, as well as with trade officials in national governments and overseas missions.[5]

In a re-organization of the RNM in 2001, the functions of the chief negotiator and chief technical advisor were merged into the position of director general, and three new senior positions were created to cover each of the major negotiating arenas (FTAA,

[5] On the initial structure and functioning of the RNM, see *The RNM in Brief: Integrating the Caribbean External Negotiations,* an institutional brochure published by the RNM in January 2000.

EU/ACP and WTO). The FTAA negotiating team was retained, as was the position of lead advisor to coordinate work on specific areas such as agriculture and other cross-cutting issues in the negotiations. A senior operations manager was also hired to oversee finance, administration and technical assistance matters, which previously had been assigned to various members of the RNM negotiating team, compromising their already limited time. In addition, a number of technical working groups, comprised of specialists drawn from member states' governments, regional agencies, the private sector, labor and academia, were established to provide advice in specific subject areas of the negotiations and to enhance the consultative process within the region. Given the importance of agriculture in the negotiations, the RNM has created a special Agricultural Trade Negotiating Unit and is planning to set up a similar unit for the area of services.

The re-organization in 2001 also affected the RNM's reporting relationships and position within the overall regional negotiating framework. In fact, the re-organization came in response to rising criticism, particularly from national trade ministries, of the perceived lack of adequate information-sharing and regional consultation in the RNM's work. It should be noted that the RNM was expressly established with lines of communication to the highest political levels so that it could respond expeditiously to the region's negotiating demands. Despite the existing mechanisms for consultation at the ministerial and technical levels, the RNM thus often dealt directly with heads of government, allegedly bypassing trade ministries and communicating insufficiently with regional and national bodies. Relations were problematic between the RNM and the CARICOM Secretariat, which had traditionally played a leading role in foreign trade matters and still holds a mandate for the implementation of negotiated agreements. The perceived circumvention of the trade ministers in COTED also prompted concern.

In the re-organization, the Prime Ministerial Sub-committee retained the overall political direction of the process, but the RNM's reporting functions vis-à-vis COTED were strengthened in that all detailed positions in the negotiations are now subject to the latter's approval. In a report issued in October 2001, heads of government instructed that "the advice of COTED will be sought by the RNM before making recommendations to the Prime Ministerial Sub-Committee. The RNM must pass its proposals for discussion to get the inputs of Trade Ministers (and officials) of Member States PRIOR TO presentation to the Prime Ministerial Sub-Committee . . ."[6] They further agreed that, within COTED, a ministerial spokesperson should be appointed for each of the major negotiating theaters, and that these ministers should participate in all meetings of the Prime Ministerial Sub-committee. Along with the creation of the technical working groups, this new structure promises to facilitate information-sharing, inter-agency collaboration and consensus-building within the region.

[6] Unpublished report issued at a meeting of heads of government in Nassau, Bahamas, October 2001.

Since its inception, the RNM has retained the services of a number of external consultants to conduct technical studies and training workshops in relevant areas of trade. The technical studies are made available to all relevant national and regional authorities and provide a basis for discussion within the technical working groups and other regional fora. The training workshops are open to officials of relevant national ministries and regional entities, and have sometimes included participation from the private sector.

The RNM has offices in Jamaica and Barbados, representatives in Brussels and Geneva, and a liaison officer attached to the OECS Secretariat in St. Lucia. Its Agricultural Trade Negotiating Unit is located in Trinidad and Tobago. The dispersal of RNM offices has given rise to some concern, particularly as regards the cost of maintaining so many offices and the difficulty of ensuring an adequate level of coordination between the various sites. In the re-organization of 2001, offices in Washington and London were closed, but it was decided to maintain the other sites in order to facilitate contacts with the decision-making authorities in the region and in the several negotiating arenas. Inter-office communications, and contacts between the RNM and national trade ministries, have been improved through the establishment of a "Virtual Secretariat," an electronic communications system linking the various sites and providing both e-mail services and secure exchange of sensitive negotiating documents.

The RNM is financed by contributions from its member states and the CDB, and has received some support from private sector organizations in the region. It also relies heavily on contributions from external sources. A Finance Committee, reporting to the Prime Ministerial Sub-committee, oversees the budgetary aspects of the RNM.

It is apparent from its small number of core staff (nine at present) that the RNM cannot—in fact was never intended to—act alone in implementing the common negotiating endeavor. While its coordinating function is crucial to the success of that endeavor, the agency, as demonstrated above, is part of a much wider structure encompassing the whole regional inter-governmental negotiating system.[7] The RNM can therefore best be understood as an agency that plays a critical though not exclusive role in the region's joint negotiating effort, and it must be judged accordingly when assessing the final outcome of that effort.

Does the RNM Work?

In its five years of operation, the RNM has attracted both praise and criticism. Caribbean governments have recognized, and repeatedly acknowledged, the valuable contribution of the RNM to the common negotiating endeavor, particularly as regards its ability to gen-

[7] While the term "Regional Negotiating Machinery" mostly refers to the agency proper, it is also sometimes used to define that entire system, comprising a host of actors and institutions both at the national and regional level.

erate and disseminate new technical knowledge on trade issues, its vital coordinating function in preparing the region's common positions, and its efforts to present a stronger Caribbean voice in the various negotiating fora. There appears to be broad agreement among governments that to date, the RNM has done a great deal of useful work that has placed the region on an appreciably better footing to tackle external trade talks.

But there has also been criticism. As indicated above, such criticism has been directed not so much at the RNM's technical work or negotiating capacity, as its perceived circumvention of regional consultative processes in preparing the joint negotiating agenda. This problem seems to have been addressed in the recent re-organization of the RNM, though whether it is effectively solved remains to be seen. In any case, it speaks to the enduring idea of a regional approach that, instead of abandoning the project when it showed weaknesses, governments have taken concrete steps to address those weaknesses with a view to further strengthening the regional approach.

It is too early—and might never be possible—to assess the common negotiating endeavor in terms of its real development effectiveness. Development effectiveness is a function of the outcome of the negotiations and, ultimately, the level of benefit accruing to the Caribbean economies as a result of that outcome—that is, the long-term welfare impact of trade liberalization on the region's economies. Both the outcome and the impact of the negotiations depend on much more than the regional negotiating effort, and one cannot easily isolate the specific influence of that effort in the process. There also is no counterfactual against which to measure the outcome: one can only assume, based on available economic analysis, that the net welfare gains of non-participation in the negotiations would have been smaller than those of participation, and one can present a convincing argument in favor of adopting a regional, as opposed to a purely national, approach to the negotiations. At present, when evaluating the RNM, governments must necessarily limit themselves to judging it by its activities and by whether it fulfills its established mandates. Similarly, an assessment of the overall regional negotiating effort will be guided by general cost and efficiency criteria and by prevailing attitudes regarding the perceived benefits of a regional versus a national approach, rather than by specific indicators of development effectiveness. Such indicators have not been defined.

It is difficult enough for industrialized countries to measure the potential (and real) impact of public policies and programs; in developing countries, evaluation mechanisms are rudimentary at best, and even donor agencies have often limited themselves to judging their interventions mainly in terms of concrete project outputs. As efforts are made in donor agencies and among developing country governments to include impact assessments in their evaluation strategies, it would seem appropriate to explore—in a more consistent manner than has hitherto been the case—ways of employing such strategies not only in national-level interventions, but also in regional programs.

Challenges of Adopting a Regional Approach

Despite the recent changes to the RNM's structure, the region's common negotiating endeavor will invariably continue to face difficulties that are mainly a function of the number of actors involved in the process, and the region's limited financial resources.

The RNM represents a collective effort of 16 Caribbean countries.[8] In developing and executing a common negotiating agenda for these countries, the RNM must duly consider all national viewpoints, and in theory cannot proceed with negotiations until common positions are agreed upon by all. The complex regional institutional structure within which the RNM operates, and particularly the role played by the Prime Ministerial Sub-committee and COTED in guiding and approving the RNM's work, aims to ensure just that.

But in making such a system work, the Caribbean countries face significant problems at all stages of the process. First, in order to arrive at a common position, countries must develop their own national positions. Particularly in the smaller and less-developed member countries, trade officials often lack the detailed sectoral and statistical information needed to develop a specific position or to make informed judgments about available policy options, and cannot therefore properly brief their political leaders. Moreover, national mechanisms of consultation with key interest groups such as the private sector and labor unions are not well developed. A regional mechanism such as the RNM cannot, in its current form, replace national consultative and policy-making structures. In fact, it depends for its success on their efficient functioning.

Second, even if the regional structure in theory ensures an equal voice for all in the development of joint negotiating positions, such equal representation has proved difficult in practice. The smaller CARICOM members have often voiced their concerns at not being properly "heard" during the preparation of common positions. Even with the recent re-organization of the RNM and the consequent strengthening of the regional consultative process, this problem will not go away, since much of it lies in these countries' limited capacity to analyze and respond in a timely manner to the RNM's proposals. In order to obtain results, the RNM must meet the deadlines imposed by the external negotiations and has often been forced to put pressure on national authorities to obtain relevant feedback to its proposals. But trade officials in national trade ministries, particularly in the smallest countries, labor under substantial resource constraints, and have limited capacity to undertake the research required to assess the implications of the proposals within short periods. Resource constraints also make it difficult for them to participate ef-

[8] In addition to representing the 15 CARICOM member states, the RNM also negotiates on behalf of the Dominican Republic in certain fora.

fectively in the technical working groups, the FTAA negotiating team, and even COTED. The problem is compounded by the fact that the RNM often has to resort to international consultants to provide guidance in difficult technical areas of the negotiations. These consultants usually base their recommendations on existing technical knowledge and field work that, given the large number of CARICOM countries, cannot always take into account the prevailing conditions in each individual member state, particularly the smallest ones. The process hence runs the danger of being dominated by the negotiating agenda of the larger and more developed members of the group.

In an attempt to address this problem, the RNM and other regional entities have sought to direct more of their financial resources towards specific measures aimed at upgrading technical capacity in the smallest member states, and towards financing their travel costs in connection with the various coordination meetings. With limited funds, however, this is a difficult task. Hence the continued need for targeted national-level interventions to upgrade the efficiency of trade-related ministries (commerce, foreign affairs, agriculture, etc.), improve statistical offices and other research facilities, and strengthen national consultative mechanisms and thus secure a more efficient engagement of national authorities with RNM activities.

Third, even if participation can be improved, the process of combining 16 different national positions into a common regional position will always be difficult, although that process in itself provides a valuable learning experience for the subsequent external negotiations. The sheer number of countries involved—and their diverse income levels—has sometimes led to diametrically opposed views regarding the specific regional negotiating position to be adopted. While all countries share the constraints of small size and exhibit many similarities in terms of their productive structures and resources, levels of economic development vary widely among them.[9] The community includes some of the poorest countries in the Western Hemisphere (Haiti and Guyana) and some of the richest in per capita terms (the Bahamas and Barbados). Some countries are eager to expand their business links with existing as well as new trade partners, and are ready to embrace the idea of reciprocity in their external trade relations. Other countries display a more cautious and critical attitude towards trade opening, and would like to see existing (preferential) trade arrangements preserved for as long as possible. These considerations, in turn, affect national views regarding the desired speed of liberalization and the level of special and differential treatment sought in the various negotiations.

A common negotiating endeavor does not necessarily preclude the pursuit of differential outcomes for individual members of the group. Within its own integration

[9] See Anneke Jessen and Ennio Rodriguez, *The Caribbean Community: Facing the Challenges of Regional and Global Integration*, Occasional Paper no. 2, INTAL-ITD Series, IDB, Buenos Aires, 1999.

scheme, CARICOM has had a long tradition of granting special treatment for its less-developed member countries, and could seek a similar approach in the final stages of the various external negotiations by, for example, negotiating certain exceptions to common (CARICOM) commitments for some of its members. At the same time, however, the Caribbean countries are fully aware that, in order to make their own single market operational, they cannot afford to maintain a trade regime that includes too many perforations in the common external tariff.

This is perhaps the greatest challenge to the regional endeavor: that, while recognizing the benefits of pooling their human and financial resources in the pursuit of a common goal, countries are understandably hesitant to relinquish their hard-won national sovereignty by relaying decision-making power to a centralized regional agency that, despite its limited size, has assumed an influential role in the making of the region's trade policy. This also explains why, even with the clear need for a common trade policy to sustain the single market, countries have been intent on retaining the inter-governmental structure of decision-making, and on keeping the RNM agency small. It is worth pointing out in this regard that the RNM, even after five years of operation, remains a "project" rather than an institution with its own legal personality, and it is unclear whether, or to what extent, the RNM will be incorporated into the regional institutional structure as a permanent body once the major trade negotiations come to an end.

The above considerations have to some extent conditioned the supply of resources to the RNM. As with any regional initiative, governments must weigh the potential benefits of that initiative against the financial costs of participating in it, and the very strength of a regional institution or program ultimately depends on the level of financial commitment that national authorities are willing to assume in its support. It also, however, depends on their ability to provide the necessary resources. In small states, where the tax base is very limited, the costs of maintaining even basic government and public services are relatively high, and Caribbean governments work under significant revenue constraints even in times of economic expansion. The past years of slow growth and recession, within the context of highly volatile international financial markets, have only aggravated that situation. In such an environment, it is not surprising that the countries have sought external assistance in setting up and maintaining their regional negotiating mechanism.

Donor Support to the Regional Negotiating Effort

The region's call for assistance received a positive response from donors. There was general agreement among the relevant donor agencies that the concept of the RNM made sense, and that technical support to the region's trade negotiating endeavor could be pro-

vided in a cost-effective way through such a mechanism. A positive and timely response was further facilitated by the growing recognition by donor agencies of the important role of trade in determining the economic prospects of developing countries, the urgent need for action in light of the impending negotiations, and the clear support given to the new agency by Caribbean governments.

Several donors—including the Canadian International Development Agency (CIDA), Britain's Department for International Development (DFID), the U.S. Agency for International Development (USAID), the Inter-American Development Bank (IDB) and the Caribbean Development Bank—have provided various forms of technical assistance to the RNM over the years. Such support has focused on improving the technical and negotiating capacity of the RNM core team and national officials involved in the negotiations; setting up structures for efficient communication among the various RNM offices and between these and national ministries as well as other relevant regional bodies (mainly through the "Virtual Secretariat"); supporting outreach activities aimed at sensitizing national governments, the private sector and other nongovernmental actors about the importance of the external trade negotiations; facilitating the flow of information and consultations among these groups; and putting in place efficient administrative structures for the RNM.

All technical assistance to the RNM has so far been in grant form. It is, moreover, worth noting that such assistance, while provided on a regional basis and in most cases directly administered by the RNM, has extended beyond the agency itself in conferring specific benefits to national governments through the training of national trade officials and the installation of improved communications equipment in relevant national ministries. The assistance has not, however, reduced—in fact it has highlighted—the need for complementary national-level interventions to strengthen the overall regional negotiating endeavor. Also of note is that donor agencies have provided support to the RNM through individual programs rather than opting for a single, global program of assistance that is cofinanced by all donors.

IDB Assistance to the RNM

The IDB was one of the first donors to provide support to the RNM, approving $1.2 million in grant funds to the RNM in October 1998 and another $250,000 in June 2002. The aim of both projects has been to strengthen the technical and negotiating capacity of Caribbean trade officials with a view to ensuring the region's effective participation in multilateral, regional and bilateral trade talks.

The first project consisted of two components: (i) the production of a number of technical and policy studies on strategic or sectoral issues related to the trade negotia-

tions, and the organization of regional workshops to disseminate and discuss the findings among policymakers and officials involved in the negotiations; and (ii) a series of training activities, including courses in negotiating skills and workshops in specific technical areas of the negotiations. An independent evaluation of the project, completed in August 2001, concluded that project execution had been highly satisfactory and that the project had made a valuable contribution towards strengthening the region's technical and negotiating capacity in the area of trade. The report also listed a number of areas where improvements could be made in the design and delivery of technical support. It recommended (i) promotion of broader participation from across the region in training and consultation on negotiations by acknowledging the limited capacity of some governments to meet travel costs for their participants, and by contributing Bank funds accordingly; (ii) the transfer of technical expertise from externally hired consultants to regional officials through periodic attachments of experts to RNM offices and stronger teamwork between local experts and external consultants in the preparation of technical issues papers and negotiating briefs; (iii) technical papers and training activities more tailored to the specific circumstances and needs of the Caribbean region; and (iv) better dissemination of information to negotiators, relevant government officials and the general public throughout the region. Finally, the report concluded that there was a clear need for continued support to the Caribbean countries in the area of trade negotiations.

In line with these recommendations, and with the region's evolving needs in the negotiations, the Bank's second RNM project focused on the provision of "call-down expertise" and the periodic, short-term attachment of international experts to the RNM. It also supported the meetings of the newly established technical working groups, including specific assistance to the less-developed member states to ensure their effective participation.

The Bank's assistance to the RNM has been cost-effective in a number of ways, proving that regional-level interventions on a modest scale can render benefits to many countries simultaneously. First, the technical studies have covered a number of strategic and sectoral issues of relevance to all countries. Many strategic issues in the negotiations—such as the importance of building alliances or how to present the case of small countries—do not necessarily require much in-depth country-level analysis. Similarly, in sectors such as services and agriculture, which do require detailed analysis, countries face many similar challenges in the various negotiations, and their need for background information and sector analysis often overlaps. Rather than repeating such information in 16 different studies, it is more cost-effective to collect and present it in one report, and then to complement the general analysis with further research at the country level through additional and more focused national-level interventions. Second, the organization of regional training workshops has not only enhanced the technical and negotiating

capacity of trade officials from across the region, but also contributed to strengthening intra-regional communication and consultation. Finally, a regional approach can generate savings in terms of administrative costs. Because it acts on behalf of many governments, the RNM can exercise a certain amount of leverage in hiring international consultants and other service providers, and can often negotiate a better price for such services than would be possible for, say, a small trade ministry acting on its own.

It is worth pointing out that IDB support to the RNM has gone beyond the provision of financial assistance. Trade staff at the Bank have closely monitored the execution of the IDB/RNM project and have provided technical advice at all stages, mainly through comments on the terms of reference for the various policy studies and training workshops, and by helping the RNM identify and establish working relationships with a large body of international trade experts. Moreover, the IDB project is not the only form of assistance that the Bank provides to the Caribbean regional negotiating endeavor.

In fact, the Bank's RNM project falls within a much wider context of IDB support to its borrowing member countries in the area of trade. Of particular note is the Bank's support to the FTAA process, which began in 1994 and involves 34 countries in the Western Hemisphere. The Bank's contribution to this process as a member of the IDB/OAS/ECLAC Tripartite Committee has come in several forms. First, it offers financial support to the FTAA Administrative Secretariat, which provides documentation, conference, translation and interpretation services to the FTAA negotiations. The Bank has been the Secretariat's main funding source both during its initial years in Miami and its subsequent operations in Panama and then Mexico for the final phase of the negotiations during 2003-2004. The Secretariat provides the necessary logistical infrastructure for the FTAA negotiations while allowing participating countries to dedicate their often limited human and financial resources to the substance of the negotiating process. The Secretariat is of particular benefit to the smaller countries in the hemisphere, whose costs of participating in the process would be unmanageably high if they could not count on its services.

Second, the Bank along with its Tripartite Committee partners provides technical support to the various groups and committees in the FTAA process. Since the beginning of the process, trade specialists from the tripartite institutions have helped governments compile country and region-specific trade and tariff data, analyze existing trade-related norms and regulations, and prepare background papers on key issues affecting hemispheric trade. Again, such assistance, while provided on an equal basis to all countries participating in the negotiations, has been of particular value to the smaller and less-developed countries of the hemisphere, which would have faced huge difficulties in generating such information and analysis on their own. Third, the Bank, through an operation of its Multilateral Investment Fund (MIF), supports the implementation of a number of customs-related business facilitation measures agreed upon by the hemi-

sphere's trade ministers in 1999. Several Caribbean countries have already made use of this fund.

Apart from the FTAA process, the Bank provides support in a number of other areas of trade. In conjunction with the WTO, it has organized a series of regional training workshops on technical issues relevant to the multilateral trade agenda. It has also conducted research and policy seminars on EU and Asian economic relations with Latin America and the Caribbean and, at the subregional level, supports trade liberalization and integration efforts among the Andean, Central American, Mercosur and CARICOM countries through a variety of technical cooperation projects. The RNM project is just one of several trade and integration programs financed by the Bank in the Caribbean region. The CARICOM Secretariat, for example, has received significant financial assistance to support the operation of the Caribbean single market and facilitate the implementation of the region's multilateral trade commitments.

Finally, the Bank complements its regional trade projects through targeted national-level interventions. In March 2000, the Bank approved a special "fast-track" trade sector facility for reimbursable technical assistance. The facility was created in response to growing demand among the Bank's member countries for comprehensive technical assistance projects aimed at strengthening trade ministries and related agencies, helping countries meet their obligations under existing regional and multilateral trade agreements, improving technical and negotiating capacities in trade, upgrading electronic support systems, and diversifying exports.

While the facility has already been used by a number of Latin American countries, few Caribbean countries have applied for such funds to date. The fact that the funds are reimbursable has undoubtedly conditioned their attractiveness for the small CARICOM countries, whose governments must weigh the costs and perceived benefits of trade-related interventions against a host of other development needs, in a context where the constraints of small size impose severe limits on the level of external debt that governments can sustainably maintain. Yet the need for national-level interventions to support the region's negotiating efforts is evident. As discussed above, the success of the RNM, and the regional negotiating effort in general, depends crucially on the capacity of national governments to participate in the process.

National versus Regional: Merits of a Dual Approach

The Caribbean example clearly demonstrates the need for both regional and national-level interventions to strengthen the overall capacity of countries that have adopted a regional approach in their foreign trade negotiations. Because of the small size of the Caribbean countries, it is doubtful whether even generous national-level assistance would

in itself enable these countries to gain an effective voice in international trade negotiations. The benefits of such national-level assistance, however, would be maximized if combined with targeted regional-level interventions to support the common negotiating effort. Conversely, providing support to a regional agency such as the RNM will be more effective if it is accompanied by country-specific interventions to upgrade national capacity in the area of trade.

Most donors have recognized the merits of a dual national/regional approach in helping the Caribbean countries tackle their difficult external negotiating environment, and several donors are supporting both regional and national-level technical assistance programs to this effect.

The success of such an approach ultimately depends on the level of synergy that can be achieved among all interventions. To achieve maximum effect, national and regional-level interventions must effectively complement each other. This requires close cooperation among all actors involved, both at the donor and recipient level. At the donor level, national and regional programs are not always designed and administered by the same department or office. The IDB's regional strategy for the Caribbean, for example, is prepared by the Integration and Regional Programs Department, whereas individual country strategies are prepared by the Regional Operations Departments. Traditionally, collaboration between the departments has been quite limited. Recently, however, in recognition of the need to ensure greater complementarity between national and regional interventions, there have been more determined efforts to coordinate work on national and regional strategies, mainly through improved consultation and teamwork between the technical staff of the different departments.

At the recipient level, it is important that governments share information on their projects and their project proposals with relevant regional entities, and vice versa. In the absence of such coordination, there is a clear danger that, rather than complementing each other, interventions will result in wasteful duplication.

Support for Regional Programs: Lessons Learned from the RNM Project

Regional projects differ from national-level interventions in a number of ways. First, because regional projects involve more than one country as beneficiary, the number of actors involved on the beneficiary side is potentially greater. This has operational implications, not least in terms of the structure of decision-making at all stages of the project cycle, and the time it takes to design, approve and implement the project. Second, in-house coordination on the part of the donor—and coordination with other donor agencies—is often more complicated than for national-level interventions. Third, sources of finance may be

more limited or more difficult to obtain. Some experiences and lessons learned from the RNM project may serve to facilitate a better understanding of these issues with a view to identifying effective programming and implementation mechanisms for future interventions in support of regional programs. They may also prove helpful in clarifying what, ultimately, determines demand for and supply of resources to such programs.

Multiple Actors

As indicated earlier, the number of actors involved poses an ongoing challenge for the Caribbean's regional negotiating endeavor. From a purely operational viewpoint, it raises a number of questions as well. First, if the RNM needs external support, who requests such support? The member states have in fact delegated the function of obtaining resources for the RNM to the director general, and when he requests resources, he does so on behalf of all governments. For donor agencies, however, this is sometimes not enough—the RNM is but one of several regional organizations in the Caribbean, all vying for funds, so how will the donor know what is the priority among member states? And who will the donor ask to obtain such information?

The importance of a regional strategy for a given group of countries cannot be overstated in this regard. A regional strategy allows the donor, in consultation with the relevant government authorities, to establish clear priorities for regional support actions. At the time of processing the first grant for the RNM, the IDB did not yet have an agreed regional strategy for the Caribbean, but the strategy was in the making. It clearly emphasized trade as a priority area for Bank action, thus justifying the support to the RNM. The trade focus was subsequently endorsed through the official approval of the Bank's regional strategy in January 1999.

Rather than proposing specific projects, however, the strategy merely listed a number of trade-related areas that were in need of support—only one of which was capacity building in international trade negotiations. It therefore only partially solved the problem of setting priorities, since, apart from the RNM, several other agencies in the Caribbean are active in the area of trade, and all require assistance. Moreover, priorities may change over time, and even within a three-year period, which is what the Bank's regional strategies cover, some projects that appeared to be vital at the outset may have been superseded by other, more urgent needs. Producing annual or semi-annual updates of regional strategies, and listing particular project priorities as part of the strategy, would therefore seem advisable. On the beneficiary's side, moreover, the Caribbean governments could make greater efforts to monitor the various demands of their regional agencies, and to make it clear to donors what agency, and which program, is of utmost priority to them at any given time. As regards the Bank's national interventions, the respective country's fi-

nance ministry plays a key role in setting the priorities for development finance; with regional programs, the process is more complex, given the number of beneficiaries involved. Consultation with governments in setting priorities for regional interventions is particularly important, given that, like any bureaucracy, a regional agency, once operating, will have an inherent desire to sustain its operations, even when support for such operations dwindles among the governments that created it. Without a sufficient level of national support, regional agencies will not be effective even if they receive generous external assistance.

Second, who is the donor's counterpart during the design phase? In the IDB's RNM project, the head of that agency is the main counterpart, but given the size and structure of the whole negotiating initiative, it makes sense to involve others in the design phase as well, such as a selection of national officials engaged in the various negotiations, and whose governments depend on the RNM's services. The official executing agency—given the RNM's lack of legal personality, this role is carried out by the Barbados government—would also have to be consulted. Technical staff working on project design both in the donor and recipient agency will have to ensure broad regional representation in the decision-making process without compromising project efficiency. Even with a clear commitment to efficiency, the number of actors with a potential interest in the project means that the design phase may be quite long relative to the size of the financial intervention. This, in turn, has implications for donor agency staff, who are often under pressure to generate as many large projects as possible. It also puts a considerable strain on technical and administrative staff in the recipient agency.

Similar observations pertain to the implementation and evaluation processes. In the latter process, in particular, it is important to involve national governments in order to ascertain whether they remain satisfied with the regional agency receiving support, since this will determine future funding decisions. In sum, donor agencies must recognize at the outset that the design and administration of a regional intervention is a time-consuming and therefore relatively costly endeavor. Regional programs also require donor agency staff to understand the structure of regional/national decision-making in a given policy area, and the specific political sensitivities that exist in this respect.

In-house Coordination

The multiplicity of actors is also evident on the donor side. In the case of the IDB, the Integration and Regional Programs Department is responsible for design and approval of regional projects, whereas national-level interventions are led by the relevant Country Divisions and their operational units. As mentioned previously, while these different units

have traditionally operated in some isolation from one another, the Bank increasingly is promoting greater in-house coordination.

This process starts at the time of preparing the regional strategy, when it is important to have active contributions from relevant country officers. In some cases, these have to be sensitized to the aims and benefits of regional operations because they are not accustomed to thinking "regionally." Once country officers have been actively involved in preparing the regional strategy, it is easier to engage them in the design and approval stages of specific regional projects. In the particular case of the Caribbean countries, and because of their long tradition of regional cooperation, there is clear acknowledgement of the regional dimension of development within the corresponding Country Divisions. But the sheer number of Caribbean countries covered by the regional strategy still makes it logistically difficult to coordinate regional interventions with all relevant country officers.

It is also important to involve staff from the Bank's Country Offices both in formulating the regional strategy and in designing regional operations. Once a regional project is approved, its administration is handled by the Country Office where the executing agency is located. Perhaps even more so in Country Offices than at IDB headquarters, staff are used to working on national-level interventions, particularly in those countries that do not host a regional entity or agency supported by the Bank.

Successful in-house coordination also involves efficient reporting relationships during project implementation and, more generally, effective and sustained information exchange across different Bank departments and units, including exchanges regarding planned national interventions. Traditionally, Country Offices report to the corresponding Country Division at IDB headquarters, but it is equally important for them to maintain direct communications with the Integration and Regional Programs Department when it has technical responsibility for a given project. Although formal mechanisms exist for information exchange between different Bank units, much of that exchange is still handled on an informal basis, and therefore dependent on the goodwill and interest of the individual staff members involved.

Donor Coordination

Efficient in-house coordination, and a clear definition of who is responsible for what part of the project cycle, is also needed to facilitate coordination with other donor agencies, which face the same challenges of coordinating national and regional-level interventions and securing efficient communication between headquarters and field staff.

As regards support to the RNM, donor coordination has generally worked well, and the RNM has itself supported such coordination by calling periodic meetings of all its

donors to discuss the progress made in each of its donor-funded programs. Through regular consultations, donors have been able to avoid overlap in their support efforts and achieve a good deal of complementarity in their respective programs.

As mentioned previously, however, such coordination has not led to joint, cofinanced projects: to date, each donor agency has its own program with the RNM. This approach has had some disadvantages, including the excessive amount of time the RNM has to spend preparing project proposals and satisfying different donor reporting and procurement requirements. This has reduced the time RNM staff can spend providing the agency's core services. There is a need for donor agencies to extend coordination into the area of cofinancing, or at least to harmonize and simplify reporting requirements for small regional agencies that operate under significant human resource constraints.

Finance

The difficulties of cofinancing between donor agencies are well known, and not limited to regional-level interventions. But regional projects face financial constraints in other ways, sometimes more so than national-level interventions.

First, the use of loans, instead of grants, is not common in regional interventions, at least not in IDB operations. Although the Bank has made loans to regional organizations in the Caribbean (for example, the University of the West Indies and the CDB), most of its regional operations there have been on a grant basis. The financial commitments tied to loans, including the need for individual governments and their finance ministries to underwrite them, make it difficult for many regional agencies to opt for this type of financing.

Second, grant funds are limited and often more difficult to obtain for regional initiatives than for national programs. The IDB, for example, has several types of grant funding, each of which is available to regional initiatives, but with restrictions:

- *Fund for Special Operations (FSO).* These are the least restricted Bank funds in terms of sector priorities and procurement regulations, but they are scarce and must address multiple demands from different sources. The proportion of such funds that is available for regional operations is also considerably smaller than the proportion earmarked for national projects.
- *MIF grants.* The Multilateral Investment Fund has provided significant support to regional projects in the Caribbean and to the FTAA process through its program on customs-related business facilitation measures. The MIF has a clear mandate to support private sector development in the region, and requires that all its projects have an innovative character. Requirements for counterpart fund-

ing are rigorous, especially since such funding must have a high component of cash contributions. It is often difficult for cash-strapped regional agencies to meet these criteria. In the area of trade and integration, moreover, projects do not always contain a direct private sector component, but rather focus on strengthening government institutions, thus meeting longer-term development objectives.

- *Technical cooperation/Trust funds.* These are funds provided by the nonborrowing member countries in support of the Bank's operations in Latin America and the Caribbean. The funds are administered by the Bank. Some of these funds have provided generous support to regional initiatives in the Caribbean,[10] but the specific criteria attached to their use in terms of nationality requirements for consultants, country and sector-specific priorities, and maximum amounts has sometimes prevented more sustained use in regional operations. In terms of country coverage, for example, some funds restrict their interventions to the poorest countries in the hemisphere, and therefore cannot support a regional project in the Caribbean, where several member countries, despite their small size, are classified as middle-income countries. Other trust funds are reluctant to finance a similar intervention twice, even if there is a clear need to provide "more of the same" support (the RNM's continued need for support is a case in point). Finally, most trust funds have a cap on the amount they will provide for any one intervention, which disqualifies regional operations that, in order to be effective, often require a somewhat larger intervention. Because of a strong donor "ownership" strategy, trust funds are often reluctant to combine their resources into a single project involving several contributing funds.

Third, the programming process for regional interventions is not as well developed as that for national interventions. To date, for example, programming efforts in connection with the formulation of regional strategies have focused almost exclusively on FSO financing, which has traditionally been the main source of IDB funding for regional projects. Greater efforts need to be made to involve staff and management from the other funding sources in the preparation and implementation of regional strategies.

Fourth, the problem of counterpart funding is often significant in regional operations. Such requirements exist across the board, although they vary among different funding sources. The RNM has met requirements for counterpart funding in both Bank proj-

[10] For example, the Bank's first RNM project was financed mainly through funds from the Japanese Trust Fund ($975,000), combined with $200,000 from the FSO. The second project was funded exclusively through FSO funds.

ects, but, as like so many regional institutions in the hemisphere, it is clearly struggling with a very limited budget. Since CARICOM member countries already contribute to the RNM budget directly, it is not realistic to expect them to provide additional project funds over and above the contributions made by their national ministries in terms of covering travel costs for project-related training and meetings. The RNM's own budget does not allow it to make significant cash contributions to the project. There may thus be a need for more innovative mechanisms for counterpart financing that reflect the reality of regional institutions. The cofinancing of RNM activities among several donors as a single project, with all member state contributions to the RNM recognized as counterpart funding in that project, is one possibility that could be explored in the future.

If the RNM remains a cherished institution in the region, with significant support from CARICOM member states, it should be in a position to attract further funding in the coming years, both from within the region and from external donors. But in the current economic climate, CARICOM member states will continue to have restricted means for supporting the RNM, and recent trends in donor aid to the region do not point towards a significant increase in assistance. The outlook for financing therefore appears somewhat bleak, in a context where the need for further and significant assistance to the region's negotiating effort is evident. Hence, while the countries and their donors are increasingly convinced of the merits of "going regional," the regional approach itself faces the constant danger of being compromised by a lack of funds. Inadequate supply of such funds, in turn, could prevent the RNM from delivering the expected "regional good," and demand for its services could wane as a result.

Conclusions

The Caribbean Regional Negotiating Machinery was established in response to new external challenges and the concurrent constraints of small size that impeded the countries from fully meeting these challenges on their own. By pooling their scarce human and financial resources, Caribbean countries have a better chance of participating effectively in multiple external trade negotiations and, consequently, have greater prospects of achieving satisfactory outcomes from such talks.

As a regional asset, the RNM is of benefit to all its member countries. But the extent of that benefit will undoubtedly vary from country to country and, collectively, is a function of the agency's technical and operational resources. These are determined by the willingness and ability of governments to support the common negotiating endeavor, which, in turn, will condition the amount of external finance that the agency can attract.

Despite its recognized contribution to the region's negotiating efforts, the RNM continues to operate under significant constraints. As is common for many agencies in the developing world, it faces the constant challenge of having to deliver convincing results with few resources. Governments' demand for the services of the RNM—and their willingness to finance it—will depend on their level of commitment to the "regional" endeavor. That commitment, however strong in theoretical terms, will weaken unless the RNM proves successful. Faced with their own budgetary constraints, governments will continue to appeal to the international community to support their regional initiative. Persistent dependence on external financing, however, raises the question of long-term sustainability of the initiative. Yet the significant results already achieved in the region—including more technically competent trade officials, improved channels of communication and decision-making, and more active participation in negotiations—should encourage external donors to remain engaged in the regional effort for the foreseeable future. While the RNM is still a fragile undertaking in many respects, there appears to be no clear alternative to overcoming the constraints faced by the small Caribbean countries in international trade policy-making.

Donors can themselves take steps to improve the delivery of technical and financial support to regional initiatives such as the RNM. Efforts could be made within donor agencies to foster greater awareness of the merits of adopting a regional as opposed to national approach in many areas of development. Ideally, this should result in more funding for regional programs, and better coordination among staff working on regional and national programs to improve complementarity in their respective operations. Recognition of the complex nature of regional programs, both in political terms and because of the large number of actors involved, should encourage donor agencies to allocate the necessary staff and administrative resources to regional programs in order to ensure their effective design, implementation and monitoring. In addition, more work needs to be done both within and among donor agencies to design useful evaluation mechanisms for regional programs, particularly in terms of measuring their development effectiveness and welfare contribution. Concrete and positive evidence in this respect would ultimately help strengthen the case for regional interventions.

Finally, there is room for much greater donor coordination, not just in terms of increased information exchange and avoiding duplication with respect to individual operations. New mechanisms for harmonizing reporting requirements and especially for cofinancing could go a long way towards boosting the strength of fragile regional institutions, thus enabling them to deliver the regional good for which they were created.

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CHAPTER 16

Initiative for the Integration of Regional Infrastructure in South America: A Strategic Option for Sustainable Development

Juan José Taccone, Inter-American Development Bank

The Initiative for the Integration of Regional Infrastructure in South America (IIRSA) was created as a result of a mandate of the First Meeting of South American Presidents held in Brasilia, Brazil on August 31 and September 1, 2000. On that occasion, the heads of state agreed to promote the integration and modernization of the region's physical infrastructure in the energy, telecommunications and transport sectors as an essential factor in South America's sustainable economic and social development process, seeking to increase the global competitiveness of their economies.

The initiative was conceived on the basis of an action plan to unfold over a 10-year horizon, under the operational coordination delegated and assigned to the Inter-American Development Bank (IDB), the Andean Development Corporation (CAF) and the Financial Fund for the Development of the River Plate Basin (FONPLATA).

Since the end of the 1990s, the South American governments have undertaken a thorough reform process in which the key elements have been macroeconomic stability, institutional consolidation, the creation of new roles for the public and private sectors in the economy, and trade liberalization. The aim has been to achieve better participation by the region in the world economy. This process of reforms was framed within a context of "new regionalism," which generated vigorous initiatives in the integration field and gave a boost to the integration programs already in existence from previous decades.

Nevertheless, the sustainability of these positive elements depends, to a great extent, on three factors: (i) continuity of the process of trade opening at the subregional, regional, hemispheric and multilateral levels, complemented with actions to improve the economies' competitiveness indices; (ii) implementation of policies aimed at reducing high indices of social inequity; and (iii) application of measures to mitigate the external vulnerability of the region's economies. Within this context, the existing integration

processes can be transformed into instrumental elements around the above-mentioned factors. However, the increase of intra- and extra-regional trade and the deepening of those processes demand the launching of cooperation mechanisms that go beyond the negotiation of strictly commercial aspects, and evolve into other key areas to improve conditions for competitiveness.

In this context, IIRSA's conceptual and programmatic bases confer an appropriate framework for defining that initiative as a key strategic option for the region's sustainable development. IIRSA is a multinational, multisectoral and multidisciplinary initiative aimed at establishing coordination and cooperation mechanisms among governments, multilateral financial institutions and the private sector. Its multinational character is based on the participation of the governments of the 12 countries of South America, multilateral financial organizations, and potential private investors at a regional and international level. It is multisectoral because it encompasses the improvement and modernization of infrastructure in three sectors: energy, telecommunications and transport. And it is multi-disciplinary, since it includes the coordination of plans and investments, the harmonization of regulatory frameworks, and the public or private financing of investments.

Conceptualizing infrastructure as a key element in South American integration is based on the notion that the synergistic development of energy, telecommunications and transport can generate a decisive boost to overcoming geographical barriers, bringing markets closer, and promoting new economic opportunities in the countries of the region, as long as there is an ongoing and increasing context of trade opening and investments, regulatory harmonization and convergence, and rising political cohesion.

The development of energy, telecommunications and transport infrastructure can be essentially understood as an issue of articulating the territory to facilitate access to markets along two dimensions: on one hand, access by raw materials and inputs to production centers (including natural resources, energy, intermediate products, information and services, and the labor force); and on the other, access by production to national, regional and international consumption centers. The level of investment in infrastructure needed to improve the region's competitiveness depends on the nature of the obstacles to such access, as well as on the volume of the flows along both dimensions.

Failure to provide adequate infrastructure is generally manifested through two types of consequences: (i) increases in the structural costs of business operations, which represents a loss of competitiveness vis-à-vis other regions with better infrastructure; and (ii) a reduction in the number and quality of commercially viable business operations (when structural costs are too high), which implies that total business volume is lower than it might be, and that, therefore, the synergistic effects among business operations are also lower, leading as an aggregate effect to a reduction in the region's competitiveness.

The aim of IIRSA is to establish mechanisms to overcome these obstacles and promote the region's development and economic integration via methodological and financial innovations that establish energy, telecommunications and transport connections between markets and areas with high growth potential, with compatible technical standards and known and trustworthy operating conditions.

From the operational standpoint, the IIRSA action plan defined three institutional entities. At the first level, it created the Executive Steering Committee (CDE for its Spanish acronym), bringing together the region's ministerial authorities. The CDE is in charge of executive management of the initiative, issuing directives to IIRSA's technical entities as regards work involving integration and development hubs and sectoral integration processes. The Technical Coordination Committee (CCT for its Spanish acronym), comprised of the IDB, CAF and FONPLATA, is in charge of the initiative's technical support and operational coordination, in close contact with the technical authorities from participating governments in articulating the participation of the private sector and other representative sectors of civil society in these tasks. Finally, executive technical groups were created to promote the technical work of each of the integration and development hubs and the sectoral integration processes. These technical groups are made up of technical officials from member countries, coordinated by the CCT. The role of the technical groups is to design and set up actions in the field of project development and regulatory adaptation.

The initiative has begun work on eight integration and development hubs: Andean, Mercosur/Chile, Talcahuano-Concepción-Neuquén-Bahía Blanca, Inter-Oceanic, Porto Alegre-Asunción-Jujuy-Antofagasta, Peru-Brazil-Bolivia, Amazon Multimodal Hub, and Venezuela-Brazil-Guyana-Suriname. It has also started work on seven sectoral integration processes: Normative Frameworks for Regional Energy Markets; Operating Systems for Air Transport; Operating Systems for Multimodal Transport; Operating Systems for Maritime Transport; Facilitation of Border Crossings; Harmonization of Interconnection, Spectrum, Technical Standards and Internet Universalization Regulatory Policies; and Instruments for the Financing of Regional Physical Integration Projects.

Achievements

There has been major progress on the joint work of the 12 South American countries involved in IIRSA, including establishment of a large amount of institutional capital for the development and deepening of the initiative, as well as identification of an extensive portfolio of infrastructure integration projects. Among the main results to date have been: (i) creation of a South American Network of Infrastructure Authorities at the ministerial

level in the energy, telecommunications and transport sectors, which meets periodically to direct the initiative; (ii) development of a common methodology for project selection; (iii) identification of around 300 investment projects in the three sectors; (iv) establishment of a team of managers to implement and follow-up the initiative; and (v) creation of an Internet portal to permanently inform and mobilize civil society and the private sector.

Despite this progress, the task of integrating the physical infrastructure of South America has barely begun, and a lengthy path remains to be covered. The work carried out and the efforts to disseminate the strategic concepts have generated high expectations regarding the potential impact that the initiative could have on the integration and development of the region. Future challenges are large and complex, however, particularly as pertains to the amount of investment required in the context of the difficulties currently facing the regional and global economies. Governments and the private sector have confirmed the importance and usefulness of IIRSA and are actively rising to the challenge it implies.

During these first two years since the launching of IIRSA, a new institutional capacity, shared among the South American countries and the financial institutions that constitute the CCT, has been established and tested. This institutional capacity is reflected in:

- Development of a South American network of infrastructure and planning authorities who increasingly communicate with one another to coordinate visions and investment plans and exchange experiences;
- Increasing significance of the meetings of the CDE;
- Development of a common methodology for the identification of projects;
- Establishment of a team of high-level managers contracted by the CCT to promote the coordination and work of the executive technical groups;
- An Internet portal to share the information that is mobilizing interest among other actors; and
- Strong bonding among the institutions of the CCT to support the initiative.

This institutional capital, in addition to constituting, in itself, a major result of the efforts of the first two years of work, serves as a platform for boosting the deepening of the initiative in the years ahead.

Principal Challenges Facing IIRSA

The capacity of a regional cooperation mechanism to generate regional public goods depends on a combination of diverse factors of a political, institutional, social and economic

nature. Nevertheless, the strengthening of capabilities and the attainment of the necessary requisites in each of the above-mentioned fields can only materialize if the participating countries share a strategic vision of the development of the region.

Shared Strategic Vision for Sustainable Regional Development

From its outset, IIRSA has involved certain guiding principles that have guided the actions of the governments and the financial institutions in the CCT and that interrelate the concepts indicated above. These guiding principles, ratified during the Third Meeting of the CDE, held in Brasilia on May 27, 2002, are:

- *Open regionalism.* South America is conceived as a fully integrated geo-economic location for which it is necessary to reduce to a minimum the internal barriers to trade and the bottlenecks in infrastructure and in the regulatory and operational systems that underpin productive activities at a regional scale. At the same time that trade opening facilitates the identification of productive sectors with potential for global competitiveness, the view of South America as a single economy makes it possible to retain and distribute a greater share of the benefits of trade in the region and attend to the regional economy's vulnerability with regard to the fluctuations in global markets.
- *Integration and development hubs.* In accordance with the geo-economic vision of the region, South America is organized along multinational strips concentrating current and potential trade flows. The aim is to establish a minimum common standard for the quality of services in energy, telecommunications and transport infrastructure in order to support the specific productive activities of each strip, or integration and development hub. Providing these infrastructure services promotes the development of business and production chains with major economies of scale along these hubs, be it for internal consumption within the region or for export to global markets. The integration and development hubs represent a territorial reference for the region's sustainable development. This structured and harmonious development process will facilitate access to areas with high productive potential that are currently isolated or under-utilized owing to the deficient supply of basic energy, telecommunications and transport services.
- *Economic, social, environmental and political and institutional sustainability.* The goal of the process of economic integration of South America must be higher-quality development that can only be achieved through respect for the four elements of sustainability: (i) economic sustainability based on the efficiency and

competitiveness of production processes; (ii) social sustainability based on the visible impact of economic growth on the quality of life of the population in general; (iii) environmental sustainability, which implies the rational utilization of natural resources and the conservation of ecological assets for future generations; and (iv) political and institutional sustainability, which involves creating conditions for the diverse public and private agents in society to be able and willing to contribute to the process of development and integration.

- *Increase in the added value of production.* Development and regional integration must not serve simply to produce more of what has traditionally been produced, but must serve as a process of constant improvement in the quality and productivity of goods and services (through innovation and the generation of knowledge), so that the economy generates ever more wealth for society. As part of the process of regional integration, the region's economies must be re-oriented to form production chains in sectors of high global competitiveness, capitalizing on countries' different comparative advantages and strengthening the complementary nature of their economies to generate added value in production that translates into widespread benefits for all.
- *Information technologies.* The intensive utilization of the most modern computer and communications technologies has transformed our understanding of distance and space and makes possible the elimination of many geographical and operational barriers within the region, thereby bringing the South American economy closer to the large engines of the world economy. The dissemination and intensive utilization of these technologies underpins a transformation not only of the region's production systems, but also of the overall functioning of society, including education systems, the provision of public and government services, and the very organization of civil society.
- *Regulatory convergence.* As part of the conditions for making investments in regional infrastructure viable, the political will of the governments is required to promote and facilitate dialogue among the countries' regulatory and planning authorities for the purpose of achieving compatibility among the rules that govern and guide the performance of private initiative in the region. This dialogue among the authorities also contributes to the convergence of visions and programs between countries beyond what relates specifically to infrastructure.
- *Public-private coordination.* The challenges of development in the region pose the need for shared coordination and leadership between governments (at their diverse levels) and the private business sector, including both the promotion of public-private partnerships for the financing of investment projects, and consultation and cooperation for the development of an adequate regulatory environ-

ment for significant participation of the private sector in regional development and integration initiatives. This notion of shared leadership is the basis for a constant dialogue between governments and business in support of the planning and guiding function of the former, and for facilitating the responsibilities for financing, execution and operation of projects by the latter. The concept of development as a shared responsibility of governments and business promotes the design of innovative formulas for the financing, execution and operation of "structuring" projects (those that make the viability of other projects possible), sharing risks and benefits and coordinating the actions of each party.

Inter- and Intra-governmental and Institutional Coordination

The multinational, multisectoral and multidisciplinary character of the initiative represents a great challenge as regards ensuring its technical, financial and institutional sustainability. The major institutional capital developed by IIRSA to date needs to evolve in a number of ways.

First, there must be progress in terms of coordinating plans and investments and harmonizing or rendering compatible regulatory frameworks and the public and private financing of investments. This requires a higher degree of technical and political internalization of the initiative in the midst of each South American government. There have been encouraging actions undertaken by some governments aimed at generating intragovernmental coordination mechanisms that will ensure leadership around IIRSA at a national level, sustained by an adequate level of participation of the diverse agencies or units involved in the management of the infrastructure sectors, planning, the allocation of financing or budgetary resources, and foreign relations.

Second, the mechanisms for dialogue and technical analysis among the 12 South American governments must be sustained by consolidating the role of the Executive Steering Committee and the executive technical groups as points of reference and of compromise and consensus in the area of policies for the development of regional infrastructure. In this sense, the substantive participation of governmental representatives in these entities, and the continuous reaffirmation by the highest authorities with regard to the significance of IIRSA, become indispensable factors for the progress of the initiative towards concrete and tangible achievements.

Third, the establishment of efficient and effective relationships among the institutions involved in IIRSA is critical. The participation of regional and multilateral financial organizations in technical coordination of IIRSA represents an unprecedented event in the field of regional cooperation, oriented towards bringing to the initiative a higher degree of sustainability and continuity as an element for overcoming political changes and the re-

gion's economic ups and downs. At the internal level of each institution, as also happens in the midst of each government, the development of IIRSA requires the participation of numerous technical entities that must coordinate their actions on a daily basis. Likewise, the three institutions that form the CCT share objectives and roles, but their institutional structure includes procedures, action strategies, policies and financing instruments of differing scope. As regards coordination in the institutional sphere at the logistical and administrative levels, the IIRSA Secretariat, located at the headquarters of the Institute for the Integration of Latin America and the Caribbean (IDB-INTAL), represents a catalyzing space for efforts and synergies. At the same time, at a technical level, the new phase into which IIRSA is now embarking, that of deepening its work, requires a strong degree of inter-institutional commitment so that the diversity of strategies, policies and instruments is employed as a strength that will give added momentum to these institutions' opportunities and areas of action in the sustained development of the initiative.

Public-Private Articulation

In the framework of the stipulations of the Brasilia Communiqué, IIRSA involves the participation of the three committed actors—governments, multilateral banks and the private sector—as an indispensable requirement for the purpose of achieving the goals proposed by the presidents. To promote the effective participation of the private sector in the initiative, the CCT proposes to develop the action plan devoting special attention to: (i) the gathering and dissemination of information with added value, including the compilation and analysis of the national regulatory frameworks that govern the participation of the private sector in the development and operation of infrastructure; (ii) the coordination of policies and actions with the national entities that promote private investment; and (iii) the reduction of administrative and legal hindrances for the purpose of stimulating investment, through communications with private companies in financing, construction, infrastructure operation, consultancy, and the users of the energy, telecommunications and transport sectors.

Progress and Results

In addition to the crucial aspects just indicated, the continuity of the initiative depends in great measure on its progress and the achievement of concrete results over the short term. This aspect represents one of IIRSA's main challenges, especially as regards the sustainability of the commitment of the different groups of actors that participate in it. The reflection of this progress will be concentrated in diverse fields of action that constitute the heart of the initiative.

As regards progress in the field of investments in infrastructure, the CCT and its managers will maintain a technical dialogue with governments in order to establish the current state of proposed projects and studies and to advance in the specification of appropriate financing mechanisms for each case. As the financing process for an investment project takes shape, the handling of the project is taken over directly by the project team of the participating financial institution or institutions, the corresponding entity of the involved country or countries, and the private promoters/operators who may be involved. At this stage, progress is foreseen in the execution of the principal first-generation projects, defined as those that, beyond their technical, environmental, social, economic and financial feasibility, do not present significant obstacles from a regulatory or institutional viewpoint that may hinder their development over the short term.

At the same time, in parallel fashion to the development of first-generation activities, the CCT and its managers will work with governments at national and sub-national levels to deepen the analysis of the economic and social dynamics of the integration and development hubs in order to define "business visions" for each hub that will serve to orient the identification of second-generation projects in a manner consistent with the strategic vision to be developed for the region. Some of these projects may be identified upon detecting new "bottlenecks" or critical points that may present themselves in the future as a product of the natural growth of the demand for infrastructure. Other projects will originate in the deepening knowledge of the region's economic realities. A third group of projects will be visualized as the necessary complement to new productive economic development projects.

The CCT has issued contracts for studies on diagnosis and organization of the work on the initiative's sectoral integration processes. As advances are made in this diagnosis and in methodological decisions, the CCT will organize meetings with the governmental authorities in order to present proposals and establish working plans for each case. This work will need to be carefully coordinated with that of the integration and development hubs in order to establish paths of convergence on sectoral policies and regulations that will facilitate the definition, financing and execution of the hubs' physical integration projects.

Conclusions

The generation and supply of regional public goods is based on the existence of agile and efficient collective articulation mechanisms among the public and private actors involved in this task. However, the mere formal existence of these mechanisms does not ensure success for the achievement of the necessary consensus.

The significance of regional public goods is based on their standing out as a response to the challenges faced by the actors or to take advantage of positive externalities, where broaching them jointly gives the participants better potential results than the individual action of each. The generation and supply of regional public goods is built around shared goals and views and the existence of costs and benefits that are distributed in an equitable fashion among the actors involved. These basic conditions or principles of the process of generation of regional public goods apply clearly and conclusively to the field of the integration of physical infrastructure among the countries of a region.

Nevertheless, at its current stage of development, IIRSA faces its greatest challenge. A little over two years since the presidential mandate that originated it, the initiative must move from the stage of its foundation and of the construction of mechanisms and working plans to the next phase, which involves the consolidation of the technical works, the scope of consensus, and the achievement of concrete results. As stated in a recent IDB study, "sovereign nations must work together, and in the process must assert their sovereignty in new ways, that is, through contributions to mutually beneficial interdependence . . . The presumption, therefore, is that coordination problems in creating regional public goods are less severe than in pursuing truly global ones."[1]

The requirement to have compatible planning and regulatory systems for the development of regional infrastructure is made easier when the formal integration processes among nations serve as a framework for mobilizing policy decisions at a national level aimed at making better use and internalization of the shared benefits vis-à-vis those that can be obtained if they perform as independent actors.

In this regard, the historic decision of the presidents of South America to involve regional and multilateral financial organizations in the work of IIRSA is aimed at strengthening the catalyzing role that these entities can perform in the provision of regional public goods. The multinational, multisectoral and multidisciplinary actions developed by these organizations transcend the characterization of the development of regional infrastructure as an end in itself, and, rather, make it possible to see it as a key factor in the improvement of competitiveness for the growth of intra- and extra-regional trade in pursuit of greater participation by the region's economies in a highly globalized environment.

In any case, the effective and efficient articulation of governments with the support of regional and multilateral financial organizations is a necessary but not sufficient condition. The implementation of the policy and investment decisions reached requires a high degree of legitimacy derived from regional civil society. Business, labor and com-

[1] Ferroni, Marco, *Regional Public Goods in Official Development Assistance.* INTAL-ITD-STA Occasional Paper 11, INTAL (Buenos Aires), Inter-American Development Bank, 2001, p. 1.

munity interest groups must adopt these commitments as their own as a result of having participated in the process of conceptualizing the decisions and, as it may be applicable, implementing them.

This process will be facilitated if the integration of energy, telecommunications and transport offers added value and economies of scale by sharing resources and strengthening the benefits to be achieved within a framework of competition and judicial security with stable and compatible rules of the game that attract the commitment not only of governments but also of stakeholders at national, regional and international levels.

In this practical and conceptual context, regional cooperation mechanisms such as IIRSA can facilitate the multiplier effect of regional infrastructure through international agreements and supplementary and complementary national measures to absorb costs and obtain shared benefits as a result of collective action. This type of mechanism must, in order to be sustainable, also ensure that in cases in which there exist countries or internal regions within them that emerge as losers in the equitable distribution of costs and benefits, compensatory instruments have to be generated to avoid having this possibility become an insurmountable obstacle for the attainment of the goals established in a shared and consensual manner. It is in this field that the catalyzing role of the regional and multilateral financial organizations can be crucial as an articulating mechanism that confers trustworthiness on the application of the compensation commitments agreed on.

The concerted action of the trilogy of government-civil society-regional and multilateral financial organizations is the ingredient that turns IIRSA into a strategic option for the sustainable development of South America.

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CHAPTER 17

The Puebla-Panama Plan: A Political Mechanism for Coordinating Joint Actions

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The countries participating in the Puebla-Panama Plan (PPP) are Belize, Costa Rica, El Salvador, Guatemala, Honduras, Panama and Mexico. Most PPP programs involve only the nine states from Mexico's southern-southeastern region, while others, such as those involving trade, include all of the country's states, with Mexico's federal government representing the country at the political level. The PPP was formally launched in San Salvador in June 2001.

The Mesoamerican region has considerable economic potential in the form of its cultural wealth, biodiversity and geographically privileged location, but it also suffers significant lags in terms of economic and social development. The interrelationships that define the area as a region are also quite clear, including trade with and investments from neighboring countries, transnational biological corridors, migratory flows, epidemics and pandemics that are characteristic of this particular tropical region, and organized crime. These interrelationships in turn lead to a series of positive and negative externalities that pose a challenge in terms of coordination where collective action is required and joint relations with the international cooperation community. These transnational interrelationships and the potential need for collective coordination and actions define the Puebla-Panama Plan as a political mechanism to deal with multinational public goods in the Mesoamerican region.

This assessment begins with the recognition that, despite strong historical and cultural ties and the efforts put forth to date, current levels of intra-regional integration are relatively low. Cooperation in the social and environmental arena, although on the rise, remains consistently short of what it could be. The failure to effectively take advantage of regional positive externalities is compounded by a similar failure to take advantage of the externalities to be had from more active participation in global markets. These two dimensions of externalities whose advantages have not been appropriately exploited are

themselves, in turn, interrelated. The interconnection of Mesoamerica with the outside world takes place under suboptimal conditions, as the countries of the region fail to take advantage of the proximity of each others' markets to strengthen their competitive position, participation by small and medium-sized firms, human development, and the potential for the sustainable use of their natural resources.

The Puebla-Panama Plan emerged in the first year of its implementation precisely as a political mechanism for coordinating actions involving the approval and implementation of regional projects. As stated in the Declaration of the Summit of the Tuxtla Mechanism in San Salvador in 2001, the plan is based on a broad vision of development: "The objective of the Puebla-Panama Plan is to leverage the human and ecological wealth of the Mesoamerican Region within a framework of sustainable development that respects cultural and ethnic diversity." However, rather than constructing a grandiose plan, the PPP adopted a pragmatic approach. The plan defines eight initiatives consisting of 29 projects.

The concept of an "initiative" is not defined in general terms; rather, for each particular case an overall objective is assigned, together with a series of projects consistent with that objective. Accordingly, there is no attempt to achieve the objective but rather only to ensure coherence. Moreover, many of the regional projects predated the PPP, but failed to come to fruition. The eight Mesoamerican initiatives and their respective objectives are as follows:

1. *Sustainable development.* Promotes the conservation and sustainable management of natural resources, as well as participatory mechanisms, particularly in local communities, in the area of environmental management.
2. *Human development.* Aims to reduce poverty, facilitate access by vulnerable population groups to basic social services, and contribute to the fullest possible development of Mesoamerican peoples.
3. *Prevention and mitigation of natural disasters.* Promotes measures to prevent natural disasters as well as efforts to mitigate their effects, including incorporation of risk management components in projects implemented in all sectors.
4. *Tourism.* Promotes the development of ecological, cultural and historical tourism by means of regional actions focusing on complementarity, economies of scale and productive tourism linkages.
5. *Trade and productivity.* Promotes trade in the region through a reduction of transaction costs among the countries of the region, fosters the participation of small and medium-sized enterprises in regional exports, and take actions to enhance regional competitiveness.

6. *Highway integration.* Promotes the region's physical integration with a view toward facilitating the passage of people and goods and, in so doing, reducing transportation costs.
7. *Energy interconnection.* Aims to unify and interconnect electricity markets with a view toward promoting an increase in investments in the sector and a reduction in electricity costs.
8. *Telecommunications services.* Focuses on developing the infrastructure for informatics interconnectivity in the region.

The Puebla-Panama Plan was formally launched on June 15, 2001 during the Extraordinary Summit Meeting on the Tuxtla Accord. It is the result of an initiative espoused by Mexican President Vicente Fox and enthusiastically supported by the Central American heads of state. A year after the launch of the PPP, there already was recognition of significant achievements, with participating countries expressing a renewed political will to further explore the various areas of sustainable human development.

The success of the plan in its first year of existence led the presidents to establish, in Mérida in 2002, more ambitious goals for the second year. The successes led to an increased desire for political coordination and progress in more difficult areas. So the mechanism for coordinating collective action was strengthened, with the result that more profound concepts for action were proposed. A decision was made to prepare memorandums of understanding within the various initiatives, with objectives containing more elements of action programs. One result is that the PPP has become a mechanism for developing consensus on the understanding of regional issues and collective actions.

The antecedent was the highway integration initiative. With a view toward defining the PPP highway corridors and their respective technical standards, the governments signed a memorandum of understanding that defines the highway sections that each country has agreed to build, along with their respective minimum standards, plus agreements with regard to the placement of traffic signs and regulations governing transportation. This same concept will now be applied to the areas of education, health, sustainable development, disaster prevention and financial cooperation. It will also be used in the development of two cross-cutting components: rural development and the development of indigenous peoples. This creates both new possibilities and challenges, and demonstrates the success of the coordination mechanism in which there is now sufficient confidence to propose more ambitious goals for collective action.

Two elements that are critical for explaining the achievements of the PPP warrant mention. On the one hand, there is the tradition of joint action in the Mesoamerican region, with the result that the PPP is not an entirely new experience but rather builds on

efforts that preceded it. One the other, there is the political commitment to design and use decision-making mechanisms.

Background

A number of concrete actions led to the establishment of the Puebla-Panama Plan. On November 30, 2000, Mexico's president-elect proposed to the presidents of the countries of the Central American isthmus and to the prime minister of Belize the preparation of a regional development plan for the area between Panama and Puebla that would cover the seven countries of the Central American isthmus as well as nine states in the southern-southeastern region of Mexico: Campeche, Chiapas, Guerrero, Oaxaca, Puebla, Quintana Roo, Tabasco, Veracruz and Yucatán. The proposal was enthusiastically received by the various governments.

During that meeting of presidents, the governments asked several organizations also in attendance to join with them in supporting the plan. Those organizations—the Central American Bank for Economic Integration (CABEI), the Inter-American Development Bank (IDB) and the UN Economic Commission for Latin America and the Caribbean (ECLAC)—would subsequently form what came to be known as the Inter-institutional Technical Group.

Two important institutional precedents to the PPP are the Tuxtla Accord and the Central American Common Market, while a third building block is the Regional Consultative Group. The fourth element was the existing trade agreements among the countries of Mesoamerica. Thus, the region had already had considerable success in collective decision-making and cooperation. The PPP was founded on a veritable edifice of collective decision-making relationships.

The relationship between the seven Central American countries and Mexico is based in most recent history on the Tuxtla Dialog and Consultation Mechanism, which has been in effect since 1994, and which Mexico uses to allocate its cooperation efforts to the region. The bulk of this cooperation takes place within the framework of the San José Accord, by means of which Mexico makes available to the countries of Central America, under concessionary conditions, a portion of the resources it receives from the sale of oil to Central America. Within this framework, the following free trade agreements were negotiated: Mexico-Costa Rica, Mexico-Nicaragua, and Mexico-El Salvador, Guatemala and Honduras. A Mexico-Panama agreement is currently being negotiated.

The accord holds regular presidential summits and is administered by the ministers of foreign affairs. As a result of these summits, a decision was taken to place the PPP within the framework of the Tuxtla Accord.

The Central American Common Market (CACM), which includes Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua, dates from the early 1960s and was relaunched in the early 1990s with a new vision of regional integration and external openness. It is the oldest integration effort among developing countries and one of the most successful—reciprocal trade between members has accounted for 27 percent of the region's total exports. Panama and Belize share in the political process of Central American integration, and Panama is currently negotiating a free trade agreement with the five CACM member countries. In addition, Mexico participates in CABEI as a non-borrowing member country.

The Regional Consultative Group was created by the Central American Presidential Summit of 1992 to coordinate donor support to regional projects. Central America sent representatives to a meeting of the Regional Consultative Group, held in Madrid in March 2001, armed with a series of projects and an encompassing strategy developed consensually by the Central American countries. It marked the first time that Central America had approached the international cooperation community with unanimity of opinion with regard to priority regional projects. A process of consultation with civil society had even been carried out. The document presented in Madrid was titled "Regional Proposal for the Transformation and Modernization of Central America in the 21st Century."

Simultaneously, Mexico prepared a Puebla-Panama Plan proposal that identified priorities for programs in Mexico's southern-southeastern region, and proposed the development of a Mesoamerican strategy in concert with the seven countries of Central America.

In early 2001, the Mexican government appointed a PPP Presidential Commissioner, with the other countries of the region subsequently following suit. Thus was formed what later would come to be called the PPP Executive Commission, consisting of individuals with direct access to their respective heads of state.

In order to identify the interrelationship between the above-mentioned regional proposal to transform and modernize Central America and the Mexico chapter of the Puebla-Panama Plan, the Inter-institutional Technical Group submitted a report to the Puebla-Panama Plan Executive Commission in a meeting that took place on May 11-12, 2001 in San Salvador. The eight initiatives were subsequently identified.

In response to the request made by the Puebla-Panama Plan Executive Commission, the Central American Institute for Business Administration (INCAE), which had now been admitted a member, proceeded to prepare a review of the status of the projects selected and develop an initial proposal with respect to the characteristics of the Mesoamerican projects thus identified. Following two presentations and a wide-ranging discussion among the commissioners on May 30-31 and June 8, an agreement was reached with regard to the series of projects that was to make up the PPP.

This initial proposal was based not only on the regional proposal to transform and modernize Central America and the Mexico chapter of the Puebla-Panama Plan, but also on supplemental information provided by the members of the Inter-institutional Technical Group. The exercise was enriched through consultations with specialized government agencies from the eight countries involved, the various entities of the Central American Integration System (SICA), international organizations such as the United Nations (and such documents as its International Strategy for Disaster Reduction), and other international financial organizations such as the World Bank. In many cases, preparation of project profiles benefited from special meetings convened by the Inter-institutional Technical Group.

To the extent possible, the preliminary results were circulated with a view toward obtaining comments from national and regional authorities. In addition, several of the projects were submitted to civil society for comments, and in some cases organized groups from civil society actually proposed projects. The Executive Commission decided which initiatives and projects were to be included. The Presidential Summit held in San Salvador ratified the approval of the Mesoamerican Initiatives and their component projects.

The Puebla-Panama Plan builds on the existing free trade agreements in the region, since to a large extent the most intensive and complicated trade negotiations had already taken place by the time the PPP was in place. Trade and investment flows are on the rise in Mesoamerica, and although these flows are substantially below their potential, the free trade agreements to further them already exist and are in fact quite modern, incorporating all of the various trade disciplines. Prevailing obstacles to trade are of a non-tariff nature, linked to issues involving customs and border crossings, technical standards, phytosanitary and zoosanitary norms and, especially, highway communication infrastructure. The PPP impacts directly on these issues.

PPP Mechanisms for Decision-making and Collective Action

In order to succeed, integration processes require political coordination mechanisms to facilitate decision-making that affects multiple countries. The absence of such coordinating mechanisms, and the fact that benefits for the general public are not easily perceived (information asymmetries), can hamper integration processes.

Although the Puebla-Panama Plan shows visible progress in strategic projects, perhaps its most salient achievement is political in nature: the consolidation of a framework for decision-making within the parameters of the Tuxtla Mechanism. The framework includes the creation of the Executive Commission, the Commission on Financing and Promotion, and the Inter-institutional Technical Group. This has enabled the countries of Mesoamerica to promote regional projects that in the past appeared impossible.

As a rule, follow-up on the Tuxtla Mechanism is the responsibility of the ministries of foreign affairs as part of their duties involving coordination of foreign aid. However, the PPP is a more ambitious concept that has required closer and more ongoing coordination, with decision-making capacity and response over the short-term that facilitates the involvement of heads of state in high-impact decision-making. The San Salvador Summit defined an ad hoc PPP follow-up mechanism through the creation of the Executive Commission. This commission has been able to address thorny issues in the short term in such areas as highways and electrical interconnection, succeeding in routing decisions to the highest level necessary to ensure their effectiveness. Without the Executive Commission, there would be no PPP. The Executive Commission decides by consensus which initiatives and projects are to be promoted as part of the plan. SICA operates as a secretariat. To complement the decisions made by the Executive Committee, commissions are established for individual initiatives, or for areas within initiatives, with the participation of the respective ministers and supported by technical commissions made up of ministerial representatives charged with carrying out the preliminary work with support from the Inter-institutional Technical Group. These decisions are submitted to the Executive Commission. Each presidential commissioner is in turn responsible for one of the eight initiatives, as shown in Table 17.1.

The Inter-institutional Technical Group was also formally created during the San Salvador Summit. The group works with Central American integration organizations to provide technical support both to the Executive Commission and the technical commissions. Currently participating in the Inter-institutional Technical Group are CABEI, the IDB, the Andean Development Corporation, ECLAC, the Food and Agriculture Organization, the Inter-American Institute for Agricultural Cooperation, SICA, INCAE, the United Nations Development Program, and Spain's Institute for Public Credit. The task of coordinating the activities of the Inter-institutional Technical Group falls to CABEI, the IDB and ECLAC.

Table 17.1. National Responsibility for Initiatives

Initiative	Country
Sustainable development	Nicaragua
Human development	Mexico
Disaster prevention and mitigation	Panama
Promotion of tourism	Belize
Facilitation of trade	Honduras
Highway integration	Costa Rica
Electrical interconnection	Guatemala
Integration of telecommunications services	El Salvador

The San Salvador Summit also produced the PPP Commission on Financing and Promotion, which, chaired by the president of the IDB, has recorded remarkable success in securing financing for the projects approved by the Executive Commission. Participating as members of this commission are the ministers of finance and the presidential PPP commissioners. Bilateral and multilateral cooperation agencies active in the Mesoamerican region are also invited to meetings of the commission.

Puebla-Panama Plan Projects[1]

Participation in regional integration processes always need a clear economic rationale. For small countries such as those of Central America, efficient participation in international markets is vitally important. Accordingly, an important rationale for economic integration and regional cooperation projects is the potential to achieve regional solutions that increase competitiveness more effectively than would be the case with national solutions. The smaller the country, the greater should be the importance assigned to considerations related to competitiveness in extra-regional markets in decisions involving economic integration. Regional cooperation can also be justified in terms of achieving more efficient solutions from regional actions than would be achieved were countries to address those issues individually. Regional cooperation provides benefits in terms of economies of scale in the design of the programs or in dealing with such trans-border issues as human migration, protected species, or vector-borne diseases. The existence of a regional public good creates the potential for a regional intervention, but such an intervention has to be justified—the benefits derived from achieving a superior result have to be greater than its costs. The regional dimension, with its added coordination costs, also needs to be justified.

The Central American Electricity Interconnection System (SIEPAC) is almost as old as the very concept of Central American integration. However, it is only now that the countries of the region have succeeded in reaching an agreement, and that it has been possible to secure funding involving simultaneous financing for six different debtors, two of which can only access concessionary financing as a result of their participation in Highly Indebted Poor Countries initiative. The framework that has made it possible to reach this regional agreement is the Puebla-Panama Plan, which provided the mechanisms for the political accord and for putting pressure on those lagging behind in meeting the commitments.

[1] Detailed information on the projects can be found at www.iadb.org/ppp

The economic rationale of SIEPAC is apparent. The subregion covered by the project includes six small and highly fragmented markets that do not justify the large investments that would make it possible to reduce per kilowatt-hour costs. The proposed interconnection would provide for more efficient management of the system through the reliable sale of surpluses between countries and new, large-scale investments. As a result of the project, all consumers in the region would benefit and the region itself would become more competitive.

The main challenges for this project are institutional, particularly in terms of accepting collective self-reliance in electricity. It implies overcoming misgivings and border tensions and accepting production and investment decisions with a regional rather than a national perspective. Different property structures in the region (public versus private ownership of generation and wholesale distribution) have further complicated the development of the supra-national firm that will own and run the regional interconnecting line.

The integration of the markets has required the harmonization of regulations and the development of a supra-national regulatory body. An example of the obstacles to be overcome is illustrated by a recent event. The markets are currently interconnected by low capacity transmission lines. Regulations have been harmonized but are unevenly implemented, such that the private firms from the country not implementing the reserve requirements per generation plant rely on the plants of the neighbors to satisfy peak demand, leaving the whole system unprotected. Regional enforcement of regulations once the supra-national body is established remains a challenge.

The PPP also provides for the future electricity interconnection of Guatemala with Mexico and, eventually, with Belize.

Two other PPP projects that have already been approved and financed involve the facilitation of trade by removing non-tariff trade barriers. One project, which focuses on the harmonization of sanitary and phytosanitary regulations and procedures, will be implemented by the appropriate regional organization, and will include all eight Mesoamerican countries as well as international and regional sanitary and phytosanitary organizations. All of the governments involved are upgrading to meet World Trade Organization (WTO) standards by harmonizing and strengthening regional coordination of national organizations and procedures, including procedures for border crossings of agricultural products.

The second project will facilitate customs and border crossings, and will be implemented by the SICA Secretariat. The project aims to establish an electronic system to secure and speed international transit of goods. The project will develop a single document that will include all the information required at border crossings by all intervening agencies (customs, agriculture, immigration, etc.).

Human development projects have also been funded under the Puebla-Panama Plan. One project involving HIV/AIDS prevention for migrant populations is being car-

ried out by Mexico's National Institute of Public Health. The project is geared toward the preparation of a larger project to be presented to the Global Fund for Aids, Tuberculosis, and Malaria.

Another human development project involves a system of supply and demand for worker training. An information system to be developed and made available on the Internet will outline the training needs of the private sector as well as the available supply of training programs.

Finally, the Mesoamerican highway project involves the harmonization of technical standards and regulations and the building or upgrading of highways along the Pacific corridor, the Atlantic corridor and complementary routes.

The total cost of the projects already defined by the Puebla-Panama Plan exceeds $4.2 billion. Of this total, funding in the amount of $1.2 billion (26 percent) has already been secured. The PPP portfolio includes additional projects that have not yet been defined and for which it is therefore not yet possible to estimate costs.

Of the projects pending financing, it is estimated that $1.1 billion (or 27 percent of the cost of projects already defined) would involve private sector investments. These investments will depend in large part on the quality of processes for public works concession and on the legal and regulatory frameworks governing such concessions. Fully defined and agreed-upon sources of funding have not yet been identified for the remaining $2 billion (48 percent), the most significant portion of which involves the highway initiative. Based on a political agreement in Mérida with regard to the PPP highway corridors, this initiative was submitted for funding to the international financial community on September 18, 2002.

Currently, the emphasis of the project phase of the Puebla-Panama Plan is on information dissemination and participation by civil society at both the project level as well as the level of the plan itself both in terms of its initiatives and projects. There also is a focus on formulating and forging agreement on the memoranda of understanding on sustainable development, health, education, rural development, disaster prevention and mitigation, and the participation of indigenous communities.

To conclude, projects developed under the Puebla-Panama Plan have sparked the interest of the international donor community, which has perceived a manifest political will in Mesoamerica to proceed with regional integration projects. In short, the Puebla-Panama Plan is in itself a public good as well as a mechanism to produce more public goods. Its success, ultimately, will depend on the continued manifestation of the very political will that it has supported and fostered.

CHAPTER 18

A Regional Public Goods Perspective on Cooperation in Education

Juan Carlos Navarro, Inter-American Development Bank

The Inter-American Development Bank (IDB) has a long history of support for regional cooperation in the field of education. Since the 1970s, the IDB has funded education initiatives that have simultaneously benefited several or all of the Bank's borrowing countries, consistently devoting on average about 5 percent of each year's pool of non-reimbursable technical cooperation funds to education projects. Under the criteria traditionally governing decisions on regional cooperation projects, all underwent thorough review at the time of their design aimed at maximizing impact, minimizing risks and ensuring expedient and transparent implementation. Key decision criteria included the following:

- The existence of supranational benefits (regardless of the fact that the project executing agency happened to be based in one particular country);
- Development impact, with particular reference to links to poverty reduction or pilot testing of innovations in education;
- Explicit and strong demand from governments, as in the case of IDB commitments related to Summit of the America's mandates;
- The absence or scarcity of resources in individual countries to finance the goods or services that were supranational in scope;
- The need for international coordination and leadership in particular areas of activity.

These criteria, no matter how adequate or complete, did not include an explicit use of the regional public goods framework in the assessment of specific projects. A closer look will reveal, however, that several of them have implicitly incorporated key concerns of the regional public goods framework in the decision-making process related to regional initiatives in education. Introduction of the principles of the regional public goods conceptual framework in IDB regional actions in education is seen in the clear identification of supranational benefits; the response to articulated demands from groups of

countries through subregional entities such as Mercosur, or in the context of the Summit of the Americas; the realization and assessment of the extent to which requests for funding of regional initiatives were crowding out what would otherwise be individual country financing of national public programs; and the exercise of leadership in areas where some identifiable demand was not being met in addressing the difficulties in coordinating and risk taking by individual countries.

An important implication of this is that the vast experience accumulated by the IDB over the past decades in regional cooperation in education becomes directly relevant for any future activities to be assessed in light of the regional public goods framework. In other words, this chapter puts forth the notion that the introduction of the regional public goods perspective, rather than being a complete revolution in thinking and decisions about regional cooperation in education, represents an incremental step that will make the discussion and design of projects in this area richer by enhancing the perception of benefits and the understanding of potential obstacles. Thus, even agreeing with Arce and Sandler (2002) that "future exercises to measure the TPG [transnational public good] component of foreign assistance must be careful to distinguish traditional forms of foreign assistance from those with a strong TPG aspect," it can be argued that those traditional forms, at least in the particular case of the IDB, did incorporate some important elements of the public economics framework advanced by analysts of regional public goods.

The added value of the regional public goods perspective, then, resides in the powerful efficiency argument that it puts in place a rationale for regional projects and for international assistance to take an active role in finance and encourage their provision. There are important goods and services, educational in this case, for which there is demand in several countries and whose benefits spread over several international jurisdictions, yet there is limited or no supply given the incentive problems produced by the fact that these goods and services have the characteristics of public goods: non-rivalry in consumption and nonexcludability. Once this framework is accepted, international cooperation can no longer remain the exclusive realm of high-minded calls for international coordination, solidarity or integration, regardless of the intrinsic weight of these rationales. It becomes a discussion about how to arrange for the production of goods that satisfy a real demand but will not, to a large extent, be provided spontaneously by markets or by the action of one or each government on its own. And, by implication, it becomes a discussion about how intervention by international organizations can be better targeted to solve the incentive problems behind the insufficient supply of the goods in question. This, in turn, should contribute to a renewed assessment of the usefulness of the international cooperation tools currently available.

What follows is a brief analysis of three cases of regional initiatives in education financed by or under the leadership of the IDB over the past decade. Thus, while not pur-

porting to undertake a complete reassessment of IDB activities in regional cooperation in education under the new regional public goods framework, this chapter will tackle a small sample of them in order to identify whether they can be usefully reviewed from a regional public goods perspective; what the benefits of such an assessment are in the case of the education sector; and what can be learned from the actual experience of designing, financing and implementing them, since, for the reasons stated above, it is likely that much of the lessons learned from the IDB experience in regional cooperation in education will be relevant for future decisions about how to better finance, plan and implement the provision of regional public goods.

The cases selected are, to a certain extent, representative of the main trends in regional technical cooperation in education over the course of the history of the IDB. A cursory look at the list of regional projects in the sector suggests that they can be grouped into a few categories, according to the type of educational benefit they have produced:

- *Knowledge processing and dissemination.* A clear example of a project under this category is the substantial support the IDB has provided to the Latin American Network for Educational Information and Documentation (REDUC), which gathers and classifies educational research produced in Latin America and makes it accessible to academics and policymakers. The network is based in the Center for Educational Research and Development (CIDE) in Santiago, Chile, and has local partners in most of countries of Latin America and the Caribbean.
- *Study and dissemination of innovations and best practices, mostly in the field of compensatory education and technology.* Given the priority that the IDB has given to poverty reduction as one of its overarching goals, quite often technical cooperation projects in education have aimed at the study of good practices in educating disadvantaged children, as in the case of good practices in *Fe y Alegria* schools and in girls' education. The enthusiasm shared by most countries regarding the potential of information technology for education has also led to a series of pilot projects in this area, aimed at testing promising ideas that can later be mainstreamed.
- *Comparative assessment of learning outcomes and educational research.* The most important illustration of this line of activity is the substantial support provided by the Bank to the Educational Quality Laboratory Initiative by UNESCO's Regional Office for Education in Latin America and the Caribbean (OREALC), which was a successful effort to comprehensively assess learning outcomes in a large number of countries of the region.
- *Content development in science education for distance education and technology-based education.* The International Virtual Schools Network (IVEN) and the

Inter-American Distance Teacher Training Program are examples of initiatives launched by the IDB as a follow-up to mandates from the Summit of the Americas to develop educational content that supports science and language education through the production of high-quality teaching and teacher training programs.

- *Support for regional integration in education.* The IDB has supported the coordination and financing of several initiatives in which a group of countries has undertaken the joint production of education services to facilitate student, teacher and program exchanges. In some cases these were activities that, prior to the IDB's involvement, had difficulties in finding needed funding from individual countries or in securing adequate coordination at the international level. Examples are the IDB's support for the Mercosur education program and the investments made in the development of the University of the West Indies.
- *Highly specialized training in public policy and administration.* Under the assumption that enhancing a government's ability to design and implement effective public policies is a common concern of all borrowing countries that would have benefits beyond each country's borders, the IDB during the 1980s and early 1990s supported masters' degree programs in public administration, public policy, project evaluation and economics. These programs were generally developed by academic centers of excellence in the region, such as CIEPLAN in Chile, the Getulio Vargas Foundation in Brazil, UNIANDES in Colombia, and IESA in Venezuela. IDB contributions often took the form of scholarships, so that students from abroad, particularly those who lacked a comparable program in their own country, could study at a regional center of excellence.

IDB Support for the First International Comparative Study in Education

In 1995, UNESCO-OREALC approached the Bank for support in establishing a laboratory to design and initiate an assessment system of the quality of language and mathematics learning in primary schools of Latin America and the Caribbean. The Bank, at the time in the midst of developing a strategy document for education, understood this as an opportunity for the diffusion and strengthening of assessment testing among borrowing countries, a key priority linked to the need to create a better information base for educational decision-making and investment planning in the sector. The Bank has regularly supported this on a country-by-country basis over at least the past 10 years through evaluation and institutional strengthening components in regular lending operations. Yet, in this case, there was an opportunity to mobilize an international initiative, create regional leadership in the field of assessment and, above all, produce comparative information (Tiana, 2000).

Comparative information—in this case about learning outcomes—has characteristics of a public good, in the sense that it is extremely useful for one country to be able to determine how well its students are doing in comparison with neighboring or similar countries. Yet it is not feasible for one country in isolation to create a single methodology or test that will be adopted by others, much less invest in actually implementing the test in several countries just to learn how others compare to the country in question. A good indication of how high the demand for internationally comparable tests in education has become today is the proliferation of international tests initiated by highly developed economies: TIMSS, PISA, IALS and still others (National Research Council, 2002). In all these cases, launching the international studies has taken some significant technical leadership and ample coordination and cost-sharing among the countries involved. Such an investment is difficult for developing nations to afford.

In response to UNESCO's request, the IDB provided $750,000 in technical cooperation resources. Other donors also contributed, although the IDB remained the main source of support for the project. Thirteen countries participated in 1997 in what was called the First International Comparative Study, a test of third and fourth graders in mathematics and language.[1] Over 50,000 students were tested and as many parents, teachers and school principals were also subject to surveys aimed at obtaining information needed to put the test results in their adequate context. Most of the participating countries had never been a part of a comparative study. The study was designed to answer five main questions: What have students learned? At what levels does learning occur? What skills have students developed based upon their learning? When does the learning occur? Under what conditions has learning occurred? (UNESCO-OREALC, 1998).

Although no systematic evaluation of the impact of the study on education policy in the region has been completed so far, it is fair to say that it can be considered a landmark in policy debate for both national authorities and the public at large. Results of the study remain the most comprehensive source of comparative educational assessment available for Latin America, and have made it possible for education stakeholders to document their claims of the urgent need for education reform and for investments to improve educational quality and equity. Several countries (Colombia, Mexico and Dominican Republic) have invested their own resources in disseminating and focusing internal debates on the study's results. A considerable volume of educational research, advanced both by UNESCO-OREALC and several academic institutions, has been mining the rich database on associated factors to draw policy-relevant conclusions (UNESCO-OREALC, 2000), and pursuing some of the more striking outcomes of the study. These include the

[1] Participating countries were Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, the Dominican Republic, Honduras, Mexico, Paraguay, Peru and Venezuela.

superior results of rural schools in Colombia, the extremely good learning outcomes found in Cuba, and the ability of school-related factors to compensate to a large extent for the negative effects of extra-school variables affecting learning. The instruments used for testing, although subject to some criticism from a technical standpoint, have become widely utilized in project evaluation and assessment studies sponsored by several international organizations, given the usefulness of the baseline created by the first study.

Countries, and in particular ministries of education, constituted key partners by supporting local teams, granting access to schools, and authorizing public use and release of the information collected. In most cases, the First International Comparative Study coincided with ongoing national efforts to set up education assessment systems, which in practice meant that technical and managerial advances introduced in the course of the international study strengthened domestic capacity in the field of educational evaluation. Several governments showed some resistance to the public use of the results, since they feared a political backlash as a consequence of relatively poor results. In the end, however, these fears have dissipated in the wake of the benefit of policy analysis and debate in all the countries involved and in the region as a whole.

The IDB's support for the UNESCO-OREALC initiative in comparative assessment testing is an example of coordination among international agencies for the provision of a regional public good for which a solid demand existed. Yet, that good would not have been supplied in the absence of the leadership provided by these two international institutions. The result also is an example of continuity. After the IDB grant had been depleted, the Bank approved a second, more limited technical cooperation project in order to maximize the study's impact through analysis of the information collected, and in particular, to strengthen the participating countries' own capacity to analyze and draw policy recommendations from the results.

One interesting issue raised by the IDB's ongoing involvement is that, given the nature of certain regional public goods—and no matter how committed a group of countries may be to ensuring their provision—there is no substitute for sustained involvement by international organizations both on the funding and technical coordination sides. The emphasis put, and often rightly so, by the multilateral organizations on the need to make programs self-sustainable and independent of continued financial support has to be balanced by other considerations. Some regional public goods, no matter how well engineered, face incentive obstacles so serious that international leadership and financial support remains essential if they are going to be adequately supplied. Thus, no matter how well developed assessment testing becomes in each country, the significant value added of international comparative studies is not going to be available absent sustained commitment by international organizations.

IDB Support for the International Virtual Education Network

By the mid-1990s, the revolution in information technology had convinced many Latin American countries that to make education systems relevant for the new economy, they had to incorporate to the largest extent possible the advantages of information technology into the educational process. Out of the need for increased computer literacy and also in the hope that incorporating technology could help address deficiencies in the quality of education, national authorities started investing heavily in incorporating computers and other digital technologies into the classrooms. Quite often, these investments in infrastructure and teacher training received support within the framework of IDB educational lending.

At the time of the Santiago Summit of the Americas in early 1998, the region's ministers of education made a collective plea for international organizations to become directly involved in launching innovative programs in technology and education. By 1999, the IDB's response to this plea included a $500,000 technical cooperation project known as the International Virtual Education Network (IVEN). This initiative was launched in partnership with education authorities in Argentina, Brazil, Colombia, Peru and Venezuela, and conceived as a pilot program to develop multimedia mathematics and science teaching materials for upper secondary schools by combining concepts of effective learning with appropriate computer, video and communication technologies (Haddad, 2001). In particular, it was aimed at producing instructional design of teaching/learning activities and web-based multimedia curricular materials, and providing staff training and a distribution network for collaborative work among countries.

The underlying assumption was that the type of instructional material to be created was of potential use for all the countries in the region involved in the parallel pursuit of improving math and science learning and introducing technology in the educational process. Such materials that are adequate to the needs and curricula of the countries involved are not readily available in the market, where software development for education, although seemingly booming, in practice generally lacks adequate standards and is widely recognized as lagging behind the potential of innovations in hardware and communications. Such production remains a highly sophisticated and costly enterprise, so it lends itself to the advantages of sharing costs and expertise. Beyond the "national public goods" the IDB had been financing for some time in this area—including information technology infrastructure and teacher training for particular countries—content development was clearly an underserved area with "regional public good" characteristics. In addition, the materials that were needed did not constitute a list of isolated pieces of instructional software, but an integral program of secondary education science and mathematics learning.

Several characteristics of this program are worth emphasizing in the context of the regional public goods framework. First, the composition of the financing put together for the program involved IDB grants mainly dedicated to developing common protocols for the production of instructional modules, training country teams in a common methodology and set of standards, and developing web-based tools to facilitate cooperation and coordination between countries and internationally. These activities were of a shared or joint nature, unlikely to find financial support in individual countries, and were largely completed in the two years of implementation that have since passed. The IDB financing was combined with funds specific to each participating country, dedicated to the funding of the country technical teams in charge of production, as well as the organization of pilot testing of the instructional modules in a small sample of schools plus the required training for teachers and equipment needs. In four of the five countries involved, the funding was arranged out of small components of larger IDB lending operations for education or science and technology. It is expected to represent a total of about $10 million by the time pilot testing is completed.

One could question why, if governments are willing to invest so much in a project, they cannot pay the full bill and finance the activities that are clearly for the benefit of those participating in the project. The answer is that many factors negatively influence the ability of national governments to finance shared activities. One factor is strictly legal, as it is common for governments in developing countries to be prohibited from devoting public funds to activities that are going to benefit other countries or that are going to be spent in another country. In the case of IVEN, this has prevented cofinancing by countries of international coordination activities for the project. Even when such funding is legal, the severe fiscal constraints facing countries in the region often render such a proposition unaffordable or politically unfeasible. Another factor has to do with the very nature of the product: if the instructional materials, once produced, are going to be useful to many countries, there has to be some cross-checking and quality assurance to ensure that the materials conform to international and common standards, and that they are not so completely tailored to the conditions and needs of one specific nation that they end up being useless to others. No single country has an incentive to incorporate these considerations when it works on its own. International grant funding remains critical if some type of regional public goods—top quality instructional content development in sciences and math in this case—is going to be provided. These considerations influenced the IDB's decision to grant additional limited support strictly for international coordination and quality assurance purposes once the current technical cooperation operation was depleted by the end of 2002.

Another interesting aspect of the program is related to issues of ownership and property rights over the products. In the view of the IDB, the benefits of IVEN had the

potential of reaching all borrowing countries. In fact, however, only five countries were directly involved in production, although a larger number was originally invited. The project steering committee, made up of representatives of these countries, initially decided to reserve the modules for their own use, but expressed willingness to consider IVEN as a club in which applications for membership would be assessed on a case-by-case basis, according to certain conditions to be defined in terms of cost sharing and the domestic effort required. They also agreed on developing all materials simultaneously in English, Portuguese and Spanish in order to encourage the interest of other countries in joining. This, however, although an interesting beginning, falls short of addressing multiple issues of copyright and membership that are bound to arise should more countries become interested in using the materials. IVEN itself is not a legal entity, and the countries should likely give serious consideration to the convenience of incorporating the project or housing it in an international organization that facilitates the solution of issues of rights and participation. Such issues, however, are still a concern for many regional projects involving content development and knowledge creation, and are bound to arise and require attention if regional public goods of this kind are going to be produced efficiently.

Finally, it is worth considering the experience of IVEN in international coordination. This has been by far the most challenging aspect of running the program. The IDB outsourced the administration and technical support of IVEN to a specialized firm, which by all accounts performed well, despite frequent episodes of economic and political instability that created serious problems for the timely and coordinated advancement of the project. At almost any given moment during the two years of implementation, some serious economic downturn or prolonged political transition undermined the ability of at least one of the five participants (and sometimes more) to stay abreast of the program. In more than one instance, an entirely new administration replaced the team working on the project, making the need to train the new team unavoidable.[2] So one lesson from the IVEN project is that in a context of economic and to some extent political volatility, the execution of projects that require joint activity in a number of countries can face serious challenges. There is no quick fix for this kind of problem, yet its existence only serves to underline the importance of the leadership and commitment of international organizations in providing certain regional public goods. In a way, program continuity turns out to be a regional public good that multilateral organizations are best positioned to provide.

[2] Alvariño (2002) provides a detailed review of the impact and implementation issues of the IVEN technical cooperation project. The original project included funding for this evaluation as well as for the design of the evaluation that countries would have to use to assess the pilot implementation of the instructional modules.

The University of the West Indies Development Program

In 1992, the IDB approved three lending operations under the umbrella of a single strategy and development program aimed at strengthening research and teaching, as well as expanding access to the University of the West Indies. In order to attain these objectives, investment projects were designed for the Cave Hill campus (Barbados), the Mona campus (Jamaica) and the St. Augustine campus (Trinidad). Given the dispersion of the main campuses of UWI across three sovereign borrowing countries, three loans had to be put in place, with each country responsible for the corresponding share of the loan directed at its own campus. The entire investment project amounted to $85 million, including a $56 million IDB loan and $29 million in counterpart funds from the countries, which in turn included financing from the Caribbean Development Bank.

The Caribbean has traditionally suffered from low tertiary enrollments, and because other levels of education were strong, a bottleneck was created by the early 1990s in access to higher education. In addition, Caribbean countries understood that their development opportunities were increasingly linked to creating a critical mass of highly qualified human resources who by necessity would be highly mobile across the different nation states, and at the same time able to connect their countries to larger economic trends (IDB, 1992).

The University of the West Indies was founded in 1948 in Jamaica as a college of the University of London. It was declared to be a regional institution in perpetuity by a resolution of the heads of government of the Commonwealth Caribbean in 1991. By that time, the need had become clear for a significant development program to increase enrollment, particularly in natural sciences, and to enhance research capacity. The IDB project tackled those problems through considerable investments in infrastructure, advanced training for professors, research, and institutional strengthening.

After considerable delay in its start-up, the program was executed as planned, managed from a single central coordinated unit. The IDB Project Completion Report found that the program achieved its original objectives, and that it even produced significant outputs beyond what was originally planned, particularly in terms of physical plant expansion and enrollment growth. The development of enhanced research capacity was probably the less clearly attained goal, yet it is also the one most difficult to observe within the limited time frame and scope of the evaluation. Consistent country commitment and effective coordination among different countries and teams were found to be the most important characteristics of the project that contributed to the success, as well as the high competence and continuity of the professional staff hired by UWI to manage project execution (IDB, 2001).

What makes this operation relevant to the discussion in this chapter is that it stands out as the only case of an education lending program that had benefits to several countries—the Anglophone Caribbean, including six IDB borrowing countries, plus nine other countries that provide support for UWI, and still others that enjoy special relationships with it. The program was financed not through regional technical cooperation funds, but through regular lending operations closely coordinated in what might be called a "one project, three loans" initiative. As an official document puts it: "The pattern of relationships between universities and countries is by and large 'many to one,' in some cases becoming 'one to one' . . . The Universities of the West Indies is unique in having a 'one to many' relationship with the countries in which it operates" (Commonwealth Universities Yearbook, 1990, quoted in IDB, 1992).

There are reasons, then, to think about the educational services produced by UWI as a regional public good for the Caribbean. By the early 1990s, higher education was, to say the least, a semi-public good that was adequately provided in terms of output and quality for a series of countries in the Caribbean. The IDB-financed UWI Development Program, a product of concerted initiatives from the countries involved, tackled the issue of providing tertiary education and took it to a whole new level.

Other than the fact that the experience of this program sends a positive message in terms of the feasibility of coordinated international action in education, the outstanding issue is that, as an instance of the "one project, several loans" model, it remains quite exceptional in the history of IDB-financed education initiatives. Given that the clearest objection to the financing of regional programs with loan resources is that an international entity cannot offer a sovereign guarantee as can a national treasury, the notion of a coordinated project financed by multi-country loans seems particularly appealing as an alternative. The issue then is why the UWI is such a unique program, which in turn suggests the related issue of whether in times of growing demand for regional public goods in education this type of financial architecture could be applied more widely. Arguments about the uniqueness of the Caribbean as a region or the UWI could easily be provided, but they can hardly be taken at face value given that one of the characteristics of Latin America from a regional public good perspective is precisely that few languages are spoken and there is a largely shared culture and history. The question, then, remains unanswered, and should figure prominently in discussions about the possibility of multilateral financing of regional public goods.

The closest kind of operation that can be found in the history of the IDB seems to be the financing of scholarships to students region-wide to attend advanced training in public administration at regional centers of excellence, actions that were clearly intended at least in part to support and strengthen such centers. These initiatives, however, were fi-

nanced using nonreimbursable resources instead of loans. They also required technical cooperation funds in amounts far beyond the current possibilities of the IDB, so it remains in serious doubt whether this avenue remains a practical option for the financing of regional public goods or, in particular, for initiatives aiming at strengthening regional centers of excellence.

Conclusions

In their extensive review of the conceptual framework of regional public goods, Arce and Sandler (2002) state: "The initial step toward RPG [regional public good] provision requires a consensus that collective action is in the interest of the states involved . . . Even where there is a consensus on the need for action, the incentives for regional action in developing areas can often be less than those for action to create GPGs [global public goods] . . . [T]here is often little or no leadership from dominant countries or from multilateral institutions for RPGs . . . [and] there is no nation or multilateral institution that has the wherewithal to identify and bring together the necessary stakeholders to tackle RPG provision" (p. 32).

The initiatives described in this chapter have shown quite precisely how the IDB has responded to the articulated demands of groups of countries for regional cooperation on education, and it suggests that, beyond its natural role as provider of financial support, the Bank has exercised leadership in encouraging coordination among countries for the purpose of providing regional public goods. Coordination and joint action among countries is not free of serious transaction costs, yet this serves the purpose of underlining the importance of sustained commitment on the part of donors and international organizations. In any case, the experience of the IDB in the 1990s indicates that such obstacles can be overcome.

As a key player in international cooperation on education in Latin America, the IDB has mostly used nonreimbursable resources to finance its regional programs. In exceptional cases, such as the financing for UWI, it has used ordinary loan funds. Given the growing demand for financing for regional public goods in education—articulated explicitly in the requests for support regularly formulated at summits of ministers and heads of state—this "toolbox" deserves reconsideration.

Technical cooperation funds have been declining steadily over the past decade, which suggests that there is a widening gap in the demand for regional public goods in education and the ability of the IDB to finance its supply. In addition, given that such resources are ever more scarce, serious problems arise in terms of producing the right level of funding for certain initiatives, which compromises the ability of the Bank to stay in-

volved in certain projects beyond a highly constrained time span. As an illustration, current conditions make it unlikely that the IDB today will make a commitment, as it did in the 1980s and early 1990s, of over 10 years and somewhere between a million to several million dollars for the production of a particular regional public good in education. The fact remains, however, that such commitments and levels of funding could still be necessary and will likely to be even more necessary in the future. The cases reviewed show that some regional public goods just will not be produced—regional comparative assessment testing is a clear example—in the absence of sustained donor commitment.

In the case of lending operations to support regional public goods, the issue is not the scarcity of resources, since the IDB has committed itself to increase the share of resources dedicated to education, but the difficulties of using this tool in regional programs. The UWI program shows that such difficulties can be overcome, yet the fact that it is an exception suggests that some serious consideration is overdue regarding the real usefulness of this tool in the support of regional public goods. The combination of nonreimbursable and loan resources used to support IVEN suggests, in turn, that still other combinations are feasible when there is a mix of regional and national public goods in the context of a particular initiative. Thus, any rethinking of tools to support regional public goods should be approached with an open mind. The situation depicted by Arce and Sandler may not be an accurate representation of the history of the IDB's involvement in regional public goods in education, but it has to be seriously considered as a possible future scenario, unless some deliberate effort is made and some creativity exercised.

Last but not least, the very possibility of exercising leadership and playing a proactive role in articulating demands, promoting cooperation and mobilizing resources regarding the production of regional public goods in education rests to a large extent on the ability of the IDB to strengthen internal technical capacity in education policy analysis and applied research, as well as maintain open channels of communication with education authorities in borrowing countries.

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CHAPTER 19

Mobile Populations and HIV/AIDS in Mesoamerica: A Case for Regional Public Goods in Health

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To ensure more efficient use and equitable distribution of scarce resources, public health initiatives—particularly joint technical and political cooperation between different countries in various regions of the world—must improve the social conditions that increase vulnerability to HIV/AIDS. The key concern of the Mobile Populations and AIDS Project is to develop and evaluate HIV prevention interventions appropriate to the social, political and cultural conditions of Mesoamerica, which includes Central America and Mexico. HIV/AIDS cannot be confined to political borders, so the project's regional orientation is designed to address the fact that there is considerable mobility within and between countries in Mesoamerica.

The project aims to generate information for decision-making about HIV/AIDS in the region, build capacity among local stakeholders, and develop interventions that address structural aspects of migration and vulnerability to HIV infection, such as human rights and economic development. The project provides an innovative technical cooperation model for regional collaboration in which available scientific, operational and technical capacities are deployed to develop appropriate responses to national and regional contexts. Phase two of the project will implement and evaluate interventions with a view towards replicating them in similar contexts of vulnerability.

Finally, the project generates a body of knowledge that is generally non-rival and nonexcludable in its consumption, and that increases local and regional human and institutional resources. Consequently, the initiative is an example of a regional public good in health. Further, if expected outcomes are met, the project will contribute to reducing HIV infections in mobile and local populations. In a region, and indeed a world, where populations are increasingly mobile and where "health risks anywhere can pose a threat everywhere" (Zacher, 1999, p. 267), reducing HIV infections has an important public good dimension. Characteristics particular to HIV and mobile populations suggest HIV pre-

vention perhaps has greater regional public benefit than might be argued for other infectious diseases. The infectious period of HIV is equivalent to the life of the person living with the virus—without antiretroviral treatment, individuals live approximately eight to 12 years after becoming infected, depending on various factors such as nutritional status. Once present in social networks of mobile or local populations, the number of potential infections branches out exponentially to sexual and drug-using partners, as well as to their offspring. Among mobile populations, long-term potential for transmitting the virus could result in new chains of infection in many countries over a long period of time. Further, conditions of mobility increase vulnerability to acquiring and transmitting the virus.

Social Vulnerability and Migration

Social vulnerability is the relative lack of protection available to a group of people when faced with a potential threat to their health or to the satisfaction of their basic needs. The human rights of members of socially vulnerable groups tend to be less respected because these individuals command fewer economic, social and legal resources (Caceres, 1999, p. 221). The difference between risk and vulnerability is far from semantic: risk indicates probability and refers to individual conduct, while vulnerability is an indicator of social inequity and demands structural responses (Delor and Hubert, 2000; Izazola et al., 1999; Ross and Ferreira-Pinto, 2000).

Mobile populations are socially vulnerable because their basic rights are denied in their homelands, in the countries they travel through, and in their final destinations. In Latin America, both documented and undocumented migrants face a variety of human rights violations during their journeys. However, undocumented migrants generally suffer more and are less able to approach human rights organizations for protection. Further, population movements within a region like Mesoamerica are more complex than expressed by standard concepts of permanent migration (change of place of residence) and temporary migration (migration for work purposes such as cyclical, seasonal or temporary jobs). Consequently, the traditional concept of migration is insufficient to analyze and comprehend the role played by population mobility in the spread of sexually transmitted diseases (STI/HIV/AIDS).

Vulnerability to HIV Infection and Risk Contexts and Behaviors

How does the social vulnerability of migrants contribute to a greater risk of contracting HIV/AIDS? Studies of diverse migrant populations have identified various factors that

mediate the relationship between migration and HIV/AIDS. One common finding among mobile populations in Mesoamerica is that although a high percentage know AIDS exists and have knowledge of some forms of HIV transmission and prevention, they report frequent high-risk behavior, indicating that vulnerability is not an outcome of ignorance, but rather a particular social context (Bronfman et al., 1999; Madrigal, 1998a, 1998b). Several studies have found that migration results in significant changes in the living conditions of male migrants, and can result in modified sexual behavior and the adoption of high-risk practices (Bronfman, Sejenovich and Uribe, 1998, p. 51). In the case of undocumented women migrants, an estimated 60 percent have some kind of sexual experience during their travel, ranging from rape to survival sex to partnership. For example, for migrant women who travel with a "guide," a sexual relationship with him can be a measure of "protection" that significantly reduces not only the price of the guide "service" provided but also sexual harassment by other male migrants. The conditions of subordination in which these relationships occur place the female migrant at risk of contracting a STI or HIV (Caballero et al., 2002).

Studies of commercial sex workers indicate that some are undocumented migrant workers, although failure to emigrate does not seem to be the motivation for entering commercial sex work, and thus one must be careful to differentiate between women engaged in a migratory process and those involved in commercial sex. In Guatemala, an important proportion of commercial sex workers come from Honduras, El Salvador and Nicaragua (Aguilar, 1996). Along Mexico's southern border, most commercial sex workers come from Guatemala, El Salvador, Honduras and Nicaragua and stay an average of three to four months in each country or region, depending on factors ranging from working conditions to the demand for their services (Madrigal, 1998a). Being undocumented and engaging in a stigmatized activity makes commercial sex workers vulnerable to HIV infection and transmission. Undocumented commercial sex workers have difficulties accessing medical and other support services, and their ability to negotiate their working conditions is limited. Stigma causes women to seek locales where their families and friends will not learn about their sex work, which further reduces their access to supportive social networks. Further, mobility prevents commercial sex workers from establishing strong social networks with each other or with local populations. Frequently, women do not exercise control over their mobility; rather, they are moved by brothel owners based on the demand for new women and, in areas where sex work is tolerated but subject to "health regulations" (such as mandatory registration and STI testing), to avoid sanitary control (Dreser et al., 2002).

The aforementioned studies shed light on contexts where migrants are vulnerable to acquiring or spreading HIV during their trip towards their destination, once they arrive at that destination, or when they return home. The "public bad" of HIV transmission

in sending, transit and receiving countries can be transformed into a "public good" that crosses national boundaries to reduce this vulnerability.

Regional Scope and Regional Goods

Programs to prevent HIV and other infectious diseases have been identified as potential regional public goods in health (Bumgarner, 2001; Cook and Sachs, 1999; Zacher, 1999). That regional benefit of preventing HIV infections in mobile populations is an integral component of the Mobile Populations and AIDS Project in Mesoamerica.

As a multi-center study designed to analyze the socioeconomic, cultural and political contexts that give rise to migration and relationships with the vulnerability of mobile populations to STI/HIV/AIDS, the project will develop, implement and evaluate strategies to reduce the vulnerability of local and mobile populations to STI/HIV/AIDS in transit areas within Mesoamerica. The theoretical and methodological foundations of the project are that:

- Local, regional and national political, social and economic actors determine to a great degree the vulnerability of local and mobile populations to STI/HIV/AIDS;
- Organization of and relationships between these actors contribute to contexts of greater or lesser vulnerability;
- While different countries in the region present similar risk contexts, the specific nature of each transit station should be considered in the development of strategies and actions that help reduce vulnerability.

The project is based on cooperation between national AIDS programs, nongovernmental organizations and international agencies. The rationale for this cooperation is that achieving project goals offers both local and regional benefits. The four principal objectives of the project are to (i) generate quality information for decision-making; (ii) facilitate the participation of and interaction between governmental and nongovernmental health care, research and training organizations, and international cooperation agencies; (iii) transfer and exchange technology and scientific information at a regional level; and (iv) mobilize financial resources for health.

The expected results of the project can be assembled into three categories. One set of results is related to developing local capacity—training, knowledge, resources and organizational development—to respond to the problem of HIV/AIDS in mobile populations. Another result is the outcome of country level/transit station interventions, such as increased condom use and other forms of HIV risk reduction by mobile populations and

their sexual partners. Finally, the publication of information and its use in policy development is a third expected outcome.

Development Effectiveness

The Mobile Populations and AIDS Project is designed to strengthen the technical capacity of governmental and nongovernmental organizations to reduce the social vulnerability of mobile and local populations to STI/HIV/AIDS in each country, while at the same time encouraging cross-border collaboration where this entails economies of scale and increased efficiency.

Improving National Policies and Outcomes

The project generates "joint products" that benefit participant countries as well as the region, such as core groups of trained researchers with experience in mobile populations and HIV/AIDS in each country. National capacity building also addresses a fundamental barrier to the consumption of regional public goods, as stated by Arce and Sandler (2002, p. 7): "Just because the benefits are freely available, this does not mean that a country has the ability to take advantage of them." Increasing the ability of local participants to consume public goods also addresses one of the common barriers to egalitarian and effective collective action, to wit, differential strengths among partners.

Specifically, it became evident during the project's research phase that human and institutional resources in the different countries vary widely. Countries such as Mexico, Nicaragua and Costa Rica had research experience and capabilities far beyond that of other countries. Consequently, special consideration was given to providing ongoing research support and assistance to Belize, Guatemala, Honduras and Panama. Researchers from Mexico's National Institute of Public Health (INSP) went into the field to provide support, additional local researchers were hired to complement the team, and team members were brought to the INSP for training in research analysis. Areas in which teams were weaker were strengthened through additional support and training. In the next project phase with national AIDS programs, both local researchers and INSP personnel will provide similar assistance and support in program design and implementation.

Regional-National Interface

A key contribution to the generation of regional public goods by this project has been the identification of mobile populations and HIV/AIDS as a priority by a variety of local, na-

tional, regional and international actors. A common goal and extensive consultations and feedback have facilitated the process and generated national successes that translate into positive externalities for the region.

At the Tuxtla III Presidential Meeting in 1998, Mesoamerican presidents committed to a coordinated approach to the rights of migrants. This agreement provided the high-level political directive for national AIDS programs to develop STI/HIV/AIDS prevention programs for mobile populations. Subsequently, Hurricane Mitch raised the issue of increased migration due to the devastation of several countries' economies, and focused the attention of the international community on the region. The Mobile Populations and HIV/AIDS Project was first discussed in 1999 during a meeting in Geneva of the Joint United Nations Programme on HIV/AIDS (UNAIDS), at which various key players in the fight against HIV/AIDS in the region identified the study of mobile populations as a priority. A decision was taken to begin a discussion with all major stakeholders in order to formulate a research and intervention agenda. In May 1999, representatives from UNAIDS, INSP, the U.S. Agency for International Development (USAID), Mesoamerican national AIDS programs and nongovernmental organizations working with mobile populations met in Tapachula, Mexico. This gathering was supported by the Mexican Institute for Cooperation with Central America and hosted by the Southern Border Institute. INSP was asked to coordinate the project, and an advisory committee was formed. A project proposal was submitted to and approved by the advisory committee, circulated among the stakeholders, and subsequently agreed upon by the national AIDS program directors and the other agencies and organizations involved. The Ministers of Health of the Americas approved the project, and it was presented during the Meeting of Ministers of Health of Central America and the Dominican Republic (RESCAD).

Local-regional feedback has continued during project implementation. INSP was responsible for technical and administrative management of the project, which included defining the conceptual, methodological and technical aspects of the project's guidelines, and supervising and evaluating development of the project in cooperation with the advisory committee at the regional level as well as with officials designated by each national AIDS program at the local level.

All Mesoamerican countries have participated in the Mobile Populations and HIV/AIDS Project, so the initiative is therefore a nonexcludable regional public good. One of the project's positive externalities is cross-border transfer of resources and information. Potential cross-border interventions that would link transit stations in Nicaragua, Costa Rica, Guatemala and Mexico include creation of a local, integrated and multi-user information system to allow for data collection for decision-making and integrated action; development of cross-border health services and campaigns; and provision of coordinated human rights training for border authorities.

Another positive externality that derives from the project's regional character is the identification of violence, poverty and corruption in all of the transit stations, which has encouraged national researchers and AIDS program directors to address these issues. These social problems contribute to transactional, survival and nonconsensual sex under conditions that put persons at risk for HIV infection. The fact that other countries in the region are experiencing similar problems makes demands for regional and national responses to them more politically palatable.

Regional-Global Interface

The information generated by the project is non-rival, and access cost is relatively low, requiring basically interest, an Internet connection, and the ability to read in English or Spanish. Information regarding the project's methodology, instruments and findings is freely available on the project website at www.insp.mx/migracion. In addition, following the acceptance of a research proposal by the INSP Advisory Committee and Research and Ethics Committee, project databases and in-depth interviews were made available for use by interested researchers who are not involved in the project. Finally, publication of results in book format will promote replication of successful interventions in similar risk contexts.

Innovation

The South-South cooperation model inherent in the project's design and implementation is an important innovation in health research. While in some cases uneven development between countries within a region may be a barrier to the generation and consumption of regional public goods, in this case some of the countries in Mesoamerica (Mexico and Costa Rica) are well positioned to share resources, knowledge, and technology with their neighbors. As has been pointed out by Ferroni (2002) and others (Bumgarner, 2001; Cook and Sachs, 1999), cooperation in research and the sharing of knowledge, particularly related to infectious disease, are key ways in which regional cooperation can complement national measures. Opportunities to share technology, resources and knowledge across very different contexts are an important part of the project's contributions to the region.

Another innovation is addressing structural as well as behavioral aspects of migration and vulnerability to HIV/AIDS. Examples are a skills development component to generate supplemental/alternative income in Belize, and income generation to subsidize and sustain health services in Costa Rica. As the AIDS epidemic is a serious threat to poverty reduction and sustainable development, the project's end goal of reducing mobile

populations' vulnerability to HIV infection and transmission constitutes a structural intervention.

Challenges

The need to address HIV/AIDS in mobile populations has been identified as a priority at the national, regional and international levels, and the project design involved extensive consultations with stakeholders from all of those levels. Further, the project has devoted considerable resources to strengthening local capacity to enable all of the participating countries to benefit from the regional public goods produced. Arce and Sandler (2002) identify the legitimate representation of the countries affected as an important challenge in the successful provision of regional public goods.

Partnerships

The countries involved in the project were consulted and participated throughout the process of design and implementation. In countries where capacity had to be strengthened in terms of research personnel and infrastructure, project coordinators offered training and resources to ensure that those countries were equipped to benefit from the regional public good of increased information for health decision-making, and better equipped to implement interventions to improve the health of mobile populations. Concordance between national and regional goals and strengthening of the capacity of weaker members of the partnership have been important in helping the project overcome some of the challenges of collective action.

The process of partner selection, as well as the implementation of the research and intervention phases, illustrate how the partnership functions. INSP worked with diverse research partners ranging from universities to NGOs and external consultants chosen by national AIDS programs. Partners were selected based on their comparative advantage (knowledge of mobile populations and familiarity with health research) and legitimacy (acceptance by the national AIDS program and regional recognition for high research standards).

Implementation of the research protocol and development of country-level interventions involved intensive collaboration between the regional coordinating body (INSP) and country-level stakeholders, as well as interregional collaboration. INSP developed a project protocol that allows for input from each country throughout the life of the project. The research teams communicated through electronic media (web-based and e-mail) and face-to-face meetings. The teams first met in October 2000 to develop standardized

research instruments and establish common fieldwork procedures. In March 2001, the research groups met to share progress reports and learn to use ALTAS TI, a software tool for qualitative analysis. A third meeting was held in Acapulco to exchange results and craft a regional chapter for the book on research results that will soon be published. A fourth meeting was held in November 2001 during the Central American AIDS Conference in Guatemala to exchange the final book chapters.

The coordinators of the various research teams formed a technical group (the Mesoamerican Network for Research on AIDS and Migration) that exchanges information on the project's development with the aim of improving local operations. The coordinators of each research team have kept the national AIDS program informed about the project's development in a way that favored close communication with local organizations. At the same time, coordinators were responsible for making technical reports to the project's head office, the national AIDS program and the local organizations that participated in the project. The local research team will continue to provide technical assistance during the design phase of the intervention and will monitor and evaluate the process and outcomes of the intervention.

During the implementation phase, INSP will work with the national AIDS program in each of the eight countries. After each national AIDS program has had an opportunity to review the findings and suggestions for implementation from the local research team's extensive technical report, they will receive initial funding to design an intervention. Each national AIDS program will also receive extensive technical assistance and support from INSP and the local research team. All the national AIDS program directors will meet to discuss the interventions, encouraging cross-border collaboration.

Project Coordination

The UNAIDS Collaboration Center at INSP is particularly well suited to house this regional project because it fulfills the subsidiarity principle (Kanbur, Sandler and Morrison, 1999), which is to say, the center's geographic and sector mandates are the best fit for HIV/AIDS research and programming in Mesoamerica. The center has ongoing communication with HIV/AIDS stakeholders throughout the region. As an educational and research institution, the INSP is connected with many of the schools of public health in the region, and many high-ranking health officials in the region are graduates of the INSP School of Public Health. Through its Multidisciplinary HIV/AIDS Certificate Program, the INSP has trained and continues to work closely with governmental and nongovernmental experts on HIV/AIDS from the region. In addition, the INSP houses various regional HIV/AIDS projects and networks such as the "Julio Barrios" Latin American and Caribbean Network for Strategic Planning in HIV/AIDS and the Latin American Working Group on Women and HIV/AIDS.

Financing

The financial costs of the project are borne and benefits shared without respect to the contribution of individual nation states or donors. The project received financial and strategic support from various international and national agencies. UNAIDS provided a small but strategically important amount of seed money and provides ongoing funding. USAID support of the project has been steadfast from both the Mexico Office and the regional office in Guatemala. The Ford Foundation was particularly interested in the academic implications of the project, financed the initial research team meetings, and will be financing publication of the results in book form. The International Organization for Migration provided important in-country support and financed the participation of a migration expert who served as a consultant on the project. Finally, the National Council for Science and Technology (CONACYT), a research funding agency in Mexico, provided financing for the Mexican research component, freeing up money for other sites. The Regional AIDS Initiative for Latin America and the Caribbean (SIDALAC) underwrote a tour of Central America to present the results of this study. More recently, the Inter-American Development Bank has approved a grant to support the project's intervention phase as well as monitoring and evaluation. In sum, sources of financing for the project include a healthy mix of national, regional and international agencies from both developed and developing nations, as well as nongovernmental and governmental organizations and financial institutions.

In his literature review, Stalgren (2000) notes the difficulty of financing regional public goods. The Mobile Populations and HIV/AIDS Project has benefited from the fact that donors and recipients are geographically linked through the phenomenon of population mobility, and can perceive their common interest in generating the public good of reducing vulnerability to HIV/AIDS among this population. In particular, as a receiving country of migrants and mobile populations from Mesoamerica, the United States has an interest in efforts to control HIV/AIDS in these countries, and particularly to reduce HIV/AIDS among mobile populations.

Monitoring and Evaluation

The process and results of the interventions in each one of the contexts under study will be evaluated. Indicators will be developed to monitor project implementation as well as the short- and medium-term impacts of each intervention. In each locality, the different actions undertaken, the form of implementation used, the population reached, and the outcomes for local and mobile populations as well as social or political organizations will be identified. Evaluations of short-term impact might include changes in terms of norms

and regulations, training of local staff, coverage or dissemination of information, and attention to and analysis of the human rights of mobile populations and people living with HIV/AIDS.

The project will analyze plans to ensure the sustainability of its actions as well as the cost of implementation in the short and medium term. It is too early in the process to know if this regional project has generated sufficient beneficiary "ownership" to ensure the sustainability of the program. The major donor (USAID) has been a catalyst in ensuring the sustainability of the project, while other sources of funding have enabled the project to grow.

Conclusions and Recommendations

If one envisions a typology of public goods in health categorized by origin and impact, assigning the least desirable score (4) to projects that are initiated at a regional level but have only national impact, a slightly better score to projects that arise and have impact in the national context (3), a good score to national projects that have a regional impact (2), and the best score (1) to projects that are regional in both impact and origin, it is clear that the Mobile Populations and HIV/AIDS project is an optimal regional public good.

	National impact	Regional impact
National origin	3	2
Regional origin	4	1

The public aspects of this regional good are nonexcludability, in that all of the countries of the region participate and participation of one country does not prejudice another, and non-rivalry, in that the information generated by the project is available for a minimal fee.

The nature of the health problem addressed by the project—HIV/AIDS, a communicable disease that respects no national boundaries—and the target group (mobile populations) require the creation of regional public goods in health. Fortunately, the nature of the disease and characteristics of the target population encourage national, regional and international stakeholders to perceive reducing vulnerability to HIV infection among mobile populations as a common interest, and thus promotes willingness to generate information and interventions that can be considered regional public goods. The identification of a common goal by local and regional actors from various sectors (national AIDS programs, local nongovernmental organizations, executive branches of national governments, academics, and local, regional and international donors), and incorporation of

these actors into a lengthy consultation process to develop the project, is contributing to the project's success. Continual communication between the diverse partners can be considered a lesson learned about promoting the production of regional public goods. Selection of a regional coordinating body such as INSP that fulfills aspects of the subsidiarity principle also is key to the success of this project.

The project increases the regional capacity to respond to HIV/AIDS among mobile populations by increasing national capacity in the form of trained scientists and better-equipped national AIDS programs, and by creating an appropriate national-regional-international interface to support the production and consumption of the information and interventions that are regional public goods in health. National and regional objectives intersect, and national successes increase both the generation of and potential to consume regional public goods.

To conclude, specific characteristics of the disease (HIV), the population (mobile), and the intersection between mobility and vulnerability to HIV infection and transmission demand the production and consumption of regional public goods in health. Regional, local and international prioritization of the issue, extensive communication and consultation, partner capacity building, and selection of an appropriate coordinating body have enabled the Mobile Populations and HIV/AIDS Project to respond to this need.

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CHAPTER 20

Mobilizing Nutritional Improvements as a Regional Public Good

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Human capital improvement is an essential goal of economic development. Development partners such as the Asian Development Bank (ADB) place strong emphasis on human capital policies that extend opportunities for growth and share the fruits of development with poor mothers and their children. Healthy children will be more productive citizens.

Enriched human development may reduce poverty more sustainably than any other approach. Investing in improving the nutritional status of poor women and children strengthens the prospects of long-term economic competitiveness and the future quality and productivity of the labor force. Resources that help families meet the health and nutrition needs of infants and toddlers develop the human brain and its capacity for curiosity, reasoning, inquiry and social conscience. Proper health and nutrition of preschoolers contributes significantly to children's readiness to learn in primary school.

This chapter first looks at the deplorable state of health and nutrition of Asia's poor, especially women and children. The case is made for shifting emphasis in public nutrition programs from an overreliance on supplementation to the positioning of food-based approaches through public and private sector partnerships. Both fortification of essential foods and the nutrient enrichment of crops through plant breeding ("biofortification") are important strategies at the cutting edge of applied food science and technology. The ADB has chosen these as dual pathways to support nutrition security for the poor. The Bank is leading food fortification programs in 12 Asian nations, and rice biofortification research in four others. Indonesia and Vietnam are involved in both programs. The recent endorsement by the international community of biofortification as the "Harvest Plus" Global Challenge Program for the Consultative Group for International Agricultural Research (CGIAR) deepens the conviction that nutritional security depends on the application of cutting-edge food science and technology. While the ADB has discovered that building regional partnerships is an ongoing challenge and opportunity, there are clear indications that Asia is responding with heightened awareness that improved nutrition is a public good that betokens responsible governance. In short, the region is adjusting well

to the challenge. The roles of policy research and investment planning as public knowledge goods are crucial to building regional consensus for concerted national action.

Nutritional Status of Poor Asian Women and Children

The world's underweight, stunted and micronutrient-deficient children and mothers are concentrated in Asia. Addressing these patterns of harm and lost human potential are a global governance concern, because improving the prospects of poor Asian children will buttress human and international security. The alarming reality includes these facts:

- Six million children under five years of age die each year in low-income Asia, more than half of the 11 million deaths globally. Virtually all deaths would be preventable through improved heath and nutrition. Moderately and severely underweight children account for about 54 percent of the under-five deaths (Pelletier, 1994); the others die from vaccine-preventable diseases (especially measles), pneumonia and diarrhea. Many children who die are low-birth weight babies due to the poor health status of their small mothers. Eleven million Asian babies (one-third of the total) are born with low birth weight each year. Malnutrition and poverty are mutually reinforcing across generations. A child born to the lowest income quintile is twice as likely to die before age five as a child from the highest quintile. Life expectancy for today's newborn in South Asia (62 years) is more than a decade longer than a child born in the 1960s, but is still seven years shorter than for newborns in East Asia and the Pacific.
- Three-quarters of the world's undernourished children live in Asia, specifically 112 million underweight and 132 million stunted children. High child mortality, poor environmental hygiene, low dietary quality for the poor, and poor economic and health status of women explain why half of South Asian children are underweight or stunted, by far the highest rates in the world. The rest of Asia is doing relatively better, but Asian children are getting a poor start in life compared to other regions. The impact on mortality, disability and depressed economic growth—at least 3 percent of GDP according to an ADB study (see Horton, 1999)—is substantial, yet preventable.
- Three quarters of persons in the world suffering from Vitamin A, iodine and iron deficiencies are in Asia, mostly young children and their mothers. Tiny amounts of vitamins and minerals are needed by the human body for normal growth and development and good health. Their absence costs lives, and causes disabilities and mental impairment. Collectively, they damage health, cause death, harm re-

production, reduce intelligence, educability and academic achievement, and lower work productivity and occupational choices. Micronutrient deficiencies interfere with child growth and development, sometimes permanently.

- Of special concern is iron deficiency anemia (IDA), which affects 60 percent of Asian women of reproductive age and 40 to 50 percent of preschoolers and primary graders. This causes up to one-fifth of the maternal deaths in the developing world. Severely anemic women are particularly at risk (Micronutrient Initiative, 2000), and 65,000 women in low-income Asia die annually from anemia, according to Horton (1999). IDA depresses language and reading skills, hence academic achievement, of young students. Little progress has been made in reducing clinical anemia in Asia, with dire consequences.
- As if these losses were not devastating enough, there are insidious, rarely quantified costs that result from deficiency-caused disabilities. These include therapeutic health care; remedial education for the blind, retarded and deaf; custodial care for cretins; limited occupational choices for the mentally retarded, blind and deaf, and anemic workers; and care for motherless children.

The consequences of malnutrition in early life are staggering: high and unsafe fertility, premature death, disability, life-long susceptibility to illness, poor cognitive and learning skills, low achievement in school, low wages, and weak capacity to invest in the quality of the next generation's children."

The economic costs of malnutrition and poor early development are high. Horton (1999) estimates the costs of child under-nutrition to be at least 3 percent of GDP for South Asia; Ross and Horton (2001) estimate the costs of IDA to be an average of 4 percent of GDP for a range of developing countries at different income levels; and the World Bank (1994) estimates the costs of micronutrient deficiencies to be at least 5 percent of GDP. Yet, improvements can be made at low cost if there is political will and a concerted partnership. Judicious investments can improve the health, nutrition and educational achievement of children. Within the region, however, shares of national budgets allocated to mothers' and children's health and nutrition are often low. The children of the poor are especially vulnerable and are often denied access to essential health care, adequate nutrition and basic education.

Food-based Approaches to Support Nutrition and Child Development

The World Health Organization's *2002 World Health Report* cites underweight status in children as the highest risk to health and survival in the world, and iron deficiency ane-

mia as the seventh most dangerous risk to survival. This accentuates the need to address nutrition for child and maternal mortality reduction through food-based interventions in the market, because conventional public health does not integrate risk prevention when body composition is the issue.

While nutritionists tend to classify nutritional deficiencies as "macro" when they relate to inadequate energy and protein, and "micro" when referring to essential vitamin and mineral deficiencies, this is a confusing and false distinction. Both macro and micro deficiencies influence height, size, immunity and brain development, and dietary deficiencies are responsible for both kinds of problems. The successful model for Asia will be twofold: to direct integrated health and nutrition services to poor mothers and children, while building public-private partnerships to raise the quality of diet for all Asians. This amounts to a dietary quality revolution as profound as the "green revolution" of the 1960s. The issue is no longer simply food security based on per capita calorie availability. Rather, it is comprehensive nutritional security based on an affordable diet of high nutritional quality whose outcome is better judged by mental acuity and economic productivity than by mere physical endurance and survival.

The food and seed industries stand poised to make the second green revolution happen within the next decade. The argument presented in this chapter is that three directions for investment surpass all others, optimizing benefits at least cost. First, the fortification of essential foods is a pro-poor investment that will help eliminate micronutrient deficiencies and increase child height and weight through a "dietary revolution" sustained through market-based solutions. Agricultural research, through nutrition-focused plant breeding ("biofortification"), also has great potential. The third pathway is through integrated programs targeting the essential biological and cognitive development of young children, where industry's contribution to complementary feeding of infants is the cutting edge in the food sector. These approaches have low-cost solutions available, if there is the political will to make them happen. This chapter offers examples of ADB leadership mobilizing Asia as a region.[1]

Partnership for Nutritional Security in Asia

The ADB has initiated an agro-industrial partnership for nutrition security in Asia. The ADB's leadership in 14 countries is based on a "win-win" scenario favoring public and

[1] Appendix 20.1 provides a more detailed account of the low costs and considerable benefits of the fortification and biofortification of essential foods consumed by the poor.

private sector cooperation to improve nutrition and reduce poverty as interrelated policy goals. Motivations of both sectors are compelling, if self-evident.

Public Sector View

All the governments in the region endorsed the commitment expressed at the World Summit for Children that several forms of micronutrient malnutrition should be eliminated by 2000, yet the reality is far from that goal. Partnership with the private sector offers the possibility of achieving the goal by 2015 in line with the targets set by the Millennium Development Goals (MDGs). The MDGs are centered on raising the life prospects for poor women and children through nutrition, health and education as human rights. The MDGs include the virtual elimination of infant, under-five child and maternal mortality, severe hunger, and gender disparities in primary and secondary education, as well as the fulfillment of universal primary school enrolment. These goals cannot be achieved without greater investments in maternal and child nutrition, health care, and meeting the comprehensive needs of young children. Cost-effective strategies to meet the MDGs do exist, and the food-based approaches are among them. The public sector should reduce malnutrition early in life to reduce chronic adult disease—underweight children bear double the risk of cardiovascular disease and diabetes—as well as to support safe motherhood, and sustain economic growth through human capital improvement.

Industry View

The private food industry has equally compelling reasons for shifting production to fortified foods if they are profitable. Raising product quality through fortification will stimulate demand for regional products and intensify competition and trade within and beyond the region. Economies of scale for fortified foods, as competitors follow product leaders, will lower prices and enable new consumers to be reached.

Targeting fortified foods to poor women and children will improve the physical and mental development of future generations. Overcoming chronic under-nutrition among the poor will raise education and wage levels and consumer spending. More equitable access and the creation of demand will put pressure on the marketplace. Informed consumers will be heard and the market will adjust.

Social marketing for fortified foods should be a shared public-private responsibility. Giving back to the community always enhances the image of the business community as a partner in development.

There is an equally compelling argument for public interest institutions, led by the Consultative Group for International Agricultural Research, to collaborate with private industry in producing micronutrient-enriched germplasm of globally relevant grains and staples (e.g., rice, wheat, maize, legumes and cassava). Genetic breakthroughs may be imminent through conventional plant breeding and biotechnology, and the deep involvement of the public interest institutions will strengthen the likelihood that intellectual property rights for genetic material will be retained as public goods with universal access.

The ADB'S view is that the convergence of food industry and agricultural research interests may be the most effective partnership for ensuring nutritional security, and as such merits regional deliberation and support.

Diverse Partnerships Target Elimination of Micronutrient Malnutrition

The ADB has launched regional projects to address the four critical micronutrient deficiencies suffered by poor women and children—iron deficiency anemia, and deficiencies of Vitamin A, iodine and zinc. Decidedly, IDA is the most important, and its elimination the centerpiece of the Bank's efforts.

Asia's ability to reduce the alarmingly high rates of maternal mortality and cognitive impairment in children depends substantially on major efforts to reduce IDA. A clear strategy is urgently needed to reduce IDA among women of reproductive age and young children. Their respective risks are death during pregnancy and impaired physical and cognitive development, expressed as delayed speech and reading skills that adversely affect school achievement. Severe IDA causes a substantial proportion of the 500,000 maternal deaths in developing countries.

Regional Initiatives

The ADB is supporting three regional initiatives that focus on public and private sector cooperation to solve the problem of IDA. Regional studies on the fortification of wheat flour and condiments and on rice plant breeding are ongoing, with the expectation that, by 2004, the ADB will lead major initiatives in the region to raise the iron density of essential staples consumed by the poor at affordable prices. A subregional initiative in Trans-Caucasus Central Asia is helping six countries fortify flour and salt through integrated attention to production, regulation, quality assurance and trade.

ADB I: Regional Investment Planning for Fortifying Essential Staples (2001-2003). The regional food fortification project focuses on iron fortification of wheat flour

and condiments such as soy sauce and fish sauce, Vitamin A fortification of cooking oil/margarines, and multinutrient fortification of complementary foods for infants, all widely consumed by the poor in the region. The People's Republic of China, India, Indonesia, Pakistan, Thailand and Vietnam are participating in the project. Iron fortification emerged as a priority at a regional strategy meeting hosted by the ADB in February 2000. Prominent government food regulators and captains of Asian food industries pledged to cooperate in reducing micronutrient malnutrition in the region. IDA was identified as the top priority for concerted action. The project will develop five ten-year country investment plans, informed by regional workshops on food fortification technology, regulation, quality assurance and trade reforms.

ADB II: Flour and Salt Fortification (2001-2003). The second regional activity, supported by the Japan Fund for Poverty Reduction, responds to the breakdown in production of fortified flour and salt in Trans-Caucasus Central Asia. The project has set up production systems and strengthened capacity for improved regulation, quality control and trade of fortified flour and salt so that poor women and their children will get adequate iron and iodine through daily consumption of these staples. The beneficiary countries are Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan and Uzbekistan.

ADB III: Rice Biofortification for Nutritional Security in Asia (2001-2004). The third regional strategy is rice plant breeding through a donor consortium led by the ADB. A three-year research study that ended in 2003 is testing promising rice varieties with high iron and zinc density to ensure that their yield is adequate, that the iron and zinc are bioavailable to consumers, that consumers are willing to eat the varieties, that production and dissemination of the new varieties is feasible for national agricultural research systems and seed companies, and that the rice will be affordable to the poor. The beneficiaries are Bangladesh, Indonesia, the Philippines and Vietnam.

ADB I: Regional Investment Planning for Fortifying Essential Staples

The potential for regional partnerships was dramatically demonstrated at the Manila Forum on Food Fortification Policy held at ADB headquarters in February 2000. Country teams attended from China, Fiji, India, Indonesia, Kyrgyz Republic, the Philippines, Thailand and Vietnam, led by captains of the food industry and government health and food officials. The Manila Forum reached consensus on a regional strategy that will establish fortified foods as the standard for a range of staple foods widely consumed by large segments of the population, especially the poor. These staple foods include salt, flour, oils, baby foods, condiments, sugar and dairy products. If implemented, this strategy will maximize the reach of micronutrients to those who need them most.

Beginning in 2001, five countries representing East and West Asia joined the ADB in creating an investment planning framework for raising the prospects of a modernized food industry geared to providing fortified, low-cost essential foods for Asian consumers at a high enough quality to raise Asia's credibility as a global trading partner.

The project has developed 10-year country investment plans that attract both public and private sector funding for food fortification programs in five Asian nations—Vietnam, Thailand, China, Pakistan and Indonesia. To achieve this goal, the project requires comprehensive program planning and budgeting within each country, informed by international consultant missions and a series of regional workshops establishing a high baseline for agreement on the technical, legislative, regulatory and operational dimensions of successful food fortification. The ADB contracted the Keystone Center of the United States to help implement the project, advise on the country investment plans, and assist in the resource mobilization exercise that will transform the plans into actual commitments to improve nutritional status in the region.[2]

Some of the project's significant achievements to date have included the following:

1. *Mobilization of new public-private steering committees for research, planning and advocacy within each participating country.* At the project's inception meeting in August 2001, multi-sector country teams were formulated to conduct situation analyses and data review, consider needed policy and regulatory reforms, and undertake the financial analysis and political mobilization necessary for the investment plan. In many cases, the formation and operation of these teams created productive new relationships between government, industry and academia, with great potential for civil society organizations to be added to the mix going forward.

2. *Successful staging of four regional capacity-building workshops for delegations from participating countries.* The workshops focused on (i) how countries can realize the universal salt iodization goal (to eliminate iodine deficiency disorders) based on China's success; (ii) fortification of wheat flour and edible cooking oil; (iii) fortification of complementary foods for infants; and (iv) regulation, quality assurance and trade of fortified foods with capacity strengthening for nutrition surveillance of at-risk groups for program planning. The workshops on flour and oil and on complementary foods established a baseline of information on food fortification technologies, including equipment, fortificant options, efficacy, bioavailability, quality assurance procedures, research needs and costs. The workshop on regulation, quality assurance, surveillance and trade proposed a template framework for national food control systems and a general proto-

[2] A summary prepared by the Keystone Center served as the basis for the account here of the project.

col for epidemiological assessment of populations' micronutrient status; reviewed the legislative and regulatory implications of new fortification programs; and identified the compliance requirements and customs reforms needed to certify and trade fortified foods under the Codex Alimentarius standards for food safety and WTO rules of commercial engagement.

3. *Development of regional consensus statements.* Together the workshops generated consensus statements for regional and national action on flour fortification; cooking oil fortification; and regulation, quality assurance, surveillance and trade of fortified foods. Key points to which delegates from the countries agreed in these three statements included the following:

- Micronutrient deficiencies are causing serious damage to social and economic development through poorer pregnancy outcomes, impaired cognition (especially in young children), reduced work capacity, and increased morbidity and mortality from infectious diseases.
- Improved nutrition is one of the key ways to reduce poverty and improve the quality of human resources, contributing to sustained economic and social development.
- Food fortification offers an effective, low-cost and sustainable approach to reducing the prevalence of these deficiencies.
- Collaboration between government, the private sector and civil society is the key to sustained and effective implementation of food fortification to reduce micronutrient deficiencies. Mechanisms should be defined collaboratively that pass all costs of fortification programs to the consumer as soon as is feasible.
- Cost-effective regional production and distribution of fortification-related technology must be achieved through partnerships with regional and global suppliers.
- Financial and capacity-building incentives must sustain food fortification and its expansion to other essential foods widely consumed by the poor. Public incentives must enable the production sector to expand affordable product lines to at-risk children. Industry should be encouraged to introduce multi-tier pricing for products directed to less affluent market segments without compromising on product quality.
- All flour and edible oils used in the preparation of staple foods and consumed by at-risk populations in the region should be fortified by 2006.
- Fortified complementary foods must be integrated into public health and development programs, with clear linkages to all key child nutrition strategies, including breastfeeding, childcare, hygiene and maternal health and nutrition.

- Complementary foods, cooking oil, and white and unrefined brown flours should be fortified using specified basic packages and levels of micronutrients as a reference point.
- Regional centers, expert committees and other mechanisms must be developed or retooled to finance, develop and review regional consensus on research and development in critical areas such as the micronutrient impact on organoleptic characteristics and bioavailability, comparative bioavailability, stability, new packaging materials, and consumer acceptability and affordability.
- Public policy and behavioral barriers to expanding production and marketing capacity by enterprises of varied sizes must be reviewed.
- Customs protocols and trade regulations should be enacted or revised to facilitate the import and export of certified and safe fortified foods.
- Taxes and duties on inputs to fortification as well as taxes on domestically produced fortified food products should be minimized in the case of mandatory fortification programs. The proposed suspension of all tariffs on fortificants and fortification technologies should be referred to the appropriate ministries.
- Countries in the region should enhance current regulatory frameworks and build capacity to implement food control and enforcement functions in a systematic, transparent and fair manner.
- A regional food control and quality assurance framework should be established through new and existing institutions to accredit laboratories, train trainers of inspectors, analysts and technicians, harmonize standards, and promote fair and transparent regional trade.
- A regional surveillance framework should be established that features common guidelines, an adequately staffed regional reference laboratory and individual country laboratories, and means for the bulk purchasing of lab kits.
- Reliable and regionally equivalent data on population micronutrient status should be produced through the use of common protocols and methods, standardization of representative cross-sectional surveys of sufficient sample size, targeting of surveys to parallel population groups, and use of common biochemical indicators.
- Intermediate surveys should assess the household and intra-household use of fortified foods and periodically reassess individual biological indicators when coverage meets accepted goals, particularly for people in target at-risk groups.

4. *Identification by each country of food vehicles, priority micronutrients, and levels of added fortificants to sustainably reduce prevalence of micronutrient deficiencies.* All coun-

tries have agreed to intensify efforts to reach Universal Salt Iodization as a firm commitment endorsed by the UN General Assembly Special Session on Children (2002). Specific plans for each country take into account food preference and prevalence of malnutrition, with an eye to national expansion of fortification of certain food vehicles and to poverty targeting in particular subnational regions. Indonesia will undertake large-scale fortification of cooking oil (largely palm oil) with Vitamin A, and fortification of flour with iron, folic acid, zinc and B vitamins. (This program was already in place, but will be significantly promoted and sustained through the country investment plan process.) In addition, Indonesia will propose a program for bulk distribution of a fortified, low-cost complementary food. Pakistan will fortify wheat flour, the predominant staple food, with iron and folic acid, and invest further in a previously mandated effort to fortify vanaspati ghee and edible oil with Vitamin A. China will combine multiple fortificants in a flour fortification program initially targeted toward the rural western population, fortify soy sauce with sodium iron EDTA, and fortify oil with Vitamin A. As it expands, the oil program is designed to follow the soy program across the country. A strategy for complementary foods is also being considered. Thailand will fortify fish sauce with iron, iodine and citric acid; complementary foods (dried, pre-cooked, ground rice) with iron, Vitamin A and calcium; wheat flour with iron and folic acid; and vegetable oil with Vitamin A (since consumption covers almost 100 percent of the at-risk population). Vietnam intends to fortify fish sauce with iron EDTA, flour with iron, and oil with Vitamin A. Vietnam also proposes to fortify complementary foods with multiple micronutrients in an innovative private sector franchising program in non-affluent rural communities. In addition, each country has identified at least one subregion/province/state where poverty is concentrated, and the plan will emphasize implementation of its mix of fortified food vehicles on a subregional basis. Examples are western China and northeast Thailand. Together, these programs promise substantial benefits for the region. For instance, Pakistan's oil fortification program, if rejuvenated as planned, projects to save 248,000 lives and more than $3 billion in health care costs over a 10-year period, and its flour fortification program projects more than $3 billion in productivity gains over the same period. Over 10 years, the Indonesian flour program projects to avert more than 75,000 child deaths and create economic benefits of more than $850 million.

5. *Development of rigorous analytical tools for deriving costs and benefits of specific fortification interventions.* These include templates for assessing government food control and surveillance costs; a template updating USAID's Profiles (a benefit-cost spreadsheet) for assessing the national costs of vitamin A, iron and folic acid deficiencies; a methodology for assessing additional micronutrients delivered via fortification; a methodology for estimating reduction in prevalence to be gained via fortification; and a template for ana-

lyzing projected reductions in prevalence and costs to arrive at benefit-cost ratios and internal rates of return.

6. *Development of draft country investment plans.* All participating country teams have submitted second drafts that have been reviewed by a cross-discipline team made up of Keystone and ADB representatives. These drafts contain a detailed problem analysis, articulation of the key components of proposed food fortification programs, and 10-year budgets for each major project. Some drafts have begun to develop full benefit-cost analyses. The country investment plans for five countries were completed in 2003, and vetted by the countries' respective finance ministers. Donor dialogue has been productive. The Global Alliance for Improving Nutrition (GAIN), a Gates Foundation initiative, has financed implementation of fortification programs under the China and Vietnam country investment plans. GAIN and the ADB are working closely on proposals for pilot testing of a range of processed foods, including efficacy trials for subsequent scaling up.[3]

ADB II: Salt and Flour Fortification in Trans-Caucasus Central Asia

With support from the Japan Fund for Poverty Reduction, the ADB has partnered with UNICEF to support the creation of the policy and regulatory environment for introducing iodine, iron, folic acid and other trace minerals and vitamins into the daily diet of poor mothers and children in Central Asia and parts of the Caucasus through salt and flour fortification. The objective is to reverse the trend since 1989 toward mental retardation in children and the deteriorating health of women of reproductive age in the former Soviet Republics.

Some of the positive outcomes to date of the salt and flour fortification initiative have included the following:

1. *The Almaty Roundtable (October 2001)* brought together national coalitions made up of advocates for women and children in the region; public sector leaders in health, education, agriculture, industry and trade; captains of the salt and flour milling and baking industries; civil society, represented by women's and consumer federations; nutrition scientists; and elected leaders from parliament and the executive offices of the president in the six countries. The participants endorsed, as a regional delegation, the consensus statement on universal salt and flour fortification that has guided the project ever since (see Appen-

[3] For a summary of the costs and benefits of food fortification, see ADB (2003).

dix 20.2). These national coalitions have guided the project, with all partners in the coalition eligible for project resources to carry out their national plans of action.

2. *Fortified flour and salt are both national and regional concerns.* The roundtable achieved its aims for consensus and support for concerted action by all participating nations. Parliamentarians and representatives of national executive branches worked to pass harmonized legislation on universal salt iodization and flour fortification. Inspection and enforcement systems are being strengthened. Finance ministries, in most cases, agreed to waive tariffs on fortificants and fortification technology and value-added taxes on fortified food products through 2004 as an investment in the health and development of children, and as an incentive to the food industry to continue fortifying products after the project.

3. *Pledges to fortify.* Participating countries pledged to reach at least 66 percent coverage of families consuming iodized salt and 33 percent consumption of fortified flour within the project. The targets are likely to be reached.

4. *Agreements on standards.* It appears likely that all countries will reach agreement on standardized methods of fortification, levels of fortificants, regulation, surveillance, customs protocols and practices to facilitate subregional trade in food products. Six countries adopted the iron-based premix recommended after extensive testing the by Kazakh Academy of Nutrition. The added cost is less than $.0006/kg of processed flour in Kazakhstan. The premix has the logo "KAP KOMPLEX," which will be the accepted label for all fortified flour in Trans-Caucasus Central Asia and meets the requirements of the Codex Alimentarius (see Table 20.1).

The expected impact of salt and flour fortification is the reduction of multiple mineral and vitamin deficiencies; improved intelligence of children; reduced prevalence of maternal deaths, neural tube defects and cardiovascular diseases; and promotion of child growth and immunological protection of poor women and children. UNICEF will continue to monitor the impact of salt iodization as part of its global mandate, and the ADB

Table 20.1. KAP Komplex Nutrient Composition

	Percent by weight
Electrolytic iron	34.7
Zinc oxide	18.7
Niacin	6.3
Riboflavin	2.0
Thiamine	1.3
Folic acid	1.0

Note: Starch and calcium sulphate bring the total to 100 percent.

will conduct folic acid tracer studies with a small cohort of families consuming the fortified flour in all countries, led by the Kazakh Academy of Nutrition in association with nutrition institutes in the other countries. The project has been extended through 2006 with the support of a grant renewal from the Japan Fund for Poverty Reduction aimed at ensuring regional harmonization of regulation and trade protocols for salt and flour.

ADB III: Rice Biofortification for Nutritional Security in Asia

The plant breeding strategy used as part of this initiative offers the opportunity to create an international public good with public health significance through comprehensive benefits to producers and consumers. Given the high payoffs to reducing micronutrient deficiencies and the current reservations about conventional approaches to solving the problem, plant breeding should be tried because of its potential coverage of entire Asian populations deriving most of their consumption from rice, especially the poor. Since the poor consume large amounts of staple foods on a daily basis, nutritionally improving varieties of a high proportion of the domestic production of those staples offers encouraging prospects for improving nutritional status. The breeding strategy does not depend on shifts in behavior or preferences.

The most significant progress has been made on rice, through the policy study on iron- and zinc-rich rice in Asia carried out by the ADB in conjunction with the International Food Policy Research Institute (IFPRI) and the International Rice Research Institute (IRRI). A high-yielding, disease-resistant, iron-rich (after milling) and aromatic variety has been identified and designated IR68-144, which may be released soon to farmers in the Philippines after further agronomic tests and efficacy trials (the latter tests the iron status of iron-deficient humans who consume this rice). Iron density and high yield are compatible goals, as IRRI field trials attest. If this iron-rich germplasm can be distributed to national agricultural research systems for adaptation and testing under local conditions, anemia among women and children could be significantly reduced.

Based on the encouraging prospects for rice germplasm enrichment with trace minerals, the ADB organized a donor consortium to support research for breeding iron- and zinc-rich rice as a low-cost, sustainable approach to reducing iron deficiency anemia and zinc deficiency in Asia. If rice can been found that loads in higher quantities of bioavailable iron and zinc from the soil, remains attractive to farmers in terms of yield, and is acceptable to consumers, then the potential exists for higher household farm incomes and affordable nutrient-enhanced staple consumption by the poor. One important aspect of the plant breeding strategy will be to test methods to reduce the effect of anti-nutrients, such as phytates, and to enhance the effects of promoters of trace mineral bioavailability,

such as complementarity of micronutrients and certain amino acids. Five years of work by the IFPRI and the IRRI indicate that a technological breakthrough is imminent.

The broad objective of the plant breeding project (the biofortification strategy) is to develop high-yielding, high-profit, iron-dense rice germplasm adapted to growing environments in four countries: Bangladesh, Indonesia, the Philippines and Vietnam. Another aim is to organize the institutions and financing necessary for generating a permanent flow of nutrient-improved rice technologies to Asian farmers in the future. In addition to the ADB, IFPRI and IRRI, collaborating institutions are the University of Adelaide in Australia, and the national agricultural research systems of Bangladesh, Indonesia, the Philippines and Vietnam.

More specific objectives are to (i) carry out agronomic research and human nutrition efficacy trials to increase the iron content of seed and iron bioavailability in rice diets; (ii) develop capacity at national agricultural research systems for adapting iron-dense varieties to local growing conditions for eventual dissemination to farmers; and (iii) support economic research to demonstrate the feasibility and cost-effectiveness of the plant breeding strategy; and (iv) prepare a regional investment plan for rapid dissemination of the seed technology to national production systems.

The project targets the poor and would reduce poverty in several ways. First, the agronomic advantages accruing to genotypes that are more efficient in taking up trace minerals from the soil, and that load these trace minerals into the seeds, are realized primarily on trace mineral deficient soils—that is, the less productive soils of less productive farmers. Second, and more importantly, it is women and children from the poorest households who suffer most from poor dietary quality. Treating anemia in women and children in these poor households through enriched cereal diets lowers the risk of maternal mortality during pregnancy and childbirth, increases the capacity of these women to perform strenuous chores, and improves the cognitive abilities and health of children. These outcomes all serve to improve individual welfare and increase incomes of the poorest households in both the short and long run. Poor women benefit in particular because of the elevated requirements of women for iron during their reproductive years. The combined benefits for human nutrition and agricultural productivity resulting from breeding staple food crops that are more efficient in the uptake of trace minerals from the soil, and which load more trace minerals into their seeds, result in extremely high ex ante estimates of benefit-cost ratios for investments in agricultural research in this area.

Key activities of the ongoing Rice Biofortification Project are:

1. *Screening and breeding activities at IRRI and the national agricultural research systems with technical assistance from the University of Adelaide (Australia).* Primary activities

undertaken to date have included screening germplasm for high-iron rice varieties, crossing of various high-iron lines and advancing those crosses, and conducting genotype-by-environment interaction studies. Dehullers, laboratory mills and whiteness meters were ordered for each national agricultural research system to conduct studies on the effects of milling and cooking for several genotypes. Some promising new high-iron lines have been identified, particularly in Bangladesh and Vietnam.

2. *Feeding trial for adult women in the Philippines to test the efficacy of improvement in iron status.* Intensive preparations were undertaken by collaborators at the University of the Philippines at Los Banos, IRRI, the University of Adelaide, Pennsylvania State University, and Cornell University. Twelve convents are participating, including 300 participants who, on a random basis, are being fed high-iron and low-iron rice varieties. Female field staff were trained and resided in each of the convents where the subjects lived. Deworming was completed, and all subjects consumed the low-iron rice. Feeding of the high-iron rice began in mid-July 2002 and the trial was scheduled to end in July 2003. Analysis of the results is ongoing, but the preliminary findings show positive ferriten levels of the test subjects, with stronger responses among the more iron deficient.

3. *Advocacy/Promotion.* IFPRI continues to organize meetings and seminars and publish documents that promote the strategy to biofortify rice and for all major food staples with iron, beta-carotene and zinc. In March 2002, the Biofortification Proposal was officially accepted by the CGIAR Executive Council for fast-tracking as a "Challenge Program." The biofortification proposal was one of three selected out of a total of about 40 proposals submitted.

Activities scheduled under the Rice Biofortification Project for 2003-2004 included:

1. *Inclusion of Vitamin A in rice biofortification.* The project was to include varieties that are dense in Vitamin A in the program to enrich nutrition for poor children in Asia. Because of the importance of nutrient interactions, adding beta-carotene to rice may do much to reduce iron-deficiency anemia. And it may be possible to breed beta-carotene into rice using conventional breeding methodologies. (Vitamin A, iron and zinc mutually promote each other's absorption, so the nutritional impact would be increased). Screening of 4,700 rice varieties with beta-carotene (from IRRI's germplasm accession list) may raise the nutritional potential of the rice breeding project greatly because it will help eliminate Vitamin A deficiency responsible for child and mother deaths, and help the body better absorb iron. The project's scientific advisor on germplasm screening, the Waite Agricultural Institute of Adelaide University in Australia, will carry out this activity.

2. *Infant feeding trial in Bangladesh.* The trial will use iron-enriched, rice-based complementary food for infants from the Rice Biofortification Project to provide evidence that rice-based food would reduce infant anemia, raise infants' psychomotor skills, and substantially enhance language skills of children ages 3-6 and reading abilities of children ages 6-8. Anemia is responsible for a large proportion of primary school dropouts—one-third of school entrants in many Asian countries. The trial will be community-based, with a matched set of control and experimental sites, and will use a semi-solid and biofortified rice-based complementary food for infants 24-36 months old. A nine-month trial is planned. The interventions will combine both feeding and early psychosocial stimulation and care as independent and integrated approaches to improving nutrition and pre-literate psychomotor skills and cognition in early childhood. This will be the first trial of its kind in Asia. The project thus will address the Millennium Development Goal for primary school completion.

3. *Screening of complete wheat germplasm accession banks for varieties with high micronutrient density, especially for iron.* This will cover South and Central Asia, assisted by the International Maize and Wheat Improvement Center (CIMMYT) and the International Center for Agricultural Research in Dry Areas (ICARDA). Wheat is a major staple consumed in India, Pakistan, Afghanistan and Central Asia. It is important to diversify research activities into additional staple crops as well, both to reach malnourished populations with rice-based diets and to exploit synergies in lessons learned from research on two (or more) crops. Screening of wheat germplasm is justified on the same basis that rice has been screened, i.e., a wide range of micronutrients in wheat and no confounding gene-environment interactions, so that a good result in one ecological setting is probably replicable elsewhere. Initial activities are modeled after the experience already gained with rice.

4. *Economic research and development of a regional investment plan for disseminating iron-rich rice seed throughout Asia.* The aim is to demonstrate feasibility and cost-effectiveness of the plant breeding strategy, and to prepare a regional investment plan for rapid dissemination of the seed technology into national production systems.

5. *Strategic partnerships through an investment roundtable to implement the investment plan.* This will link agricultural research to national food policy formulation that will prioritize dissemination of the rice and wheat biofortification strategies to all major rice and wheat producing nations, with a public-private partnership linking research to the seed industry's investment decisions. Special advocacy will involve civil society partners, including women's groups and the consumer movement. An investors' roundtable for rice biofortification is planned for 2004.

Regional Capacity Strengthening in Public Nutrition

Interestingly, fortification and biofortification efforts at the regional level have prompted five Asian countries to ask that the ADB partner with the International Atomic Energy Agency (IAEA) to improve the capacity of Asian scientists and regulatory specialists to use stable radioisotopes to monitor food quality and safety; ascertain appropriate levels of nutrients for licensing, labeling and certification of processed foods and seeds; and monitor bioavailability through inspection and surveillance. Accordingly, the agencies are completing an agreement that will benefit those countries, and presumably others, in the updating of capacity for applied food science and technology.

This is the first concrete result of a broader capacity-building initiative in life-cycle public nutrition for Asia, led by the United Nations University and the International Union of Nutrition Scientists in collaboration with 10 Asian universities and research centers, with support from the ADB and the IAEA.

The ADB's call for resource mobilization to support regional fortification and biofortification will be linked to resource needs in capacity strengthening, lest the movement of technology be halted by Asia's weak capacity to establish evidence-based policies, programs and strategies.

Positioning the Nutrition Agenda for Sustained Development in Asia

Where regionalism works, it can support a transformation from paralysis to concerted national action. Actions in at least three complex environments must be carefully coordinated, and the collective will to support them strengthened, in order to better meet the needs of poor women and children: the policy environment, inter-agency planning and capacity building, and financial policy and strategic planning.

Policy Environment

Governments are not accustomed to thinking about poor women and children as subjects of investment as such, so the environment to do so must be consciously created. The levels of investment needed to meet the demonstrable need require a paradigmatic shift in thinking about nutrition for the poor as both a public and private responsibility. There must be a national apex agency or an empowered steering committee at the highest level to consider and protect the regulatory, policy and program environment for respecting women and children's rights and meeting their needs. The poor are the moral claimants on government and civil society, which are the duty bearers of those claims.

Inter-agency Planning and Capacity Building

Nutrition often lacks an institutional home, or is relegated to a dusty corner in several power centers whose interests lie elsewhere. Elevating nutrition to a higher level of concern among all the agencies that influence nutrition as an outcome is the challenge—and there is no blueprint. One approach, used by the ADB's Regional Project on Child Nutrition with UNICEF, was to devote serious time and effort to creating national inter-agency steering committees that presided over preparation of 10-year investment programs to sustainably reduce child malnutrition (ADB and UNICEF, 1999). This was remarkably effective in a number of countries, because after two years of preparation the investment programs were generally endorsed by their respective planning commissions. The same approach has been taken on fortification and biofortification, explicitly linked to the MDG targets for 2015.

Financial Policy and Strategic Planning

It should be possible to lay a productivity argument at the feet of the financial powers that be, but a parallel argument on why public finance rules should favor public investment in maternal and child nutrition must also be won. There are five components to the argument. Private claims match public duties when (i) public goods are created in the national interest (e.g., the Expanded Program on Immunization); (ii) markets fail and the public interest must be served even though private benefits are created in the process (e.g., no "free market" for pro-poor programs like primary health care or protein-energy malnutrition control); (iii) externalities exceed private gain (e.g., control of communicable diseases); (iv) "mixed" goods require a public catalyst (e.g., creating an enabling environment for the private sector to fortify essential foods such as staples or complementary foods for infants); and (v) merit goods fulfill national obligations (i.e., meeting the MDGs).

Elements of an Investment Plan for Early Child Nutrition

There are useful, well-tested steps that can guide the creation of a national investment program for maternal and child nutrition by galvanizing the food sector. The approaches below come to mind, but are hardly conprehensive:

- Prepare a public expenditure review and, possibly, national nutrition accounts to identify the investment gaps and dubious corners of the budget where rational reallocation of domestic resources to more cost-effective ends can be justified.

- Present the cost-effectiveness arguments for each nutrition program or intervention, preferably linked to intersectoral outcomes, to build broad ownership among technical and financial/budget agencies. Emphasize the comparative benefits to the individual, family and nation by enabling the private sector to effect a market-based solution based on "sculpted" demand that respects the informed choices of poor women whose judgment will affect their children more than any other.
- Emphasize public and private savings from investment so that all partners see the multiplier effects of blended financing. Ensure the range of demonstrated benefits is suitable to the political setting, and build a stronger alliance for neglected children among the key players.
- Reiterate the economic losses and disease burden impact of inaction. Treading water has a high shadow price. Positioning the opportunity cost of the status quo in relation to official commitments to meet the MDGs, for example, may persuade the backbenchers to act. A disease burden analysis at the national level has two benefits: (i) current and future trends (say, across two generations) can be projected in disability-adjusted life years (DALYs), with the contribution of nutrition recast as the epidemiological transition unfolds; and (ii) the mismatching of current investment patterns and the emerging pattern of life-cycle nutrition-related risks can be vividly portrayed with sharpened debate on a corrective budgetary response.
- Link investment to a life-cycle view of nutrition, so that the inter-generational impacts of malnutrition are clear and related to life-long health. Improving the health and nutritional status of the poor, especially young children, is clearly the top priority today, but those effects may erode over time unless parallel attention is given to addressing the needs of adolescent girls, young mothers, and the working-age population. A strong case can be made that preventing low birth weight and early childhood malnutrition (for children under age 3) is the best intergenerational investment in human development that can be imagined, as long as the life-cycle benefit stream is described and understood by policymakers. Choice of food or seed vehicles should be sensitive to these considerations.
- Identify the core components for priority investment, leaving an R&D budget at all levels of government and communities to test pilots and take corrective action. Without local budgetary authority, formalized decentralization will not work.
- Support child development by merging health and industrial policy. Meeting the special physical and mental development needs of children under 2 is a challenge

for the public and private sectors, whose respective roles include education for improved infant feeding practices and building a viable commercial market for enriched complementary foods (that do not displace breastfeeding). Optimizing the physical and mental development of very young children should be the hallmark of the public-private partnership for nutrition.

- Create demand among the poor by investing sufficiently in public education and social marketing. The importance of social communication cannot be overstressed. All available media should be used to educate the population on micronutrient deficiencies, and on the importance and safety of fortified foods. Consumers should be educated to demand a better product and accept a slightly higher price for that product, as long as the benefits to children and working adults are made clear from improved health, mental development and school achievement, and higher wages. A special gender emphasis is needed so that women as earners, consumers and primary caretakers for children are full participants in creating market demand for fortified foods and biofortified seeds. The design of social communications and public education programs must be targeted to include the poor and linked to the marketing and distribution of fortified and biofortified products.
- Consider the time frame of the investment plan (e.g., 10 years) and then specify what can be achieved and how the investments will be phased. An essential start-up program for national fortification and biofortification could be designed and carefully tested for three years, and then expanded into a comprehensive investment program at a national level. This also provides time to build consensus at all levels of the society. Credibility of the government depends on implementing the structural reform package and using development assistance as a catalytic form of investment in three years, then absorbing the recurrent costs through government ownership.
- Expand the dialogue to include the private sector and civil society. There are community-driven and market-based solutions to sustaining nutrition that government should not attempt to emulate. Government's role is to provide an enabling environment for these primary actors, and to ensure consistent regulation and quality control standards.
- Slice the investment gap pie into central/local, public/private and national/external portions, and conduct consensus-building workshops on how resources will be mobilized and deployed. External assistance, however large, must be seen as a residual of the government's investment program and commitment to governance as measured by the MDGs. Overseas development assistance should be accessed as a last resource and used to stimulate change and sustain continuity.

- Create a structure of accountability for and to the political leadership. Investment in institution building for sustained monitoring of the food and seed industries, advocacy by key constituencies (farmers, women, consumers, NGOs that advocate child rights), and the tracking of progress toward commitments, are all indispensable. Without this, societal attention will drift.

Building a Regional Investment Partnership for Poor Asian Women and Children

From an investment perspective, a major regional effort in Asia to shift public resources toward public-private partnership will promote fortification of staples and complementary foods for infants, and recast the goals of the seed industry to meet human nutrition goals including the MDGs. The ADB remains committed to this effort, and wishes to build through reflective practice on the modest momentum already gained. The task is to disseminate to policymakers information about the status quo costs in terms of lives, disabilities and lost resources, and how beneficial fortification and plant breeding approaches could be applied to ease those burdens. If the commitment to continuity and sustainability by governments is credible and transparent, the donor and professional communities must then provide concerted support.

APPENDIX 20.1

An Investment Bargain: Benefits Of Fortification and Biofortification of Essential Foods Consumed by the Poor[1]

Investment per head in fortifying staples is an order of magnitude lower than highly cost-effective supplementation programs. For example, iodine supplementation per capita for at-risk groups costs 50 cents per year, while fortification costs only five cents per capita per year. Iron supplements for women cost $2 to $3 per pregnancy, while iron fortification of flour is about 10 cents per year. The cost of adding fortificants for essential vitamins and minerals is about 50 cents per person annually. Put another way, the additive costs of fortificants are no more than 3 percent of the $12 per person that WHO recommends countries spend on primary health care. Since micronutrient enrichment is as effective in preventing illness, disability and death as is primary health care, there will be no sensible argument against fortification as long as the public is aware of the benefits.

Summary: Economic Benefits of Fortification Programs

Popkin (1998) demonstrates that the economic benefits of fortification are reduced morbidity, improved work capacity, and improved cognitive effects.

Less morbidity will reduce health care costs and days lost in school or at work; improve school attendance, concentration and performance; and strengthen both production and consumption benefits. Reduced public health and education expenditure, and reduced school dropout and retention rates, will increase the efficiency of public investment for essential social services and free resources for better uses.

The economic value of fortification is expressed in improved work output due to increased work capacity and improved marginal productivity of labor.

Lastly, improved cognitive ability will allow realization of the benefits of education expenditure; raise the number of years of schooling and academic performance; and, in a

[1] See Hunt (2002) for the complete version of this analysis.

growing economy, raise wages and household income invested in the quality of the next generation of children.

Outcome Benefits Value

The following are the outcomes, benefits and values of the fortification and biofortification program: reduced morbidity; reduction in health care (depending on patterns of care); reduced expenditure on health care, associated travel and drugs; reduction in days of work lost by sufferer or caregiver (depending on employment status); improved marginal productivity of labor; improved school attendance, concentration and performance; production and consumption benefits; discounted present value of per capita income over the years of life lost from premature death; increased physical work capacity; increased work output; improved marginal productivity of labor; improved cognitive effects; greater efficiency of school systems; increased future productivity; reduction in wasted education expenditure; reduced school dropout and retention rates; and an improved relationship with earnings and marginal productivity of labor.

Case for Iron Fortification

The World Bank (1994) has summarized the benefits of micronutrients in terms of cost per life saved and productivity gained for iron supplementation and iron fortification programs (Appendix Table 20.1).

For saving lives at the least cost (i.e., private benefit to at-risk persons), targeted iron supplementation to pregnant mothers is more cost effective than iron fortification of flour or another staple ($800 compared to $2,000), although the latter is a more sustainable solution in the long run, as incomes rise and households gain access to higher-quality primary health care. Nevertheless, properly targeted supplementation is justified while fortification programs are in the early stage and coverage is expanding, as long as the targeting principles reflect risk assessment and are consistently applied.

Appendix Table 20.1. Returns on Improving Iron Status
(In dollars)

Remedy	Cost per life saved	Discounted value of productivity gained per program	Cost per DALY gained
Supplements for pregnant women only	800	25	13
Fortification	2,000	84	4

DALY = disability-adjusted life year
Source: Adapted from the World Bank (1994).

From the perspective of enhanced productivity delivered by programs (i.e., efficient use of resources), where productivity is defined as the least-cost discounted method of reducing clinical deficiency in the population, iron fortification is clearly the public policy choice. Fortification is three times as productive as iron supplementation for pregnant women. Fortification yields $84 per dollar invested in reducing IDA prevalence, while targeted supplementation for pregnant women yields $25. So the population-wide impact is greatly increased by fortification. Consistent findings for Vitamin A and iodine exist.

The last measure is the social benefit cost per disability-adjusted life year (DALY) or healthy life year saved. Fortification is three times more effective than supplementation, costing $4 as opposed to $13 per DALY saved. This is a social benefit because of the avoided losses in life and productivity to society, and rehabilitation costs that the state and the family would have to bear if incurred. The unit costs drawn from the seven-country Asian study by the ADB and UNICEF (1999) show that micronutrient supplementation is affordable, but fortification is one-tenth the cost or less. Iron supplements for a full pregnancy are about $2. Annual iodine and iron fortification costs are five cents and ten cents per person, respectively. The cost of putting iron and other essential vitamins and trace minerals through an appropriate mix of fortified essential staples in an economy is less than 50 cents per person per year. That is about 4 percent of WHO's recommended minimum $12 package of primary health care services for developing countries.

Biofortification and Reduction of Iron Deficiency Anemia

The plant breeding strategy for micronutrient-enriched germplasm offers the opportunity to create an international public good through comprehensive benefits to producers and consumers with public health significance. Given the high payoffs to reducing micronutrient deficiencies and the current reservations about conventional approaches to solve the problem quickly and completely, plant breeding should be tried because of its potential coverage of entire Asian populations, especially the poor, deriving most of their consumption from rice. Since the poor consume large amounts of staple foods on a daily basis, the prospect of improving nutritional status is encouraging if a high proportion of the domestic production of food staples can be provided by nutritionally improved varieties. The breeding strategy does not depend on shifts in behavior or preferences. Biotechnology offers considerable promise (see Bouis, 2000).

Results so far obtained under the Micronutrients Project, sponsored by the Consultative Group for International Agricultural Research (CGIAR), indicate that the breeding parameters are not difficult and are highly likely to be low cost. In particular, (i) adequate

genetic variation in concentrations of beta-carotene, other functional carotenoids, iron, zinc and other minerals exists in the major germplasm banks to justify selection; (ii) micronutrient-density traits are sufficiently stable across growing environments; (iii) in all crops studied, it is possible to combine the high micronutrient-density trait with high yield, unlike protein content and yield, which are negatively correlated; (iv) genetic control is simple enough to make breeding economic and it should be possible to improve the content of several limiting micronutrients together, thus pushing populations toward nutritional balance; and (v) bioavailability tests using animals are encouraging, but tests using human subjects are a high priority.

High Benefits to Costs

Importantly, high trace mineral density in seeds produces more viable and vigorous seedlings in the next generation, and efficiency in the uptake of trace minerals improves disease resistance and agronomic characteristics, which improve plant nutrition and productivity in trace mineral-deficient soils. Adoption and spread of nutritionally improved varieties by farmers can occur because of profit incentives, either because of agronomic advantages on trace mineral-deficient soils or incorporation of nutritional improvements in the most profitable varieties being released. Because staple foods are eaten in large quantities every day by the malnourished poor, delivery of enriched staple foods (fortified by the plants themselves during growth) can rely on existing consumer behavior. Benefits to relatively small investments in agricultural research can be disseminated widely, potentially accruing to hundreds of millions of people and millions of hectares of croplands across countries and over time. Thus, the combined benefits for human nutrition and agricultural productivity resulting from breeding staple food crops that are more efficient in the uptake of trace minerals from the soil, and which load more trace minerals into their seeds, result in extremely high ex ante estimates of benefit-cost ratios for investments in agricultural research in this area. Other complementary strategies run recurrent costs on a continuing basis, which decline slowly over time and increase proportionately with geographic coverage.

Because biofortification is a new strategy, definitive studies of the impact of this approach must await the efficacy and effectiveness trials, which are expected to be undertaken by an interdisciplinary consortium of collaborating partners organized by the CGIAR. In general, however, poor consumers in developing countries acquire roughly one-half of their total iron intake (and a higher percentage of zinc intake) from staple foods. Results from germplasm screening suggest that the iron and zinc content of staple foods can be doubled through conventional breeding. This in turn implies that iron and zinc intakes can be increased by a minimum of 50 percent in poor people's diets. This

should result in an appreciable improvement in nutrition and health, even for those whose intakes remain below recommended daily rates.

An example of the enormous economic benefits of the biofortification strategy based on numbers for India and Bangladesh is described below. This example is based on development of iron- and zinc-dense varieties of rice and wheat. The somewhat conservative assumptions suggest that the undiscounted returns that come on-stream during the second decade of R&D would be about $4.9 billion on a total investment of $42 million, $1.2 billion in benefits from better nutrition and $3.7 billion in benefits from higher agricultural productivity.

A more formal benefit-cost ratio evaluation, in which the ratio of the present value of benefits is divided by the present value of costs at a 3 percent discount rate (commonly used for social benefits) for returns to better iron nutrition in humans, is about 19, similar to that found by Horton and Ross (2001) for fortification in South Asia. This ratio rises to 79 if benefits to higher agricultural productivity are included. A different way of expressing the concept of discounting over time is the internal rate of return, in which the interest rate, at which benefits equal costs plus interest if the funds were borrowed to make the investment, is calculated. In this case the internal rate of return is 29 percent if only benefits to human nutrition are considered, and 44 percent if both benefits to human nutrition and higher agricultural productivity are considered.

It is important to point out that these minimum effects are what can be documented with evidence presently available with respect to the use of conventional breeding techniques following a strategy of increasing trace mineral density. Such lines might be thought of as a "first generation" of nutritionally improved varieties. Other generations will follow as more is learned about reducing levels of compounds that inhibit bioavailability and increase absorption, and as new genes are added through biotechnology.

The conclusion is that there is a niche for plant breeding and for reducing the population prevalence of IDA at the lowest cost. If this strategy proves to be inexpensive and cost-effective by improving plant nutrition and increasing yields, it will complement but not substitute for supplements or fortification, which are equally important. A considered view is that the agricultural-industrial partnership becomes all the more critical in the coming years as one sees the explosion of urban populations in Asia (and therefore urban children) to about 2.5 billion people by 2025, increasing dependence on food-based solutions to both green revolutions.

Benefit-Cost Analysis of Biofortification

The two fundamental reasons to expect high payoffs to investments in breeding for iron- and zinc-dense seeds of food staples are because fixed costs of research at a central loca-

tion may accrue across countries and over time at low recurrent costs, and because not only are there nutritional benefits, but agricultural productivity may be increased as well. This may be demonstrated empirically with a simple benefit-cost calculation for India and Bangladesh, where the two major staples eaten are rice and wheat. Together the two nations have a total population of 1.125 billion, and 55 million hectares of rice and 28 million hectares of wheat harvested annually.

Fixed costs. For any single staple crop, the estimated central fixed costs over 10 years of developing iron- and zinc-dense rice varieties are estimated to be $12.5 million. This figure includes several costs not directly related to breeding, such as those for nutritional studies to establish efficacy and to demonstrate impact after adoption. Conservatively, assume that all these central and fixed costs are charged to India and Bangladesh. It is further assumed that $2.5 million per crop is spent on adaptive breeding specifically for growing conditions in India and Bangladesh, again over the same 10-year period.

Variable costs. Various rates of adoption of nutritious varieties are assumed in the simulations and extension costs tied to the rates of adoption, specifically $1 per adopted hectare. Thus, if adoption occurs on 10 percent of rice and wheat area (8.3 million hectares), then a fixed undiscounted extension cost of $8.3 million is incurred. Varieties are assumed to come on line gradually after year 10 of the simulation, for example in a 10 percent adoption scenario, to cover 2 percent of total area in year 11, 4 percent in year 12, 6 percent in year 13, 8 percent in year 14, and 10 percent of total area in all years thereafter. Recurrent costs (such as for maintenance breeding) of $500,000 are assumed annually after the initial 10-year period of fixed investments. Thus, in a 25-year simulation, assuming a 10 percent adoption rate, $42 million in undiscounted costs may be incurred in total.

Nutritional benefits. Nutritional benefits are tied to assumed rates in reduction of anemia. Using an analysis that provides empirical estimates of the relationship between hemoglobin levels of rural Bangladeshi women and their intakes of iron and other nutrients and compounds, Bhargava, Bouis and Scrimshaw (2001) conservatively estimate that anemia prevalence rates would be reduced by 3 percent by consuming nutritious rice and wheat (e.g., a reduction of 3 percent of 10 percent of the population under a 10 percent adoption scenario, or 3.375 million cases of anemia averted each year). This is a conservative estimate for several reasons: (i) the assumed increase in iron due to breeding is based on current, limited knowledge of what can be expected from conventional breeding; new breakthroughs such as the use of biotechnology are likely; (ii) because of measurement error from a number of sources, regression estimates in the study (25) can be expected to underestimate the true relation between improvements in diet and improved iron status; and (iii) no nutritional benefits are assumed for increased zinc intakes or for those whose iron intakes increase but who remain anemic (50 million people under a 10

percent adoption scenario; 45 percent of 10 percent of the population). Benefits to cases of anemia averted are those estimated by Horton and Ross (1998) for India and Bangladesh, a discounted present lifetime value of $27.50 per case.

Benefit/Cost relationships. Even these conservative assumptions as to nutrition benefits will justify the investment cost (as shown in Appendix Table 20.2). In addition, increased seed zinc density may increase rice and wheat yields substantially and lower seeding rates (26). Yield increases of 250 kilograms (8 percent on a base yield of three tons per hectare) of unmilled rice and wheat are assumed on adopted areas, giving a net incremental undiscounted profit of about $35 per hectare per year.

Even though all centralized and fixed costs of $25 million are charged to India and Bangladesh, Appendix Table 20.2 suggests that nutritious varieties may reach undernourished populations at a cost of just 2 to 3 cents per person per year. Depending on adoption rates and the levels of iron that can be added to food staples through breeding, anemia may be averted for as low as 22 to 36 cents per case. Internal rates of return on nutrition benefits should be well above 25 percent. If agricultural benefits are also considered, several billions of dollars of benefits can be expected on investments of tens of millions of dollars.

Appendix Table 20.2. Developing Iron- and Zinc-Dense Rice for India and Bangladesh: Simulated Benefits and Costs over 25 Years

	Variety adoption rate					
	10%			20%		
	Anemia reduction rate					
Description of benefits and costs	**3%**	**4%**	**8%**	**3%**	**4%**	**8%**
Cost per person reached who consumes nutritious staples (undiscounted) ($)	0.03	0.03	0.03	0.02	0.02	0.02
Cost per case of anemia avoided (undiscounted) ($)	0.96	0.72	0.36	0.58	0.44	0.22
Internal rate of return on nutrition benefit (%)	28.9	31.8	39.2	34.0	37.1	44.9
Total investment for research and extension ($ millions undiscounted)	42.1	42.1	42.1	51.2	51.2	51.2
Total nutrition benefits (3% discount rate; in $ millions)	694.2	925.6	1,851.2	1,388.4	1,851.2	3,702.4
Total agricultural benefits (3% discount rate; in $ millions)	2,142.7	2,142.7	2,142.7	4,285.3	4,285.3	4,285.3
Total benefits (3% discount rate; in $ millions)	2,836.9	3,068.3	3,933.9	5,673.7	6,136.5	7,987.7
Total costs (3% discount rate; in $ millions)	35.9	35.9	35.9	43.7	43.7	43.7
Ratio nutrition benefits/Total costs	19.3	25.8	51.5	31.8	42.4	84.7

Source: H. Bouis (2001) private communication.

APPENDIX 20.2

Almaty Forum 2001 Declaration: Improving Nutrition of Poor Women and Children in Central Asia and Neighboring Countries

After four days of deliberation, participants from six Asian nations in transition, attending a roundtable on salt and wheat flour fortification from 8-12 October sponsored by the Asian Development Bank, the United Nations Children's Fund and the Kazakh Academy of Nutrition and funded by the Government of Japan through the Japan Fund for Poverty Reduction, agreed on the following set of principles, strategies and actions.

1. We recognize:

- That in recent years the nutrition status of women and children in our region has deteriorated badly with negative consequences for children, families and nations—iodine and iron deficiencies are the most serious, but other essential nutrients need to be addressed;
- That the damage to the learning capacity of our children from iodine deficiency in pregnancy is irreversible;
- That iron deficiency is causing serious damage to social and economic development through poorer pregnancy outcomes, impaired cognition especially in young children, reduced work capacity and increased morbidity from infectious diseases;
- That zinc deficiency is associated with lowered immunity, slower growth and increased risk of heavy metal poisoning in contaminated environments;
- That folic acid deficiency in women who become pregnant contributes to congenital abnormalities of the central nervous system of the newborn and is an independent risk factor for coronary heart disease; and
- That the key B vitamins thiamin, riboflavin and niacin are removed during milling along with most iron and folic acid and this contributes to micronutrient malnutrition among populations whose diets are heavily dependent on bread and other flour-based foods.

2. We affirm:

- That the addition of potassium iodate to all salt sold for human consumption is a well established method for eliminating iodine deficiency as a societal problem;
- That the "KAP Komplex" formula, developed by the Kazakh Academy of Nutrition for Central Asia, is an appropriate and safe basis for wheat flour fortification in the populations of the region to prevent deficiencies of thiamin, riboflavin, niacin and folic acid and reduce iron and zinc deficiency. This formula is freely available to any enrichment mix producer;
- That people of the region should have access to affordable, safe and efficacious fortified foods as a permanent commitment to the elimination of micronutrient malnutrition;
- That there are no capacity constraints for private producers to achieve significant progress in providing affordable fortified salt and flour to consumers in the region;
- That the consequences of not implementing fortification programs at national levels will be poor child development, low educational achievement of children, and decreased earnings and economic growth; and
- That this initiative, supported by the Japan Fund for Poverty Reduction, will contribute to fulfilling commitments made by the participating governments to universal protection of children.

3. Therefore, we pledge:

- That all salt for human consumption will be fortified with potassium iodate and wheat flour will be fortified with micronutrients using the KAP Komplex formula to the maximum extent achievable.

4. This will require:

- That food laws and regulations be reviewed and amended to ensure they support and enable the addition of all essential micronutrients in appropriate food carriers;
- That public policies and regulations that constrain or impede investment in food fortification to reduce micronutrient malnutrition be reviewed and amended and that all nations collaborate to produce uniform or consistent

standards based on international best practices that will smooth the trading of foods;
- That customs protocols and trade regulations be revised or enacted to ensure the import and export of certified and safe fortified foods at agreed levels of fortificants;
- That the cost of food fortification ultimately be borne by the producer and the consumer, but a transition period of cost-sharing between the public and private sectors may be necessary;
- That efforts be continued to inform the public of the benefits of fortified salt and flour to the learning and earning capacities of the region's children and that the interests of NGOs, especially women's federations and consumers' rights unions, be fully included in future activities jointly conducted by the nations; and
- That food fortification be a part of a comprehensive strategy of anemia prevention and control that includes supplementation, dietary diversification, breastfeeding promotion and other public health measures.

National Actions

National actions to achieve this will require the following coordinated actions at national, oblast and local levels:

- Pass and effectively implement mandatory salt iodization laws in all countries and move forward the consideration of flour fortification laws in a timely fashion;
- Urge the elimination of tariffs and value-added taxes on inputs to fortification and fortified food products, imported or domestically processed, to promote sustainability;
- Avoid excessive price increases for fortified products that may discourage consumer preference;
- Initiate cost-sharing by public and private sectors of producing fortified salt and flour and strengthen the capacity of the private sector to be fully self-reliant shortly after completion of the Japan Fund for Poverty Reduction Project;.
- Establish a monitoring framework to assess progress in the percent of salt and wheat flour fortified during production and families with access to fortified food products;
- Integrate fortification programs into national strategies and policies to reduce poverty, raise the quality of human resources, and support the survival, growth,

psychosocial and cognitive development of all children, especially those of early ages;

- Promote an expanded public-private sector sector dialogue on fortification of salt and cereal flour and organize advocacy events to increase program and donor support;
- Develop and implement a communication strategy and campaign to raise public awareness and improve the child caring skills of parents on the importance of fortified salt, wheat flour and wheat flour products, and promote increased consumer demand for these products. These activities will be led by nongovernmental organizations in collaboration with the private sector, national experts, the media, local authorities and communities;
- Promote mechanisms to exchange information and experiences within and across the countries of the project using the Internet and other modern communication tools;
- Obtain, update and disseminate information on the prevalence of micronutrient deficiencies by including micronutrient-related data collection into demographic and health surveys, multiple indicator cluster surveys and other nutrition, health and education surveys.

Regional Actions

- Develop a framework for drafting and proposing harmonized regional and international trade standards and guidelines for fortified foods;
- Develop regional activities such as roundtables, joint reports and cross-country training focusing on legislation, communication strategies and partnerships among civil society and private and public sectors;
- Demonstrate through regional policy dialogue to economic planning agencies and the general public the large economic damage caused by poor nutrition and the proven low-cost solutions available to the region;
- Advocate resource mobilization by governments from domestic public and private budgets and strategic investments from development partners, and share country experience in regional forums;
- Review and recommend financial and capacity building incentives to sustain food fortification and its expansion to other essential foods widely consumed by the poor;
- Set up sentinel sites in at least three project countries to monitor progress of ongoing efforts to fortify all salt and wheat flour;

- Create communication mechanisms, including a web site, that allow project countries to share advocacy, technical and promotional activities among themselves and with the global community;
- Include micronutrient malnutrition issues into the agenda of regional expert group consultations such as associations of pediatricians, nutritionists and reproductive health specialists;
- Prepare progress reports on elimination of micronutrient malnutrition to the Regional Health Ministers Council.

Signatories

The Country Teams from Azerbaijan, Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan and Uzbekistan endorsed this Declaration by consensus during the Roundtable Meeting. Country teams represented a broad partnership of governments, the private food industries, parliamentarians, executive offices of the president or prime minister, the nutrition science community, and women's and consumers' federations.

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CHAPTER 21

Regional Democratic Norms: The SADC Parliamentary Forum's Role in Developing Electoral Standards in Southern Africa

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In March 2002, the Parliamentary Forum of the Southern Africa Development Community (SADC) observed Zimbabwe's presidential election and concluded that it failed to meet regionally agreed-upon norms and standards. These electoral norms and standards were developed and adopted through an activity supported by the Regional Center for Southern Africa of the U.S. Agency for International Development (USAID).

The Parliamentary Forum's position on the election was widely seen as a positive development in support of democracy in the region. This chapter examines the election observation as an example of development assistance in support of African efforts to improve governance through a regional approach. The chapter also discusses some of the lessons learned and challenges associated with regional programming.

A number of reasons can be advanced in favor of a regional approach to development assistance, including the dynamics of an increasingly global economic order whose effects cross national boundaries and cannot be contained by claims to national sovereignty. Southern Africa as a regional bloc presented opportunities for USAID to design and implement a regional program. Most of the countries share a common political history: the British colonial experience, the Westminster system of government, the unique and prolonged liberation wars against entrenched colonial populations, collaboration in the anti-apartheid struggle, and the creation of the SADC.

Southern Africans recognize that their development problems cannot be addressed solely at the national level. Regional integration and an approach to issues from a regional perspective permit a more holistic view of both the constraints to and the possibilities for development. In addition, the global economy and increased international information flows have sharply and significantly increased the degree to which development efforts must account for factors operating at the supra-national level.

There is a real, if limited, sense of being part of a common political scenario and of holding common political values in Southern Africa. Events elsewhere in the region influence democratic performance at the national level. A good example is the response of the then-Minister of Justice in Zimbabwe, Emmerson Munangagwa, when asked whether Robert Mugabe's two-decade stay in power was not contrary to the regional norm: "In Botswana, when Sir Seretse Khama died in 1980, President Masire took over and was in power until he retired last year after 18 years, but people did not say anything. In Mozambique, President Chissano has been in power since 1986 after the death of President Samora Machel, but there is no talk of him overstaying."[1]

The development of common political values, systems and institutions is a key objective of SADC.[2] Member states have committed themselves to be guided by principles of "human rights, democracy and the rule of law."[3]

A number of regional networks and common interest groups have been established with the aim of promoting democracy and good governance in the region. Examples include the SADC Parliamentary Forum, the Media Institute of Southern Africa, the Southern Africa Human Rights NGO Network, and the SADC Bar Association. The existence of regional common interest groups is evidence of the importance attached to regional cooperation by Southern Africans. Support for and interaction with regional entities and initiatives is difficult or impossible to provide through bilateral offices, platforms or methods.

Democracy and Governance in Southern Africa

During the 1990s, Southern Africa witnessed a dramatic transition from one-party, autocratic and apartheid regimes to pluralistic and multi-racial political systems. The transition has remained fragile, characterized by weak states and institutions of governance. More recently there have been disturbing signs of backsliding in a number of countries. While popular support for democracy is widespread throughout the region,[4] the single dominant-party system is a key feature of most political systems. This has resulted in low levels of legislative authority and pervasive dominance by the executive branch of government.

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[1] *Zimbabwe Independent,* 5 November 1999, Zimbabwe weekly independent newspaper, Zimind Publishers, Harare. See: www.theindependent.co.zw

[2] Article 5.1 (b) of the SADC Treaty that in 1992 established the Southern Africa development Community. Published by the SADC secretariat in Gaborone, Botswana.

[3] Article 4 (c), ibid.

[4] According to Afrobarometer, 1999, a comparative national public attitude surveys on democracy, markets and civil society in Africa, Cape Town, South Africa. See: www.afrobarometer.org

Since 1994, over 86 percent of SADC countries have re-adopted multi-party political systems and are governed through a popularly elected government. There is increasing commitment to democratic governance, with most of the first post-transition elections being held on schedule and the results being accepted as free and fair. The region is relatively more democratic compared to the rest of the continent: 44 percent of the African countries rated "free" in a 1998-99 survey by Freedom House are in Southern Africa; 23 percent of the "partly-free" countries are there, and only 8 percent of countries rated "not free" are in Southern Africa.

These figures appear impressive compared with the rest of Africa, but a recent survey by the Southern Africa Regional Institute for Policy Studies (SARIPS) concluded that most governments are lagging in their progress toward participatory democracy and accountability. Neither the constitutions nor the electoral systems and practices of most institutions in Southern Africa have been aligned with the new multi-party democratic culture. Overall, levels of tolerance of contesting views are still too low. Much remains to be done to improve the political environment in which elections are conducted and to ensure that the existing legal and institutional frameworks work independently and impartially. There is still a need to address such issues as leveling the playing field for all players contesting elections, inequality in the funding of political parties, inadequate access to state-owned media, and election-related violence. The SARIPS survey found that women constitute only 5 to 25 percent of the members of parliament and that on average ruling parties control about 80 percent of the seats in parliament across the region. According to Freedom House, only two countries in the region are rated as having a "free" press, five as "partly free," and four as "not free."

Regional bodies such as the SADC have been expected to bring positive peer pressure as more states democratize within the community of nations. Sadly, however, this has not been the trend within the SADC. Short-term political considerations have often led the region's leaders to express solidarity with their peers rather than take principled positions in situations where democracy is under threat. While the peer review mechanism proposed under the New Partnership for Africa's Development (NEPAD) provides an opportunity through which peer pressure can be exerted, it is already regarded with skepticism because of the questionable commitment of African leaders to hold each other accountable.

USAID Regional Democracy and Governance Program

USAID's regional democracy and governance program in Southern Africa is carried out in the context of a broader regional strategy designed and implemented by its Regional

Center for Southern Africa (RCSA). The center was established in 1995 to promote regional integration in Southern Africa, and it began implementation in 1997 of a six-year strategy to "promote equitable sustainable development in a democratic Southern Africa."[5] RCSA's strategy focuses on achieving four key objectives: (i) increased regional capacity to influence democratic performance; (ii) a more integrated regional market; (iii) increased regional capacity to manage trans-boundary natural resources; and (iv) accelerated regional adoption of sustainable agricultural approaches.

The democracy and governance program aims to help consolidate democratic progress made in Southern Africa since the early 1990s by supporting creation of what it calls a "cluster of well functioning democracies." This objective is premised on the region's commitment to democracy and good governance, and on the assumption that democratic systems will be the glue that will hold the region together. Indeed, it is hoped that functioning democracies will be mutually supportive of each other, thereby enhancing their sustainability.

The program aims to strengthen democratic governance in Southern Africa by promoting public awareness of democratic achievements, as well as the threats to democracy, within the region. This is done by supporting regional organizations and initiatives that espouse and promote democratic values in a variety of sectors on a regional basis. Regional organizations endeavor to increase the flow of information about comparable experiences and best practices within the region; increase and add voice to national-level advocacy and other forms of cooperative action to counter backsliding; and further articulate and secure broader commitments to norms of democratic behavior. The key areas in which these activities are implemented are media strengthening, elections and political processes, and anti-corruption initiatives. Regional actors attempt to change political attitudes and values primarily through effective and timely networking at all levels, thus extending the range and volume of regional interactions and, by implication, the impact of regional influence at the national level.

One of the activities funded under the RCSA democracy and governance program is the development of regional electoral norms and standards by the SADC Parliamentary Forum. The primary objective is to support institutionalization of democratic norms and standards by Southern Africans. The remainder of this chapter describes USAID's support through RCSA to the Parliamentary Forum, and examines the application of regional electoral norms and standards by the forum during the Zimbabwe presidential elections.

[5] "Regional Integration Through Partnership and Participation," USAID/RCSA 1997-2003 Strategic Plan.

USAID Support to the Parliamentary Forum

An assessment of governance and human development in Southern Africa recommended that governments, in consultation with their citizens, develop "minimum regional standards pertaining to electoral systems and conduct, human and constitutional rights, and political freedoms." [6]

The USAID/RCSA strategy supports the articulation and further definition of existing regional democratic norms, with specific reference to their regional implications. It is expected that as these norms gain broader acceptance, they will serve as reference points for national-level groups advocating for democracy and good governance and will increase awareness of the similarity of issues across the region.

In 1999, USAID/RCSA entered into an agreement with the SADC Parliamentary Forum through which the RCSA would provide financial assistance to observe elections in seven SADC countries. At the time, it was agreed that the Parliamentary Forum would develop and adopt regional electoral norms and standards based on its election observation experiences. These electoral norms and standards would serve as a framework to improve electoral conduct in Southern Africa.

Implementation

Activities supported by USAID/RCSA in support of democracy and governance are implemented in partnership with Southern African organizations. The RCSA's primary role is to provide financial resources. In determining the appropriate partnerships to be developed, the emphasis is on whether an organization has an organically evolved regional mandate. The criteria for selecting partner organizations also include a readiness on the part of the organization to "expand the democracy and governance envelope" (i.e., use cutting edge approaches and strategies to advance democratic values), as well as its proven capacity to implement programs on a regional basis, and its readiness to spread knowledge and strengthen capacity. If such criteria were applied too strictly, of course, finding a regional organization with which the RCSA could partner would be nearly impossible. Most regional organizations and networks in Southern Africa are nascent and need institutional strengthening. This then requires a fair amount of risk-taking and handholding, which in turn impacts on the quality of the results.

To select partners and identify viable activities under its democracy and governance program, the RCSA largely relied on the advice of a reference group of 22 specialists from

[6] SADC *Human Development Report*, 1998, p. 112. Published by the Southern Africa Political Economic Series (SAPES) Trust, Harare, Zimbabwe.

11 Southern African countries. Members of the reference group were knowledgeable in democracy and governance issues as well as regional matters. The decision to fund the SADC Parliamentary Forum was made at a time when it had virtually no capacity to implement or handle funds—a part-time secretariat was being provided by the Namibian parliament, and an interim secretary general by the Zambian parliament. The only full-time employee was a secretary based in an office in Windhoek, Namibia. The strength of the Parliamentary Forum was the visionary leadership provided by the Speaker of the Namibian parliament, Dr. Mose Tjitendero, with support from speakers of other SADC parliaments.

USAID initially was skeptical about the utility of investing in a nascent regional grouping of parliaments whose sustainability and efficacy was questionable. Given the dominant-party character of most parliaments in the region, there were legitimate doubts about how much the Parliamentary Forum could advance democratic values. The challenge for the RCSA was to develop a mechanism by which funds could be provided to the Parliamentary Forum without compromising USAID's standards for accountability. There were essentially two factors that maintained momentum for the activity. One was a committed leadership that continued to articulate and promote a regional role for legislators. The other was upcoming elections in several SADC countries between 1999 and 2000 that presented an opportunity for legislators to play a regional role through the Parliamentary Forum.

Coordination

The importance of coordination, especially internal coordination, to the success of a regional program cannot be over-emphasized. USAID/RCSA faced a number of challenges in implementing its democracy and governance program. Issues of democracy and governance are typically addressed bilaterally, and that challenge was heightened in this case by the fact that USAID, as well, traditionally has been a bilateral agency whose structures and implementation mechanisms are suitable mainly for bilateral implementation.

Considerable negotiation was therefore required to ensure that the regional program was not perceived as an unwanted encroachment on the bilateral sphere. There were different expectations regarding what was to be accomplished by USAID's regional program and what was expected from bilateral programs in Southern Africa. The RCSA's investment in election observation by the Parliamentary Forum was aimed at developing regional observation capacity and regionally-accepted electoral standards that would improve the conduct of national elections. In most of the countries in which the forum observed elections, USAID bilateral missions and U.S. embassies were also supporting initiatives to improve the conduct of elections. Legitimate concerns were often expressed

regarding the possibility that the Parliamentary Forum might endorse a state of affairs that undermined such initiatives.

The RCSA argued that, based on the training and technical assistance provided to members of the observer delegations, the statements that would be issued by the Parliamentary Forum were likely to be objective. Nevertheless, this continued to be a source of tension between USAID's regional and bilateral programs. Indeed, during the 1999 Namibian and the 2000 Zimbabwean parliamentary elections, the statements issued by the Parliamentary Forum were fairly ambiguous. This can be attributed to the absence of a properly developed framework to observe elections, as well as to the forum's limited capacity. However, there was a dramatic improvement in the capacity and objectivity of the Parliamentary Forum after the adoption in 2001 of the norms and standards. The subsequent statements on Zambia (2001), Zimbabwe (2002) and Lesotho (2002) provided clear evidence of the forum's improved capacity.

Monitoring and Evaluation

The problem with monitoring and evaluating democracy and governance programs is inherent in the difficulties associated with quantifying the qualitative changes brought about by such programs. This problem is further complicated when the program involves several countries. The amount of resources invested to gather the data needed to demonstrate impact can easily become disproportionate to the benefit to be derived. In addition, most relevant data will need to be generated, since there is little or no regional data available.

Three indicators were used to assess progress of the Parliamentary Forum program. The first indicator measured effectiveness in achieving regional impact in 10 dimensions related to regional democracy and governance: advocacy, analytical ability, attention to gender issues, appropriateness of institutional framework, collaboration, influence on debate, influence on policy, information dissemination, lobbying of key decision-making institutions, and use of regional experiences. The second indicator measured capacity to achieve regional democracy and governance impact using a regional capacity index that incorporated the following dimensions related to effective functioning at a regional level of intervention: organizational structure and programmatic coherence, management systems and leadership, organizational culture and style, administrative and financial capacity, advocacy capacity, and strategic location. The third indicator tracked progress in defining democratic norms and standards by measuring progress in achieving key milestones such as the adoption of regional norms through regional agreements, incorporation of norms into national legislation, and implementation and application of norms and standards. Of the three indicators, the third proved to be the most useful and user-friendly indicator for program management.

Sustainability

For any program to be sustainable, it must respond to a genuine need and be "owned" by the beneficiary. The internal governance structures of the Parliamentary Forum have contributed to the sense of ownership by parliamentarians. National delegations to the forum include the speaker and three other members of parliament. One of these must be from the ruling party and another from the opposition, and at least one member must be a woman. Plans of action are presented, debated and approved at the Parliamentary Forum's annual plenary meeting, which is the organization's highest policy-making event. The participatory and consultative approach used by the forum to formulate its policies and identify activities has made parliamentarians feel accountable for the achievement of results.

It is important that results be clearly defined so that implementation is not open-ended. The criteria for selecting implementing partners are therefore critical. The implementing partner should have an organically evolved mandate, as opposed to one that simply responds to donor preferences. There should be a strong commitment to implement the program regardless of whether a specific donor will fund it or not. It was agreed that the Parliamentary Forum would observe a specific number of elections on the basis of which regional electoral norms and standards would be adopted. Those norms and standards ultimately adopted are now widely regarded as a credible framework to assess the conduct of elections. Evidence of this can be found in the recent elections in Zambia, Zimbabwe and Lesotho. The government of Angola and USAID/Angola have even requested the forum's involvement in the Angolan electoral process by supporting the inclusion of the norms and standards in the country's electoral legislation.

Sustainability of a particular activity cannot be separated from the sustainability of the implementing partner. While the Parliamentary Forum entered this partnership as a relatively weak and under-funded institution, its greatest asset was the visionary leadership committed to making the experiment work. Each of the 12 member parliaments contributes $30,000 in annual dues to the forum. While this may not be a lot in the context of a regional program, it nevertheless is a significant token of commitment by most of the under-resourced parliaments in the region. The annual dues contribute significantly to the ownership of Parliamentary Forum programs by members. The forum has now made it standard practice to observe all legislative and presidential elections in member countries using its own resources.

Case Study: The Zimbabwe Electoral Crisis

The crisis surrounding the 2002 presidential election in Zimbabwe demonstrates the fragility of the democratic transition in the region. The elections were held in an extremely

hostile and deteriorating political environment that defied key democratic precepts. Since losing the vote on a constitutional referendum in 2000, the ruling party had subjected the electorate to two years of violence and intimidation. Opposition candidates were harassed, and party supporters manipulated the electoral process. The president forced Supreme Court judges to resign—in at least one case under a threat of death—and stacked the highest court with political allies. He also used his presidential powers and his control over parliament—he appoints 30 of the parliament's 150 members—to restrict freedoms of speech and assembly and to silence the private media.

All of these actions enabled the ruling party to secure what was widely deemed an illegitimate victory in the March 2002 presidential election. Most of the international delegations that were allowed to observe the election deemed the process to be fundamentally flawed. The post-election reports of these teams describe, among other irregularities, human rights violations, such as the detention of 1,400 polling agents and observers, and the denial of freedom of expression, as evident in the disruption or canceling of 83 opposition party rallies by government authorities.

Parliamentary Forum and Other Observation Teams

The Parliamentary Forum used the electoral norms and standards to assess the freeness and fairness of the presidential elections in Zimbabwe. The observer mission concluded that "the climate of insecurity obtaining in Zimbabwe since the 2000 parliamentary elections was such that the elections could not be said to adequately comply with the norms and standards for elections in the SADC region."[7] Using the norms and standards as a framework, the observer mission went on to detail the grounds on which its conclusion was based.

It is important to note that there were several African delegations that observed the election, including national delegations from South Africa, Namibia, Nigeria, Ghana and Botswana, a SADC ministerial delegation, and the then-Organization of African Unity delegation. In contrast to international and non-African delegations such as the Commonwealth, Norway and Japan, all of which pronounced the election as neither free nor fair, most of the African delegations concluded that the election was free and fair, with the exceptions of the Parliamentary Forum and Ghana.[8] The forum statement complemented the position taken by domestic monitors, which also concluded that the election was nei-

[7] SADC Parliamentary Forum, *2002 Zimbabwe Presidential Election Report,* published by the SADC PF secretariat, Windhoek Namibia.

[8] Expressing his indignation with the tradition of African leaders expressing solidarity with one another, Steven Friedman, the Director for the Center for Policy Studies in South Africa, noted: "The SADC Parliamentary Forum was elected by fellow citizens and they highlighted flaws in the Zimbabwe election, while heads of state found nothing wrong with it" (Quoted on SABC, 26 September 2002; see www.sabcnews.com)

ther free nor fair. The Parliamentary Forum was clear in its articulation of the facts, which led its observer mission to rule that the elections did not comply with agreed-upon regional standards.

Regional and International Dimensions

In order to appreciate the significance of the position taken by the Parliamentary Forum, it is important to understand the national, regional and international dynamics of the governance crisis in Zimbabwe. President Robert Mugabe shrewdly cast his quest to retain political power as a struggle against neo-colonialism. He presented himself as a champion of a marginalized South against a domineering and exploitative North. The International Crisis Group appropriately summarized the key elements of his strategy: "Mugabe has effectively used the rhetoric of a pan-African and pro-South agenda that rejects undue Northern influence. Central to this argument is an elaborate defense of sovereignty, which is painted as being besieged by the human rights, democracy, and free market advocates in the North." [9]

The Zimbabwean political and economic crisis has divided the international community against the backdrop of increasingly heated debates between the North and the South over trade policies and aid levels. Mugabe's strategy succeeded in shrouding serious human rights violations, gross economic mismanagement, endemic corruption, and a spirited attack on the rule of law. The redistribution of land is being used as a critical element of the current government's strategy to retain power and muzzle any opposing voices. The irresponsible manner in which land is being redistributed demonstrates that the purpose of the exercise is political expedience rather than the long-term sustenance of the ordinary citizen. It is in this context that regional influence and peer pressure mobilized by competent and objective regional institutions can be effective in addressing emotive national-level issues. So while the Parliamentary Forum's assessment of the Zimbabwean election as failing to meet regionally agreed-upon electoral norms and standards did not reverse the electoral fraud, it nevertheless represented a potentially viable democratic force within the region. A growing number of such forces can help reverse some of the region's recent backsliding.

The interface between the national, regional and international dimensions of the Parliamentary Forum's role in the Zimbabwe electoral crisis is further illustrated by the widespread significance attached to the agreed-upon electoral norms and standards. For example, in making a motion to the Zimbabwean parliament urging it to adopt the norms and standards, an opposition member of parliament, Ms. Priscilla Misihairabwi, MDC,

[9] International Crisis Group (ICG) Africa Report No. 41, March 22, 2002.

stated: "I am proud that I am standing here talking about SADC parliamentary norms and standards. These are not EU standards. These are purely African norms and standards that have been developed and designed by Africans themselves. These are not values that we are taking from elsewhere; it is the value system that we have as Africans."[10]

In a statement urging SADC to suspend Zimbabwe from the organization, a member of an opposition party in South Africa noted that the SADC Parliamentary Forum "was the most significant of all observers of the Zimbabwean election."[11] Answering questions during a debate on Zimbabwe in the House of Commons in December 2001, Ben Bradshaw, the British Under-Secretary for Foreign Affairs said: "We welcome the commitment shown by SADC parliamentarians to democratic norms in the conduct of elections in their region, reflected in the recommendations agreed at the SADC Parliamentary Forum Plenary in Windhoek in March 2001."

Conclusions

USAID/RCSA learned a number of lessons by supporting the development of the SADC Parliamentary Forum. The most important was the recognition that regional approaches to development assistance will likely assume increasing importance as globalization makes the interdependence between states more complex. Supra-national solutions will be needed to deal with national-level problems. The current Zimbabwe economic and political crisis is just such a case in point for Southern Africa.

However, implementation of a regional program is a high-risk and labor- and capital-intensive investment. The multiplicity of actors and the sheer size of the geopolitical expanse to be covered present immense challenges. The amount of coordination and consultation required to make a regional program work constitutes a major burden on both regional and bilateral programs. Responsibilities must be explicitly allocated and adequate resources provided to allow the additional tasks required by regional programs to be carried out without undue costs to bilateral programs. Expenses can range from travel to regional meetings, to staff to assist in reporting on results and impact. Unfortunately, these challenges have historically had the effect of limiting donor interest in regional programs even when they might be an effective approach to a given development challenge. As long as regional programs are viewed as anomalous exceptions to the "normal" bilateral approach, they will have difficulty in achieving their full potential. An important step in avoiding such perceptions would be to adopt a regional strategic plan, to

[10] Quoted in Zimbabwe Parliament Hansard of October 31, 2001.
[11] Boy Geldenhuys, New National Party foreign affairs spokesman, *Business Day,* March 20, 2002.

which both regional and bilateral program strategic plans would be subordinate in cases where it is decided that a regional program should be implemented.

Given the skepticism regarding the effectiveness of regional programs, demonstrating the impact of regional programs is extremely important. It is therefore crucial that simple but useful performance indicators be developed to monitor progress of regional programs. This is easier said than done, since data often are not available—even more so for programs in areas such as democracy and governance, which mainly seek to effect qualitative changes. Having competent technical staff in both donor and implementing agencies who can identify windows of opportunity and quickly move to mobilize resources to take advantage of programming options presented by those opportunities can also help tremendously.

While it is true that governance is a predominantly national issue defined by the relationship between a state and its citizenry, fragile democracies are more likely to endure if they support one another. Such mutual support is perhaps best achieved in the context of a cluster of well-functioning democratic systems. This implies revisiting the notion of national sovereignty that is often used as a shield against peer review. Regional collaboration and cooperation to mobilize regional voices, expertise, resources and best practices can contribute significantly to improving democratic conduct. As the New Partnership for Africa's Development attempts to define the precise form of its proposed peer review system, it would do well to consider the example of the SADC Parliamentary Forum.

CHAPTER 22

Coordinating the Supply of Regional Public Goods: The Greater Mekong Subregional Program

Kazu Sakai and Tam Robert Nguyen, Asian Development Bank

The Program for Economic Cooperation in the Greater Mekong Subregion consists of six riparian countries sharing the Mekong River: Cambodia, Yunnan Province of the People's Republic of China, Laos, Myanmar, Thailand and Vietnam. The program was launched in 1992 by the six countries with the support of the Asian Development Bank (ADB).[1]

By using the Greater Mekong program as a case study, this chapter aims to illustrate how regional institutions, through their coordination activities and assistance, can help prevent cooperation failures within regional arrangements that can sometimes "under-supply" the provision of public goods.

From Conflict to Cooperation

The Greater Mekong Subregion Program emerged from a post-Cold War context. During this period, armed conflicts took a significant physical and psychological toll on the peoples of the Mekong subregion, undermining political and economic systems and processes, the functioning of essential public institutions, and development of the private sector.

Longstanding interactions between the Greater Mekong countries include trade relationships, cultural and social affinity, and different but often complementary natural resource endowment. Although decades of conflict hampered cooperative relations between the countries, the 1990s marked a period of peace, regional security, and greater political stability. This enabled individual economies to pursue opportunities for subregional cooperation and economic expansion.

[1] The ADB typically uses the term "regional" to refer to the Asia-Pacific region as a whole, whereas "subregional" refers to specific groupings of countries or parts thereof) within the Asia-Pacific region.

To take advantage of the improved political-economic environment and opportunities for growth, the Greater Mekong program was envisaged as supporting a subregion that would be more integrated, prosperous and equitable. To turn this vision into a reality, eight strategic sectors were identified, and subsequent working groups formed in transport, energy, telecommunications, environment, tourism, trade, investment and human resource development. Agriculture was added as a priority sector in 2002.

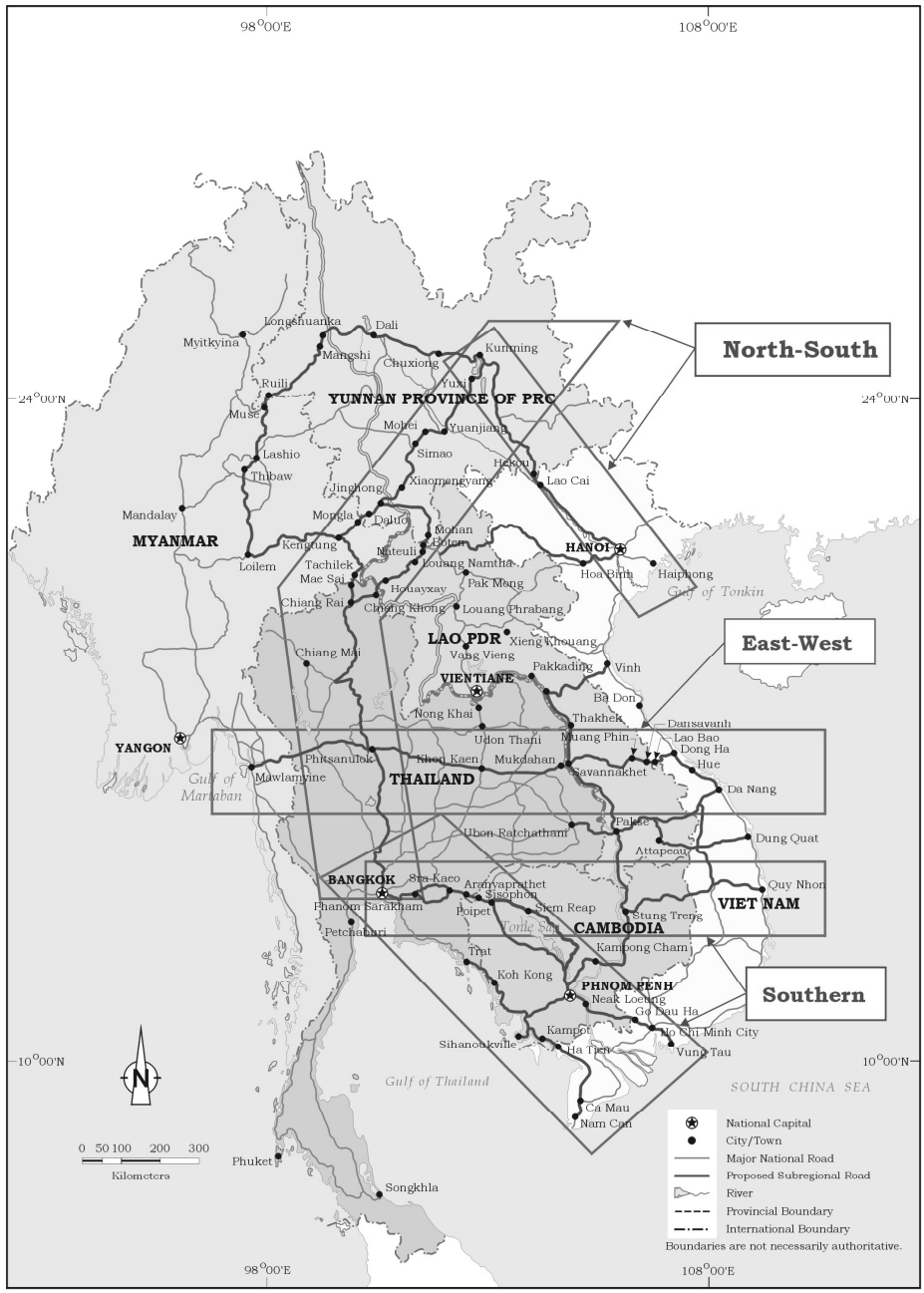
Connectivity, Competitiveness and Community

During the 12th Greater Mekong Subregion Ministerial Meeting in September 2003, the phrase "connectivity, competitiveness and community" was used to describe the shared vision for the subregion and the different approaches to achieve it. Central to the program is *connectivity,* which involves five major transport corridors linking the Greater Mekong subregion countries north to south, and east to west (Figure 22.1), as well as a subregional power network (Figure 22.2) and telecommunications structure ("backbone"). Connecting the subregion through infrastructure networks will make its countries more attractive not only as markets but also as centers for production. Deserving of equal attention are the "non-physical" facets of the connectivity aspect of the program, particularly agreements that facilitate the flow of goods and people across borders, and the exchange of electric power between countries. By advancing cross-border trade and promoting investments, the Greater Mekong program will help transform transport corridors into strategic "economic corridors."

Enhanced *competitiveness* is essential for the Greater Mekong countries to gain from regional and global integration processes. These processes include the Association of Southeast Asian Nations (ASEAN) Free Trade Area (AFTA), which has as members Cambodia, Laos, Myanmar, Thailand and Vietnam; the ASEAN-China Free Trade Area; various bilateral trade agreements; and memberships in the World Trade Organization (WTO). To sustain competitiveness in the long term, national and subregional efforts will need to absorb and effectively apply technological innovations, develop human resources and institutions, and reform policies and regulatory mechanisms.

While the Greater Mekong countries continue to promote subregional cooperation, there is potential to expand economic relations with and benefit from a wider regional economic *community,* should it materialize in Asia. By helping countries jointly manage shared natural resources or contain negative externalities through increased connectivity, the Greater Mekong Subregion Program is strengthening the growing sense of community taking place in the region.

Figure 22.1 Economic Corridors of the Greater Mekong Subregion



Source: Asian Development Bank.

Figure 22.2 Greater Mekong Subregion Regional Power Interconnections

Key Features of the Greater Mekong Subregion Program

Project-focused cooperation is a salient feature of the Greater Mekong Subregion Program. Since the program's inception, 17 infrastructure projects worth $3.4 billion have been implemented or are in implementation, along with almost 80 technical assistance projects worth almost $80 million (see Appendices 22.1 and 22.2). This project-focused approach has kept individual countries engaged in the subregional cooperation process, and has helped build and sustain a sense of commitment and ownership that culminated at the first Greater Mekong Subregion Summit of Leaders in November 2002. At the summit, leaders from the highest political level endorsed a vision calling for prosperity, equity and economic dynamism, as well as various approaches to make those visions a reality.

The project-focused approach includes loose institutional arrangements for maintaining cooperation. To put this into context, consider that there is no formal international agreement establishing the Greater Mekong subregion, and the ADB continues to serve as secretariat to help coordinate cooperation activities under the program. Prior to the 2002 summit, the highest decision-making body for the Greater Mekong Subregion Program was the annual ministerial meeting. This involves an individual in each country, in many cases a minister with an economic portfolio such as finance, planning or commerce, designated to oversee the program. The selected minister is assisted by senior officials, usually at the rank of director-general, and meets twice per year. Sector working groups made up of representatives from the line ministries involved meet once or more per year and report to the ministers meeting through the senior officials. Subregional cooperation activities identified and endorsed either by sector working groups, senior officials or ministers are implemented by line ministries or agencies, often assisted by donor-partner institutions.

There has been considerable flexibility and pragmatism in the process of selecting projects under the Greater Mekong Subregion Program. In the initial years of cooperation, ministers have endorsed projects based on sector studies. Priority has been given to improvement and rehabilitation projects rather than new initiatives, with the availability of financing (i.e., interested donors and other investors) a critical consideration. The decision-making process for implementing certain projects is assumed by the countries directly involved, and reaching consensus among all of the subregional countries is not a prerequisite. A segment of a corridor linking four countries, for example, can begin when two of the four countries make a decision to implement their particular components.

Supplying Regional Public Goods

Confidence-building, mutual trust and a reservoir of good will have been important outcomes of the Greater Mekong Subregion Program. By providing opportunities for the

countries to develop a shared vision about future development and plan and pursue joint activities that can engender regional public goods, the program has enhanced peace and stability in the subregion.

This section examines two regional public goods (or partial public goods in a more conventional sense) that have been supplied under the Greater Mekong Subregion Program: economic integration, and social and sustainable development.

Economic Integration

The Greater Mekong Subregion Program supports national and subregional efforts to deepen economic integration. Somewhat uniquely, the program is helping to integrate the subregional economies through increased connectivity rather than through rules-based trade and investment liberalization. At the core of this connectivity are the strategic economic corridors, which if implemented on schedule, will connect most of the Greater Mekong countries by 2010 through a network of interlocking roads.

The corridor projects complement measures that facilitate the flow of goods and people across borders, harmonize inter-country policies, and improve regulatory frameworks. Two additional initiatives for increased connectivity include a subregional power network and telecommunications structure. The enhanced connectivity achieved under these initiatives will complement rules-based trade and investment liberalization under ASEAN, in addition to other regional frameworks. Thus, the development and provision of infrastructure will enable the Greater Mekong countries to effectively capture economic benefits to be generated from trade and integration processes.

Closely linked to the physical dimensions of infrastructure development ("hardware") are national and subregional efforts supported by the program to formulate and implement cross-border agreements ("software"). The Agreement Facilitating Cross-Border Transportation of Goods and People (see Appendix 22.3) essentially removes non-physical barriers at border crossings and helps assure that physical improvements to infrastructure will lead to freer flows of goods and people. Such far-reaching and carefully negotiated agreements were not developed in a vacuum, but rather in conjunction with physical infrastructure development.

Enhanced connectivity also strengthens the efforts of individual Greater Mekong countries to improve the enabling environment for economic and private sector activities by reforming policy and regulatory frameworks and building institutional capacity. This can provide positive externalities or "spillovers" that can benefit the Greater Mekong subregion as a whole.

Social and Sustainable Development

The program supports various social and sustainable development management programs that supply regional public goods to individual countries in the subregion. For example, a surveillance and data collection system was developed to facilitate dissemination of environmental and natural resource information among the countries.[2] One of the main outcomes of the program has been establishment of a network for data and information exchange, as well as an early warning system on environment and natural resource management tailored for the Greater Mekong subregion, where individual countries share common ecosystems. Another example is an initiative to conserve Tonle Sap and the Siphandon, two vital ecological systems located in Cambodia and Laos, respectively, and shared by other countries of the Mekong River system. Both systems are important sources of fish and biodiversity for the entire subregion, and are affected by the actions of individual countries, such as upstream hydropower development, and downstream flood control measures. Technical assistance provided under the Greater Mekong Subregion Program has supported better management of renewable resources and agricultural production and fisheries in these wetlands, including financing studies to identify projects that augment community-based activities to govern the use of shared wetland resources.[3] This has resulted in a major initiative to support sustainable management and conservation of the Tonle Sap that includes a series of planned investment projects and technical assistance over several years.[4]

The Greater Mekong Subregion Program also addresses the prevention of HIV/AIDS in the context of expanding cross-border interactions between countries. The long-term implications of HIV/AIDS on human development, productivity and earnings potential are considerable, particularly as the infectious disease is likely to infect young people and children.[5] In collaboration with Greater Mekong governments, nongovernmental organizations (NGOs), the private sector, and other donor agencies, the ADB is adopting regional approaches and designing information packages to address the trans-boundary dimension of the disease by targeting mobile populations and potential carriers of the virus (i.e., seafarers, truck drivers, construction workers, sex workers, and other migrant workers).[6]

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[2] Regional Technical Assistance Projects 5622 and 5899, Subregional Environmental Monitoring and Information System (SEMIS I and II), Asian Development Bank.

[3] Regional Technical Assistance Project 5822, Protection and Management of Critical Wetlands in the Lower Mekong Basin, Asian Development Bank.

[4] See "Future Solutions Now – the Tonle Sap Initiative," Asian Development Bank (2002).

[5] See "A Wealth of Opportunity: Development Challenges in the Mekong Region," Asian Development Bank (2000), p. 28.

[6] Technical Assistance Project 5881, Preventing HIV/AIDS among Mobile Populations in the Greater Mekong Subregion, and Technical Assistance Project 5751, Prevention and Control of HIV/AIDS in the Greater Mekong Subregion, Asian Development Bank.

The Role of Regional Institutions in Coordinating Provision of Regional Public Goods

Positive spillover effects of public goods, based on geographic proximity or shared natural resources, would make cooperation arrangements a strategic choice for neighboring countries to optimize benefits from such public goods and natural resources. The "free-rider" problem often associated with providing public goods helps to explain why some countries are disinclined to bear the costs of providing, protecting or preserving common goods and natural resources on an individual basis. A promising alternative may be for a group of countries to devise development objectives and coordinate activities that generate public goods with assistance from a regional institution, such as a regional multilateral development bank.

Because of the absorptive constraints (i.e., weak structure and institutions) of the Greater Mekong economies, especially those in transition, the ADB as a regional development institution offers legitimacy and transparency to coordinate complex and often sensitive subregional cooperation processes. This includes validating and disseminating data and information, organizing stakeholder consultations and dialogues, providing technical support to develop subregional structures, institutions and rules, and supporting national and subregional capacity to capture regional public goods or prevent regional "bads." (The spread of pollution or communicable disease, or the trafficking of women and children across borders, can be referred to as regional "bads.")

A regional multilateral development bank has certain unique advantages in that it can play the role of coordinator in conjunction with providing other forms of assistance to its developing member countries. The ADB's involvement in the Greater Mekong Subregion Program, for example, includes such roles and functions as serving the countries involved as (i) an "honest broker" facilitating mutual trust and cooperation; (ii) a source of knowledge and supplier of information; (iii) a provider of assistance for national capacity building to manage regional cooperation activities; (iv) a source of financing for subregional projects; and (v) a promoter and coordinator for resource mobilization from other donors and partners. Given inadequate subregional mechanisms and structures to effectively manage subregional cooperation initiatives, the ADB has assumed some of the cost burden for developing the institutional capacity essential to supplying the optimal levels of regional public goods in the Greater Mekong subregion. In doing so, it has carried out the role of secretariat for the subregional program by providing staff resources and administrative and technical assistance budgets. As financier, the ADB has provided $1.2 billion in loans and another $49 million in technical assistance grants since the program began. Another $2.2 billion of public and private sector resources were mobilized by the ADB to finance investment projects.

By and large, supplying regional public goods requires appropriate levels and types of coordination to help assure their efficient and equitable provision to participating countries. Since coordination efforts involve individual yet interdependent countries within the Greater Mekong subregion, the involvement of an accepted organization with sufficient capacity, such as the ADB, allows for more agreeable coordination among participating countries. The ADB's institutional mandate, policies and strategies on promoting cooperation and sector development programs in the Asia-Pacific region underpin this highly effective role as coordinator.

The ADB's involvement in coordinating the Greater Mekong Subregion Program involves supporting intra-regional dialogues and consensus building, formulating and negotiating intra-regional agreements, and assisting disadvantaged economies.

Supporting Intra-regional Dialogues and Consensus Building

Regional institutions have a comparative advantage in helping to facilitate intra-regional meetings and sector forums, and in this context developing consensus and agreements among participating countries. These institutions can play a number of key roles and perform multiple functions, such as serving as secretariat, or providing information, technical support or financing. During the early days of the Greater Mekong Subregion Program, the ADB played the central role of an "honest broker," which involved mediating ongoing discussions with countries in the subregion to forge consensus on both the agenda and outcomes of various meetings. Such processes and the resulting projects helped to build mutual trust among the countries involved and, moreover, gradually transformed the Greater Mekong program into a viable forum for frank and open discussions between countries.

Formulating and Negotiating Intra-regional Agreements

Another comparative advantage for regional institutions is in coordinating the process of negotiating, implementing and monitoring intra-regional agreements. In many cases when there may not be any international agreements and enforcement mechanisms for regional public goods, the provision of those goods may be neither equitable nor optimal, leading to possible cooperation failures. The governance structure of regional institutions like the ADB can assume the task of establishing standards, promoting transparency through information dissemination, and monitoring compliance with subregional agreements among participating countries, thereby minimizing the risk of coordination failures. In due course, participating countries can observe the benefits of public goods, particularly as transaction costs are reduced, or as subregional enforcement mechanisms become more effective.

Although less visible than physical infrastructure projects, these intra-regional agreements are critically important not only to the advancement of subregional cooperation, but also to the provision of public goods. This is particularly important as the Greater Mekong countries increasingly recognize the need to address national and subregional regulatory and institutional issues, which will facilitate the freer movement of people and goods across borders, enhance economic, social and sustainable development, and help reduce poverty at national levels.

Two intra-regional agreements negotiated under the Greater Mekong Subregion Program were the aforementioned Agreement for the Facilitation of Cross-Border Transport of Goods and People (Appendix 22.3), and the Inter-Governmental Agreement on Regional Power Trade (Appendix 22.4). Critical to the success of both agreements was the ability of the ADB to combine the different roles of "honest broker" or secretariat with that of technical expert and facilitator of agreements, and financier for investment projects (to which the agreements would be applied).

Assisting Disadvantaged Economies

At the project levels, the ADB's involvement strengthens the integration of smaller, disadvantaged economies, which often require additional assistance to participate effectively in subregional cooperation processes. For example, in helping to develop the 210 MW Theun Hinboun Hydropower Project to support Laotian electricity exports to Thailand, the ADB assisted Electricité du Laos in negotiating the power purchase agreement with Thailand. Other examples of ADB support include the development of the Laotian segments of the North-South Corridor linking China's Yunnan Province through Laos to Thailand. The ADB helped the Laotian government secure concessional loans from the governments of China and Thailand, together with a loan from ADB. The Laotian government was able to obtain consent from the governments of China and Thailand, and, aided by the ADB, to apply the same design standards, as well as social and environmental protection measures, to the entire stretch of the project regardless of the financier for each section.

Conclusions

As the Greater Mekong Subregion Program has illustrated, regional development institutions can engender public goods at the subregional levels, benefiting participating countries in the process. The ADB's continued support through a comprehensive package of

products and services is helping to sustain the program.[7] The ADB's effective role as an "honest broker" has often been combined with other strategic functions, which is a unique advantage of a regional development institution. The full potential of the Greater Mekong Subregion Program, particularly in coordinating the provision of public goods, may not be realized without the appropriate structure, capacity and neutrality of a regional institution. If support, assistance and coordination by an organization were otherwise weak, fragmented or absent altogether, regional public goods could end up being undersupplied.

[7] See "Impact Study of ADB Program of Subregional Economic Cooperation in the Greater Mekong Subregion," 1999, Asian Development Bank.

Appendix 22.1. ADB Loan Projects in the Greater Mekong Subregion (GMS)

(As of 31 December 2003; in million of dollars)

Loan No.	Country	Project Name	Date Approved	Estimated Loan Closing Date	Total Project Cost	Financing			
						ADB	Government	Cofinancing	
1325	China	Yunnan Expressway	29-Sep-94	6-Sep-00	461.4	150.0	311.4		
1329	Lao PDR	Theun Hinboun Hydropower	8-Nov-94	14-Oct-98	270.0	60.0[a]	14.5[a]	195.5[b]	
1369	Lao PDR	Champassak Road Improvement	31-Aug-95	26-Jul-01	60.1	48.0	12.1		
1456	Lao PDR	Nam Leuk Hydropower Development	10-Sep-96	31-Mar-02	112.6	52.0	22.1	38.5	JBIC
1503	Cambodia	Siem Reap Airport	12-Dec-96	31-Mar-04	17.0	15.0	2.0		
1659	Cambodia	Phnom Penh - Ho Chi Minh City Highway	15-Dec-98	30-Jun-04	52.7	40.0	12.7		
1660	Vietnam	Phnom Penh - Ho Chi Minh City Highway	15-Dec-98	30-Jun-05	144.8	100.0	44.8		
1691	China	Southern Yunnan Road Development	24-Jun-99	31-Mar-04	770.3	250.0	520.3		
1727	Lao PDR	East-West Corridor Project	20-Dec-99	30-Sep-05	205.0	32.0	28.0[c]	145.0[d]	JICA and JBIC
1728	Vietnam	East-West Corridor Project	20-Dec-99	31-Dec-04	387.0	25.0	72.0[e]	290.0[f]	JBIC and World Bank
1945	Cambodia	GMS: Cambodia Road Improvement	26-Nov-02	30-Jun-07	77.5	50.0	17.5	10.0	OPEC Fund
1969	Cambodia	GMS: Mekong Tourism Development	12-Dec-02	30-Jun-08	20.7	15.6	5.1		
1970	Lao PDR	GMS: Mekong Tourism Development	12-Dec-02	30-Jun-08	14.2	10.9	3.3		
1971	Vietnam	GMS: Mekong Tourism Development	12-Dec-02	30-Jun-08	12.2	8.5	3.7		
1989	Lao PDR	GMS: Northern Economic Corridor [e]	20-Dec-02	30-Jun-07	95.8	30.0	7.3	58.5	Governments of PRC and Thailand
2014	China	Western Yunnan Roads Development	28-Oct-03	31-Mar-08	582.0	250.0	174.1	157.9	Agence Française de Développement and domestic commercial bank
2052	Cambodia	Cambodia: GMS Transmission Project	16-Dec-03	31-Dec-08	95.0	44.3	23.7	27.0	World Bank and Nordic Devt Fund
		Total (17 projects)			**3,378.3**	**1,181.3**	**1,274.6**	**922.4**	

[a] The financial participation of the government of Lao PDR, through Electricité du Laos (EdL) is as follows: Equity - $66.0 million; Debt - $8.5 million. Of the government's project equity, $60 million was provided as a loan by the ADB.
[b] Other financing sources for the project are as follows: Equity - Nordic Hydropower ($22.0 million), MDX Power ($22.0 million); Debt - Commercial Loan ($81.5 million), Export Credit ($70 million).
[c] Includes $8 million counterpart financing of the government of Lao PDR for the ADB loan, and Yen 2.0 billion worth of counterpart financing by the governments of Lao PDR and Thailand for the Second Mekong International Bridge.
[d] Includes Yen 7.2 billion grant assistance from JICA to Lao PDR for upgrading of the Seno-Muang Phin section in Lao PDR, and Yen 8.1 billion loan to Lao PDR and Thailand for the construction of the Second Mekong International Bridge.
[e] Includes $11 million counterpart financing of the government of Vietnam for the ADB loan, and Yen 6.6 billion worth of counterpart financing by the government of Vietnam for the Hai Van tunnel construction and Da Nang port upgrading.
[f] Includes Yen 18.9 billion and Yen 10.7 billion loans from JBIC to Vietnam for the construction of the Hai Van tunnel and upgrading of Da Nang port, respectively, and $22 million loan from the World Bank for the improvement of Highway 1A from Dong Ha to Da Nang.

APPENDIX 22.2

ADB Technical Assistance Projects in the Greater Mekong Subregion

(As of 31 December 2003; in millions of dollars)

Project Name	Date Approved	Total Project Cost
A. Core Projects		
Studies on Subregional Cooperation among Cambodia, China, Lao PDR, Myanmar, Thailand and Vietnam — Phase I	9-Mar-92	270.0
Promoting Subregional Cooperation among Cambodia, China, Lao PDR, Myanmar, Thailand and Vietnam — Phase II	10-Jun-93	5,260.0
Subregional Electric Power Forum — Greater Mekong Subregion	20-Sep-95	78.0
Meeting of Telecommunications Officials	2-Oct-95	30.0
Promoting Subregional Cooperation among Cambodia, China, Lao PDR, Myanmar, Thailand and Vietnam — Phase III	23-Jul-96	3,250.0
Subregional Telecommunications Forum — Greater Mekong Subregion	18-Jun-97	50.0
Promoting Subregional Cooperation among Cambodia, China, Lao PDR, Myanmar, Thailand and Vietnam Phase IV, Year 1	22-Dec-99	860.0
Promoting Subregional Cooperation among Cambodia, China, Lao PDR, Myanmar, Thailand and Vietnam — Phase IV, Year 2	14-Dec-00	860.0
Promoting Subregional Cooperation among Cambodia, China, Lao PDR, Myanmar, Thailand and Vietnam — Phase V	19-Dec-02	1,300.0
Subtotal		**11,958.0**
B. Feasibility Study/Project Preparation		
Study of the Lao-Thailand-Vietnam East-West Transport Corridor	18-Jul-94	1,000.0
Greater Mekong Infrastructure Improvement: Ho Chi Minh City to Phnom Penh	9-Nov-95	3,100.0
Thailand-Cambodia-Vietnam Southern Coastal Road Corridor	18-Jul-96	100.0
Se Kong-Se San and Nam Theun River Basins Hydropower Development Study	22-Aug-96	2,500.0
Study of the Lao-Thailand-Vietnam East-West Transport Corridor	11-Dec-96	3,100.0
Chiang Rai-Kunming Road Improvement via Lao PDR	27-Feb-97	625.0
East Loop Telecommunications Project in the Greater Mekong Subregion	28-May-97	820.0
Border Towns Urban Development — Thailand	27-Oct-97	1,000.0
Nam Ngum 500 kV Transmission — Lao PDR	28-Nov-97	605.0
Se San 3 Hydropower — Vietnam	14-Jul-99	1,248.0
Greater Mekong Preinvestment Study for the East-West Economic Corridor	22-Dec-99	350.0
Mekong/Lancang River Tourism Infrastructure Development	28-Dec-99	770.0
Establishment of Backbone Telecommunications Network Project Phase I	17-May-00	180.0
Nam Ngum River Basin Development — Lao PDR	14-Nov-00	1,015.0
Preparing the Western Yunnan Roads Development Project — China	20-Mar-01	970.0
North-Northeast Region Area Development — Thailand	26-Nov-01	1,430.0
Preparing the Northern Economic Corridor Project — Lao PDR	19-Dec-01	710.0
Greater Mekong Subregion: Cambodia Road Improvement Project — Small-scale Technical Assistance for Economic Analysis	4-Apr-02	188.0

(continued)

Appendix 22.2 (continued)

Project Name	Date Approved	Total Project Cost
Greater Mekong Subregion: Cambodia Road Improvement Project — Small-scale Technical Assistance for Environmental Assessment	11-Apr-02	75.0
Greater Mekong Subregion: Cambodia Road Improvement Project — Small-scale Technical Assistance for Resettlement Study and Social Impact Assessment	11-Apr-02	187.5
Greater Mekong Subregion: Cambodia Road Improvement Project Engineering Design Update	31-May-02	500.0
Preparing the Kunming-Haiphong Transport Corridor Project — Vietnam	17-Dec-02	1,250.0
Cambodia: Preparing the Power Distribution and Greater Mekong Subregion Transmission Project	10-Jan-03	910.0
Preparing the Greater Mekong Subregion Power Interconnection Project, Phase I	12-Dec-03	960.0
Subtotal		**23,593.5**
C. Advisory Technical Assistance		
Subregional Environmental Monitoring and Information System	9-Feb-95	4,000.0
Regional Program to Train Trainers in Tourism in the Greater Mekong Subregion	23-Oct-95	149.0
Cooperation in Employment Promotion and Training in the Greater Mekong Subregion	18-Apr-96	920.0
Subregional Environmental Training and Institutional Strengthening in the Greater Mekong Subregion	9-May-96	2,370.0
Mitigation of Nonphysical Barriers to Cross-Border Movement of Goods and People	29-May-96	232.0
Mekong/Lancang River Tourism Planning Study	24-Jun-97	655.0
Cross-Border Movement of Goods and People in the Greater Mekong Subregion	26-Aug-97	730.0
Prevention and Control of HIV/AIDS in the Greater Mekong Subregion	17-Sep-97	150.0
Poverty Reduction and Environmental Management in Remote Greater Mekong Watersheds	31-Dec-97	3,800.0
Strategic Environmental Framework for the Greater Mekong Subregion	20-Mar-98	1,900.0
Study of Health and Education Needs of Ethnic Minorities in the Subregion	30-Jun-98	850.0
Tourism Skills Development in the Greater Mekong Subregion	29-Sep-98	135.0
Protection and Management of Critical Wetlands in the Lower Mekong Basin	22-Dec-98	2,070.0
Facilitating the Cross-Border Movement of Goods and People in the Greater Mekong Subregion	16-Jul-99	990.0
Analyzing and Negotiating Financing Options for the Nam Leuk Hydropower Project Cost Overruns — Lao PDR	16-Jul-99	140.0
Preventing HIV/AIDS among Mobile Populations in the Greater Mekong Subregion	16-Dec-99	610.0
East-West Corridor Coordination — Lao PDR and Vietnam	20-Dec-99	690.0
Subregional Environmental Monitoring and Information System (Phase II)	29-Dec-99	600.0
Assessing a Concession Agreement for the Lao PDR: Chiang Rai-Kunming Road Improvement Project	2-Feb-00	150.0
Regional Indicative Master Plan on Power Interconnection in the Greater Mekong Subregion	14-Jul-00	950.0
Small and Medium-sized Enterprise Growth and Development in the Mekong Region	17-Nov-00	750.0
Rollback Malaria Initiative in the Greater Mekong Subregion	7-Dec-00	750.0
Drug Eradication in the Greater Mekong Subregion	21-Dec-00	150.0
Greater Mekong Subregion Telecommunications Sector Policy Formulation and Capacity Building	2-Nov-01	750.0

Appendix 22.2 (continued)

Project Name	Date Approved	Total Project Cost
Capacity Building for National Institutions Involved in the Greater Mekong Subregion Economic Cooperation Program	21-Dec-01	800.0
Facilitating Cross-Border Trade and Investment for Small and Medium-sized Enterprise Development in the Greater Mekong Subregion	21-Dec-01	900.0
Support to the Greater Mekong Subregion Summit of Leaders and Related Activities	17-May-02	500.0
Study on Subregional Issues in the Agriculture Sector in the Greater Mekong Subregion	31-May-02	180.0
Networking with the Asian Institute of Technology	25-Jun-02	150.0
Greater Mekong Subregion Phnom Penh Plan for Development Management	25-Oct-02	800.0
National Performance Assessment and Subregional Strategic Environment Framework in the Greater Mekong Subregion	12-Dec-02	2,400.0
ICT and HIV/AIDS Preventive Education in the Cross-Border Areas of the Greater Mekong Subregion	16-Dec-02	1,848.0
Implementing the Agreement for Facilitation of the Cross-Border Transport of Goods and People in the Greater Mekong Subregion-Phase 1	9-Apr-03	860.0
Study for a Regional Power Trade Operating Agreement in the Greater Mekong Subregion	21-Apr-03	920.0
Financing Needs for HIV/AIDS Prevention and Care in Asia and the Pacific	16-May-03	442.0
Promoting Partnerships to Accelerate Agriculture Development and Poverty Reduction in the Greater Mekong Subregion	9-Jun-03	356.0
Making Markets Work for the Poor	2-Jul-03	2,600.0
Poverty Reduction in Upland Communities in the Mekong Region through Improved Community and Industrial Forestry	4-Aug-03	1,000.0
Promoting NGO Support for Poverty Reduction in the Greater Mekong Subregion	22-Aug-03	150.0
Rural, Urban and Subregional Linkages in the Mekong Region: A Holistic Approach to Development and Poverty Reduction	2-Sep-03	450.0
Study on Urban Violence in the Public Realm-Towards a More Effective Urban Upgrading	30-Oct-03	150.0
Greater Mekong Subregion Southern Coastal Corridor	5-Nov-03	150.0
Strengthening the Capacity of Financial Sector Regulators and Supervisors	15-Dec-03	400.0
Support for the Mekong River Commission Flood Management and Mitigation Program	16-Dec-03	3,700.0
Subtotal		**43,247.0**
Total Amount (77 Technical Assistance Projects)		**78,798.5**

APPENDIX 22.3

Facilitating the Cross-Border Transport of Goods and People in the Greater Mekong Subregion

Since the onset of the Program for Economic Cooperation in the Greater Mekong Subregion in 1992 with support from the Asian Development Bank, priority has been given to providing subregional transport infrastructure to enhance the connectivity and economic linkages between the six Greater Mekong countries.

The Greater Mekong governments have recognized that the provision of subregional physical infrastructure is a necessary but unto itself insufficient condition for increased connectivity. The mitigation of nonphysical barriers to the cross-border movement of goods and people is important to increase efficiency, reduce costs, and maximize the economic benefits of improved subregional transport infrastructure. It is crucial to transforming the Greater Mekong's transport corridors into economic corridors. An economic corridor is a geographically designated area where infrastructure development is directly linked to production, trade and investment potential.

In 1996, the ADB provided technical assistance financing for a study of the six Greater Mekong countries to (i) identify and assess priority transport-related, cross-border issues; (ii) assess the viability of existing international conventions or agreements as possible solutions or responses to the priority issues; (iii) identify and assess issues that are not addressed by existing international conventions or agreements; and (iv) identify implementation requirements for addressing priority issues. The study found substantial barriers to trade and the free movement of people between the countries of the subregion. Nonphysical barriers that impede the free movement of vehicles, goods and people across international borders in the subregion included (i) restrictions on the entry of motor vehicles, often causing costly and time-consuming trans-shipment; (ii) different standards pertaining to vehicle size, weight and safety requirements, and driver qualifications; (iii) inconsistent and difficult formalities related to customs procedures, inspections, clearances and assessment of duties; and (iv) restrictive visa requirements.

For example, along the east-west corridor linking Myanmar, Thailand, Laos and Vietnam, while most trucks move freely across the Laotian-Thai border, any movements

further inside the countries are restricted to border areas. Because of the absence of inland container depots in Mukdahan or Khon Kaen, Laotian goods are brought across the border as loose cargo, transferred to Thai trucks, and transported by them to the port, where they are placed into containers. Thai goods transiting through Laos to Vietnam are taken across the border in Thai trucks and sold to Laotian traders, who then load them onto their own trucks. If the corridor is to efficiently serve all east-west movements, then trucks from the four corridor countries must be able to move freely along its length, thus reducing delays and damage to cargo.

There are international conventions that address these nonphysical barriers to the cross-border movement of goods and people. However, for legal and political reasons, most Greater Mekong countries are still unable to fully accede to these conventions. Over the long term, accession to these international conventions by all of these countries will be necessary to ensure efficient cross-border transport in the subregion. However, there is a need to address these nonphysical barriers over the short to medium term as well.

Bilateral agreements exist between many of the Greater Mekong countries related to cross-border movement, but these agreements only partly address critical issues, and hinder transit movement of vehicles, goods and people to third countries. In addition, the bilateral agreements between pairs of countries are not necessarily consistent with each other and run the risk of gaps and overlaps, thereby making the process of facilitating transport even more difficult. There is a need for a multilateral framework to facilitate cross-border movement on a subregion-wide and consistent basis, allowing for both inter-state and transit traffic.

The Greater Mekong Subregion Cross-Border Transport Agreement

The Greater Mekong Subregion Cross-Border Transport Agreement is a multilateral instrument designed for adoption by all countries of the subregion to facilitate cross-border transport of goods and people. Formulated under the auspices of a technical assistance project financed by the ADB, the agreement takes a practical approach, in the short to medium term, to streamlining regulations and reducing nonphysical barriers. It incorporates the principles of bilateral or multilateral action, as well as flexibility in recognizing differences in procedures in each of the countries. The agreement includes references to existing international conventions that have demonstrated their usefulness in a broad range of countries. It also takes into account, and is consistent with, similar initiatives being undertaken by ASEAN. In this regard, the ADB has undertaken extensive consultations and coordination with the United Nations Economic and Social Commission for

Asia and the Pacific (UNESCAP) and the ASEAN Secretariat to ensure that the Greater Mekong Subregion Agreement is consistent with existing international conventions on cross-border land transport facilitation, as well as with similar agreements being forged by ASEAN countries. (Five of the six Greater Mekong countries are ASEAN members.) The ADB has also consulted with the United Nations Economic Commission for Europe (UNECE) to learn about the commission's experiences in promoting cross-border land transport facilitation in Europe.

The Greater Mekong agreement is a compact and comprehensive multilateral instrument that covers in a single document all the relevant aspects of facilitating cross-border transport. These include (i) single-stop/single-window customs inspection; (ii) cross-border movement of persons (i.e., visas for persons engaged in transport operations); (iii) transit traffic regimes, including exemptions from physical customs inspection, bond deposit, escort, and phytosanitary and veterinary inspection; (iv) requirements of road vehicles to be eligible for cross-border traffic; (v) exchange of commercial traffic rights; and (vi) infrastructure, including road and bridge design standards, road signs and signals. The agreement will apply to selected and mutually agreed upon routes and points of entry and exit in the signatory countries.

The agreement is formally known as "The Agreement between and among the Governments of the Kingdom of Cambodia, the People's Republic of China, the Lao People's Democratic Republic, the Union of Myanmar, the Kingdom of Thailand, and the Socialist Republic of Vietnam for the Facilitation of Cross-Border Transport of Goods and People." Thus, all of the Greater Mekong subregion countries are already signatories to the agreement, which includes a preamble and ten parts. Part I provides general provisions; Part II covers the facilitation of border crossing; Part III addresses the cross-border movement of people; Part IV covers the cross-border transport of goods; Part V covers the requirements for the admittance of road vehicles; Part VI deals with the exchange of commercial traffic rights; Part VII covers infrastructure; Part VIII addresses the institutional framework; Part IX sets out miscellaneous provisions; and Part X sets out final provisions.

Annexes and protocols to the agreement have been drafted under the auspices of a technical assistance project financed by the ADB. The annexes contain technical details, form an integral part of the agreement, and are equally binding. The protocols contain time- or site-specific variable elements, and also form an integral part of the agreement and are equally binding. As the list on the next page shows, there are currently 17 annexes and three protocols to be negotiated and finalized by the Greater Mekong countries over 2003-2005. An additional annex for Article 17 on driving permits will also be developed. These annexes and protocols have been drafted in close consultation with the Greater Mekong governments, UNESCAP, the ASEAN Secretariat, and UNECE.

Annexes and Protocols to the Greater Mekong Subregion Cross-Border Transport Agreement

Annex 1	Carriage of Dangerous Goods
Annex 2	Registration of Vehicles in International Traffic
Annex 3	Carriage of Perishable Goods
Annex 4	Facilitation of Frontier Crossing Formalities
Annex 5	Cross-Border Movement of People
Annex 6	Transit and Inland Clearance Customs Regime
Annex 7	Road Traffic Regulation and Signage
Annex 8	Temporary Importation of Motor Vehicles
Annex 9	Criteria for Licensing of Transport Operators for Cross-Border Transport Operations
Annex 10	Conditions of Transport
Annex 11	Road and Bridge Design and Construction Standards and Specifications
Annex 12	Border Crossing and Transit Facilities and Services
Annex 13a	Multimodal Carrier Liability Regime
Annex 13b	Criteria for Licensing of Multimodal Transport Operators for Cross-Border Transport Operations
Annex 14	Container Customs Regime
Annex 15	Commodity Classification System
Annex 16	Criteria for Driving Licenses
Protocol 1	Designation of Corridors, Routes, and Points of Entry and Exit (Border Crossings)
Protocol 2	Road User Charges for Transit Traffic
Protocol 3	Frequency and Capacity of Services (Quotas) and Issuance of Permits

APPENDIX 22.4

Inter-Governmental Agreement on Power Interconnection and Trade in the Greater Mekong Subregion

Cooperation in Energy: The Need for Subregional Power Trade

An energy sector study undertaken as part of the ADB-supported program for economic cooperation in the Greater Mekong subregion provided the scope of cooperation, the required framework, and recommendations for specific projects or project concepts to promote cooperation to develop the energy sector.[1] Based on the recommendations, a subregional Electric Power Forum was established in April 1995 to (i) promote opportunities for extended economic cooperation in the fields of electric power; (ii) facilitate implementation of priority subregional power projects; and (iii) address technical, economic, financial and institutional issues relevant to subregional power sector development.

Further, the Expert Group on Power Interconnection and Trade was created in June 1998 to discuss detailed work programs and recommend its findings to the Electric Power Forum in order to promote the development of the regional transmission network and facilitate the expansion of cross-border power trade.

In the Greater Mekong subregion, power has been traded on a bilateral basis, mainly through either memoranda of understanding between the governments, or through long-term power purchase agreements. While bilateral trade brings about some benefits, countries in the subregion recognize that greater benefits will not be realized unless a regional power transmission network is formed. This involves developing and operating, in a coordinated manner, a competitive subregional electricity market in the Greater Mekong. The countries know that through power trade, they will (i) reduce investments in power reserves to meet peak demand; (ii) achieve more reliable supply; (iii) reduce operational costs; (iv) reduce greenhouse gas emissions and other pollutants; and (v) increase consumer access to cheapest power sources.

[1] Technical Assistance Project No. 5535. The study was carried out by M/S Norconsult in November 1994.

Under the Greater Mekong Subregion Program, cooperation in energy has involved a two-pronged approach to develop the power market that combines both policy framework and physical infrastructure components. Providing the policy and institutional framework promotes opportunities for extended cooperation in regional power trade. Physical infrastructure involves a building block approach to developing the necessary grid interconnections to physically facilitate the cross-border dispatch of power.

Policy Framework for Subregional Power Trade

Since their formation, both the Electrical Power Forum and the Expert Group on Power Interconnection and Trade have provided important leadership on a number of major subregional energy initiatives, including the adoption of the Policy Statement on Subregional Power Trade in October 1999. The statement contains major commitments by the Greater Mekong countries to eventually integrate their national power systems into a subregional grid, and also commits the countries to recognize the importance of technical harmonization of national transmission systems with eventual interconnection in mind.

Significance of the Inter-Governmental Agreement

The Policy Statement on Subregional Power prescribed that the Greater Mekong countries sign an inter-governmental agreement to provide the framework to advance electricity trade in the subregion. A draft of the agreement was formulated with World Bank assistance, and all six subregional countries signed it during the first Greater Mekong Subregion Summit of Leaders on November 3, 2002.

The inter-governmental agreement is the first outcome of the highest commitment by the Greater Mekong countries to promote subregional power trade. The agreement sets out principles for subregional power trade that will enable all of the countries to (i) coordinate and cooperate in the planning and operation of their systems to minimize costs while maintaining satisfactory reliability; (ii) fully recover their costs and share equitably in the resulting benefits; and (iii) provide reliable and economical electric service to the customers of each country.

The inter-governmental agreement also provides for the creation of a high-level body, the Regional Power Trade Coordination Committee, to coordinate implementation of subregional power trade. Country nominations of committee members are under way. Also, a Regional Power Trade Operating Agreement is being drafted with the ADB's assistance. The goal is for all of the Greater Mekong countries to adopt the agreement by December 2005.

Power Interconnection Infrastructure: Towards Subregional Power Trade

In addition to work on the policy framework for power trade, energy cooperation under the Greater Mekong Subregion Program will focus on the necessary physical power interconnections in the coming years and on harmonization of transmission planning, design and operational practices. The countries will therefore continue to plan for the building of necessary power interconnections to enable power trade based on findings of a study entitled the "Regional Indicative Master Plan on Power Interconnection." The Electrical Power Forum and the Expert Group on Power Interconnection and Trade supervised the master plan study, which began in October 2000. The study identified necessary physical power interconnections in the subregion up to 2020, recommended least-cost grid interconnection scenarios, and identified activities to coordinate technical issues needed to link national transmission systems. The study was endorsed by the Expert Group on Power Interconnection and Trade in May 2002.

The master plan study recommended an indicative plan consisting of "blocks" of power interconnection lines that can stand on their own merits, in terms of providing phased cross-border connections needed on the basis of power demand forecasts and generation system planning scenarios.

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