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**Managing the  
Environmental and Social  
Impacts of a Major IDB-  
Financed Road  
Improvement Project in  
Panama: The Case of  
Darién**

John Redwood

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This Technical Note was prepared by the Environmental and Social Safeguards Unit (VPS/ESG) of the Inter-American Development Bank (IDB). ESG works to promote the environmental and social sustainability of Bank operations. It collaborates with project teams to execute the IDB's commitment of ensuring that each project is assessed, approved and monitored with due regard to environmental, social, health and safety aspects, and that all project – related impacts and risks are adequately mitigated or controlled. ESG also helps the Bank respond to emerging sustainability issues and opportunities.

This manuscript documents the experience of the Inter-American Development Bank in managing the environmental and social impacts of road paving, improvement and road-related projects along the Pan-American Highway in the Darién province, Panama, and presents lessons and recommendations on how such impacts can best be identified, assessed and addressed in large ecologically sensitive and socio-culturally diverse areas.

This document was prepared under the supervision of Janine Ferretti, Chief of the Environmental and Social Safeguards Unit (VPS/ESG). The author was John Redwood III, consultant. Insightful inputs were provided by Denis Corrales and Jonathan Renshaw. Editorial support was supervised and provided by Gabriela Infante and Iona Hawken.

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## **Acronyms**

AMP	Panama Marine Authority
ANAM	National Environmental Authority
CAI	International Advisory Committee
CEP	Program Executive Committee
CIFLORPAN	The Panama Center for Plant Research
CLC	Local Consultative Committee
CONADES	National Sustainable Development Council
CPA	The Pan American Highway
ESIR	Environment and Social Impact Report
HDI	Human Development Index
ICAP	Panama Institute for Agricultural Science
IDB	Inter-American Development Bank
IDIAP	Panama Agricultural Research Institute
IIRSA	South American Regional Infrastructure Integration Initiative
LAC	Local Advisory Committee
MEF	Ministry of Economy and Finance
MIDA	Ministry of Agrarian Development
MIPPE	Ministry of Economic Policy and Planning
MOP	Ministry of Public Works
MP	Ministry of the Presidency

NGO Non-governmental Organization  
PCU Program Coordination Unit  
PND Darién National Park  
POA Annual Operating Plan  
POT Land Use Management Plan  
SECOIN Secretariat of International Coordination  
SINAP National Protected Area System  
UCP Program Coordinating Unit  
USAID United States Agency for International Development  
ZDS Sustainable Development Zones  
PDSD Darién Sustainable Development Program

## **Executive Summary**

The Inter-American Development Bank (IDB) has provided both a loan and subsequent additional financing for the Darién Sustainable Development Program, the first for US\$ 70.4 million, approved in December 2002, and the second for US\$ 17 million, approved in June 2007. The project was completed in December 2009 with full disbursement of the Bank loans. Its two most salient design characteristics are that it included pavement of a 134 kilometer section of the existing Pan-American Highway and rehabilitation of other sections of this and other local roads but, given the specific characteristics of the road's area of influence, the Bank decided to embed these investments in a broader sustainable regional development program and require that certain environmental and social protection measures be taken prior to initiating the planned road improvements. The project's design and implementation experience in relation to its approach to the anticipation and management of the potential direct and indirect environmental and social impacts of the road improvements, thus, hold important lessons for the Bank as it continues to support similar projects in equally challenging parts of Central and South America.

The project area was characterized by significant poverty, especially in rural areas, but also rich natural resources, including biodiversity, and a number of indigenous communities, all of which, however, were undergoing significant development pressures. Recognizing that the proposed road improvements were likely to further exacerbate these pressures, the project sought "to reverse current trends that are destroying the ecosystem of Darién by instituting the concept of sustainable development in terms of striking a dynamic balance among human, ecological and economic factors" and the respective project document affirmed that "progress towards such a balance will only be possible to the extent that cultural and biological diversity can be safeguarded and promoted." In an effort to achieve these objectives, the project contained five basic components: (i) land use planning, titling, management and protection of natural resources; (ii) support to productive activities; (iii) institutional strengthening; (iv) rehabilitation of transport infrastructure, primarily featuring pavement of part of the Pan American Highway; and (v) upgrading of basic services.

Implementation delays and cost overruns required an extension of the project implementation period and the supplemental financing mentioned above. In addition to two

project completion reports, this operation was the object of an external evaluation. Final project costs were US\$ 125.7 million, representing a 43 percent overrun in relation to the appraisal estimate of US\$ 88 million. Most of the additional costs were for the road rehabilitation component, which consumed slightly more than half of all project resources (and 56 percent of the Bank loan), nearly doubling from an appraisal estimate of US\$ 33 million to an actual cost at completion of over US\$ 63.2 million. The project also took six years longer to implement than originally anticipated due to a combination of budgetary and administrative problems, including several changes in the central government, as the project was prepared during one administration and finished three administrations later, and executing agencies.

Most of the initially planned infrastructure investments were eventually implemented, but this was not the case with some of the environmental and social protection measures. In addition, even though the project sought to benefit small farmers located along the segment of the Pan American Highway to be paved, increasing land values and speculation as a result of the road improvement led to the conversion of many of these areas to larger scale cattle ranches, thereby displacing the poorer smallholders and undermining the Bank's efforts to help improve their livelihoods on a more sustainable basis. The evaluation concluded that the project made "important progress with respect to its general objectives...but it did not achieve its full potential."

Among the main lessons that can be drawn from the project are the following:

1. The project took an innovative approach to anticipating and addressing the potential adverse direct and indirect impacts of a major road improvement, by incorporating this investment in a broader multi-sectoral regional development operation, which ambitiously sought to, at the same time, boost economic development, alleviate rural poverty, and protect biodiversity and other renewable natural resources. The request for supplemental financing later observed, however, that it would have been better if the Bank had supported this program through a multi-phase set of projects with the first one seeking to implement the preconditions in terms of environmental and social management and protection, including the required institutional strengthening, and the second financing paving of the highway and other infrastructure improvements together with the expansion of basic services.

2. No matter how well a complex operation such as the present one is designed and prepared, what matters at the end of the day is how – and how well – it is implemented. As a corollary to this, it is necessary both to have an in-depth understanding of the political-economic and institutional context and dynamics in which the project will be implemented and to be able to react quickly and adapt effectively when unanticipated events and impacts occur
3. Complex projects like this one, and even simpler operations in complex and challenging environments such as Darién, often take longer – sometimes far longer – and cost more – sometimes considerably more – to implement than initially anticipated. However, the combination of a complex project in a complex and dynamic environment will almost certainly experience substantial implementation delays and cost overruns, for which both governments and international financing agencies such as the Bank must be prepared in advance.
4. Unanticipated (although not unanticipatable) impacts of major road improvement investments – such as the rapid rise in rural land values and prices, significant land use changes and increasing land concentration in their areas of influence can “derail” other project efforts to achieve relevant strategic objectives, such as “stabilizing the agricultural frontier,” “fixing” small farmers to the land, and protecting areas that are rich in biodiversity, often with perverse (as well as unexpected) environmental and/or social consequences.
5. More generally, major road improvements (i.e., new construction and/or pavement of an existing road) in less developed agricultural and natural resource frontier regions are likely to have significant direct and indirect environmental and social impacts in their direct and indirect areas of influence. These impacts need to be anticipated and assessed up-front to the extent possible and appropriate plans to avoid, minimize, mitigate and/or compensate for them need to be carefully developed and properly implemented. Implementation of many of the necessary environmental and social management and protection measures needs to take place prior to undertaking the road improvements per se. Controlling land ownership, tenure and use and protecting biodiversity and indigenous populations and other vulnerable social groups (e.g., small subsistence farmers, etc.) in the immediate and more remote areas of influence of the proposed road improvement will

be particularly important in this regard and should be a priority in the associated environmental and social management plans.

6. Multi-sectoral regional projects like the present one need to be supported by appropriate national and sectoral policies, and mechanisms to adequately direct and coordinate multiple public institutions in different sectors and at different levels of government need to be in place and function effectively throughout project implementation.
7. Systematic monitoring and evaluation of projects, especially challenging and complex ones like the one reviewed above, are essential for an adequate understanding of what actually happened – and what did not – in relation to what was intended and attempted, as well as with respect to the results and impacts of these interventions, both positive and negative and expected and unanticipated.
8. A number of important “loose ends” and “unfinished business” from the project clearly remain in Darién, which continues to be comparatively poor and to suffer from insufficient protection of its rich biodiversity and inadequate support to its vulnerable indigenous and other low-income inhabitants, particularly in rural (but also urban) areas, which are still under (partly improved road-induced) pressure from other economic and social forces. In short, the sustainable development challenge still remains and may even have become more difficult and complex now that the paved Pan-American Highway is in place at least part way through the province.
9. This will be even more important should the Pan-American Highway eventually be extended further to the east and south passing through what is known as the “Darién Gap” all the way to the border with Colombia, which would thus connect North, Central, and South America by road, and even further enhance and exacerbate the road’s direct and indirect economic, environmental, and social impact in the province. This sparsely inhabited area, moreover, is even more sensitive from both a biodiversity and a socio-cultural (i.e, presence of indigenous peoples) standpoint.

## **I. The Darién Sustainable Development Program (PN-0116)**

### **A. Background**

According to the Bank's project document, Darién, which is the easternmost province in Panama, presents a sharp dichotomy: it contains the poorest population and the richest natural resources in the country. The province has a land area of 16,671 km<sup>2</sup> (22% of national territory) and a population density of 3.6 persons per km<sup>2</sup>. Its 60,000 inhabitants, scattered throughout the territory, belong to three ethnic groups that are relatively distinct in terms of their demographic dynamics, their cultural heritage and their relationship with the region's natural resources. Average monthly family income is 80 balboas, less than half the national average, and between 59% and 78% of the province's population is classified as "indigent" or "poor."

The province has three different ecosystems: (a) an estuary around the Gulf of San Miguel, which provides conditions suitable for mangrove ecosystems, acacia forests and a rich diversity of fish life; (b) three mountain ranges, which are home to most of the region's unique flora and fauna; and (c) the Central Valley, in the basin of the Chucunaque River (through which the Pan American Highway was built), and a number of smaller valleys that constitute the region's modest agricultural potential.<sup>1</sup>

This meant that the province housed significant biodiversity. In this regard, the project document noted further that "in recognition of the region's natural riches, the Darién National Park (PND) was established in 1980. In 1981 UNESCO designated it as a World Heritage Site, and in 1983 as a 'Man and the Biosphere Reserve.' It occupies a third of the province's land area, in the mountains and forested areas along the Colombian border, and is the largest protected area on the Central American isthmus. In addition, the province was characterized by considerable socio-cultural diversity, including both indigenous and Afro-descendant populations, as well as conflicts over land tenure. In the words of the project appraisal report:

Darién also has an important ethnic and cultural heritage, owing to the presence of the Emberá, Wounaan and Kuna indigenous groups and their interrelations with the Afro-Darién and immigrant population, who have preserved the cultural traits of their provinces of origin. There are marked differences among the ethnic groups, and in each case cultural characteristics determine their economic ways and their exploitation and management of local resources.

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<sup>1</sup> Inter-American Development Bank, *Panama – Darien Sustainable Development Program (PN-0016)*, project document, 2002, pg. 1.

The ethnic divisions of the population are not immune to conflict, which is generally associated with land tenure issues. The indigenous groups have laid claim to lands beyond the Comarca, and immigrant farmers (the principal holders of land use, or possessory rights) insist on a swifter and less costly system of land titling, while the Afro-Darien people are apparently migrating to Panama City and declining in numbers locally. There is also a process of integration, and some areas are becoming more diverse in terms of their ethnic composition.<sup>2</sup>

And the province had been subject to significant in-migration and new settlement over the past several decades, reflecting the impact of the Pan-American Highway. Thus, according to the Bank's project document, there had been two distinct periods in Darién's recent history:

Before the highway was put through, the region communicated by means of the estuary emptying into the Gulf of San Miguel. There were to be found the major economic activities: fishing and lumbering. Migration inflows (colonization from "old" Darién) pushed up the rivers from La Palma, the provincial capital, into more productive farming areas in the flatlands along the rivers. Their population in 1978 amounted to 23,000, most of them Afro-Darien people, with a growth rate of 1.56%.

The opening of the highway in 1978 brought a radical change in this pattern and introduced a direct flow of colonization into the center of the province, creating a "new Darién" with its center at Metetí. The new highway, which was clearly over-built,<sup>3</sup> speeded (sic) up the process of colonization, and brought about a significant change in the exploitation of natural resources, the geographic distribution of population, and the relationships among the various ethnic groups. Population grew at an annual rate of about 4.5%, and is currently composed of immigrant settlers (*colonos*) (45%), indigenous groups (30%) and Afro-Darienites (25%).<sup>4</sup>

To complete the picture, other salient features of the post Pan-American Highway occupation of the province, according to this report, included the following:

- Because of the special features of the region's natural resources, which are both rich and fragile, successive Panamanian governments since 1960 have designated eight protection zones for special handling. Some 84% of the province's area is affected by regulatory restrictions governing the region. Only 16% (258,263 ha) of the area remains available

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<sup>2</sup> *Ibid.* pg. 1.

<sup>3</sup> According to the report, "the highway is over-dimensioned both for current and projected traffic; 20 years after it was built, traffic on the 100 km stretch from Agua Fría to Yaviza amounts to only 400 vehicles a day, and is less than 200 on the Metetí-Yaviza section. The road is built to a capacity of more than 2,000 vehicles a day."

<sup>4</sup> *Ibid.* pg. 2.

and unclaimed under prevailing rules. Moreover, only 151,034 ha (9.4% of the area) is considered suitable for farming or livestock grazing; the remainder is forest land, with 428,478 ha (26%) classed as "productive forest," 376,123 ha (23%) as "woodland and tree crops," and 658,515 ha (40%) as protected areas. At the current time, 39% of the territory lies in protected areas, but this includes production forest areas within the PND, while excluding protected areas such as the Serranía de Cañazas and the Serranía de Darién.

- The traditional fishing area is located mainly in the estuary of the Gulf of San Miguel, which is surrounded by 404 km<sup>2</sup> of mangrove swamps that help to sustain the fishing livelihood of 15 communities. The Gulf itself has been declared off-limits to commercial fishing fleets. Its designation, however, bears little relation to the characteristics of its existing resources and habitats, and the ban is frequently ignored.
- Only 246 of the 5,441 farms (covering 217,372 ha) identified in the 1990 farm census carry ownership title, but there is a very active market in possessory rights, which are easily transferable. This instrument, which is legally precarious, typifies landholding in the region, and is consistent with the pattern of temporary occupation that has been characteristic of the process of forest exploitation and colonization in Darién.
- The current land use scheme was not based on any set of consistent, simple technical criteria appropriate to the province's development context. Resource administration is thus a complex task and is generally ineffective. The funds needed to enforce it properly are far beyond the budgets of the National Environmental Authority (ANAM) and the Panama Marine Authority (AMP).
- The region has been extensively exploited by forestry and mining interests, and by the expansion of farming and commercial fishing. Even so, according to the latest information, 76.1% of the area, largely under natural forest cover, is considered "unexploited" and 79.3% is classed under "suitable use."
- The trend toward deforestation is perhaps the most serious problem. It is estimated that the deforested area rose from 159,563 ha to 396,508 ha between 1980 and 1997...the greatest problem is in terms of management. Management plans for forest concessions are ignored. Reforestation efforts are insufficient: it is estimated that fewer than 1,000 ha

were reforested in Darién over the period 1967 to 1992. The area in forest plantations in 1997 was only 453 ha, despite a costly scheme of fiscal incentives for reforestation.

- In the farming sector, the area in production is used inefficiently. Deforested lots are used temporarily to grow crops, and are then abandoned or turned over to extensive grazing. Farming practices are traditional and inefficient, and focused on low-value crops that are grown primarily for home consumption and have little chance to compete on the market.
- The inappropriate use of resources extends to the rich fish life of the Gulf of San Miguel. Traditional fishing is unsustainable both in its intensity and in the methods used. There is clear evidence that the estuary's fishing zone is being over-exploited, as reflected in the volume and size of the catch.<sup>5</sup>

The project document, thus, describes a typical tropical natural resource “frontier” situation characterized by rapid and largely uncontrolled occupation and land use in a setting of considerable ecological sensitivity and ethnic diversity. As is also generally the case in other such regions, and as a direct reflection of their political economy,<sup>6</sup> there are also weak local institutions and poor governance. Furthermore, in the case of Darién, local indigenous groups were characterized by “organizational confusion” and needed “to resolve land tenure problems, in addition to strengthening their governing bodies” so that they could “play an effective role in project development.” The precarious governance in the province at the time the Bank operation was appraised is clearly evident from the project report, which affirmed the following under the general heading of “Institutions, Civil Society, and Security”:

Regional and local administrations are weak, reflecting in part the high degree of centralization. Although steps have been taken to decentralize authority, and local mayors are now elected by popular vote (the Governor of the province is still appointed by the President of the Republic), the process is just beginning. Municipal finances are shaky and depend to a large extent on transfers from the central government, although the Constitution empowers the municipalities to impose certain kinds of taxes, including forest operation levies. This financial dependence on national transfers has led to the creation of a mechanism for provincial coordination, but it is apparently not operational because powers have not been delegated from

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<sup>5</sup> *Ibid.*, pp. 2-4.

<sup>6</sup> For an interesting discussion of this situation in the Brazilian Amazon in the 1980s and 1990s, see Robert R. Schneider, *Government and the Economy on the Amazon Frontier*, Environment Department Paper No. 11, World Bank, Washington D.C., August 1995.

the national agencies to the local representatives, and because the provincial and municipal governments are themselves also weak.<sup>7</sup>

The project report also describes the existing road and transport situation in the province as well as its economic importance and environmental risks associated with its improvement:

The transport system consists of a road network of 367 kilometers with tenuous connections to a river navigation network and a few small airports. The road network comprises five isolated circuits: (a) the CPA [*Carretera Panamericana*, the Pan American Highway], which runs unpaved for 183 kilometers from Puente Bayano to Yaviza (There are offshoots to both sides of the highway, totaling 97 kilometers and providing access to the production zones. Over its final stretch, from Canglon to Yaviza (26 km), the flow of traffic is severely impeded during the rainy season.); (b) the 35 km Tuira loop connecting the villages in the vicinity of Yaviza; (c) the 30-km Sambu loop linking the villages of Santa Barbara, Garachiné and Sambu; (d) the 22 km La Palma loop uniting this area with Seteganti and Chepigana; and (e) the Torti-Rio Congo loop, a branch of the CPA that enters from the Province of Panama. This system is interconnected with the river network at key points such as Puerto Quimba, Yaviza and El Real.

The features of the transport system serve to maintain a barrier between “old” and “new” Darién, which are connected via the stretch of river from Puerto Quimba to La Palma, and over the section of the CPA running from Canglon to Yaviza. La Palma, the capital of the province and of “old” Darién, has remained relatively isolated from the “new” Darién and from Panama City. It stands on the left bank of the Tuira River, and its connection to Panama City is via the river to Puerto Quimba, where service is irregular and port facilities inadequate. Transport costs are relatively high, especially via the small boats that navigate the Tuira River between La Palma and Yaviza, and also over the poorly maintained sections of the CPA and its branches. Yet expansion of the road network could have an indirectly adverse impact by encouraging further invasion of protected areas, unless proper controls are instituted.<sup>8</sup>

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<sup>7</sup> IDB, *op. cit.*, pp. 4-5. With regards to public safety, in turn, the report observed that “the rising number of public safety incidents, associated with domestic turmoil in Colombia, has been attracting recent attention. Darién has been known as a relatively peaceful area, with little crime, and these recent incidents are undermining the public’s feeling of security, especially when there are no adequate means of communication and news travels by rumor and word of mouth. In Darién, security is an integral factor in resource protection, not only in terms of inspection and supervision, but also because the dispersed pattern of settlement is unsustainable in the face of insecurity. One immediate effect of the recent incidents has been the abandonment of some areas, particularly by health and education workers.”

<sup>8</sup> *Ibid.* pp. 6-7. With respect to the river system, in turn, it stated that “river transport has been the mainstay of traditional production, which is concentrated along the river banks, and makes use of Yaviza and other small ports along the Tuira River as staging centers. The most important traditional farming areas, located along the rivers Tupisa, Tuquesa and Chico, have used this system to carry their produce to Yaviza and from there to La Palma via the Tuira River, or to Panama City, when the CPA is passable over the Canglon-Yaviza stretch.”

The report likewise briefly describes the rationale for IDB involvement, giving particular emphasis to environmental and renewable natural resource management considerations. More specifically, it affirmed that:

“[...]the proposed operation seeks to reverse current trends that are destroying the ecosystem of Darién by instituting the concept of sustainable development in terms of striking a dynamic balance among human, ecological and economic factors. Progress towards such a balance will only be possible to the extent that cultural and biological diversity can be safeguarded and promoted. The major problems relate to: (a) protecting natural resources that are of great richness and variety and at the same time very fragile, and where human intervention to date has been unsustainable because of the ways in which the forest, the soil and the fishery have been exploited; and (b) the need to provide support for people who are the poorest in the country, and whose economic opportunities under current systems of production are severely limited.”

The Darién project, thus, put forward a pioneering approach to environmental management and sustainable development on the part of the Panamanian Government and the IDB. A similar approach would subsequently also be taken by the Bank in two other ecologically and socio-culturally diverse “frontier” provinces in western Panama, Bocas del Toro and Chiriquí,<sup>9</sup> as well as in the Brazilian Amazonian state of Acre through a sustainable development project, including similar components, approved in May 2002, and following an earlier (1985) IDB-financed interstate highway investment operation in the region that, in addition to a major road investment, contained a path-breaking environmental and social protection component.<sup>10</sup> An examination of the design and implementation experience of the Darién project, thus, represents an important lesson learning opportunity for the Bank as it continues to engage in major infrastructure —especially road improvement —projects in natural resource frontier regions in South America<sup>11</sup> and elsewhere.

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<sup>9</sup> See John Redwood III, *Panama: Environmental Sustainability Issues for the New IDB Country Strategy*, consultant’s report for the IDB, July 2010.

<sup>10</sup> See John Redwood III, *Managing Environmental and Social Impacts of Major IDB-Financed Road Projects in the Brazilian Amazon: The Case of BR-364 in Acre*, consultant’s report for the IDB, Washington D.C., July 2011.

<sup>11</sup> Especially in Bolivia, Colombia, Paraguay and Peru, mainly in connection with the South American Regional Infrastructure Integration Initiative (or IIRSA), which are the subjects of other case studies in this series.

## B. Project Design

In order to try to reverse the progressive deterioration of Darién's natural resources and recognizing that "the problems at hand will not be readily resolved in the short term because they require major social, political and cultural adjustments that are to a great extent dependent upon public attitudes and a public sense of responsibility for conserving resources and respecting the law, and upon the political will and capacity of the public sector to put such solutions into effect," the project's declared general objective was "to contribute to the region's sustainable social and economic development and to the management and protection of its natural resources." Its visionary, but quite ambitious, specific objectives, in turn, were to: (i) establish an effective land use management plan in keeping with the area's natural resource features; (ii) reduce the pace of deforestation and the conflicts over natural resource use, and stabilize the agricultural frontier; (iii) enhance the capacity of the institutions responsible for resource management; (iv) strengthen managerial and supervisory capacities at the regional, municipal and indigenous community levels; (v) promote changes in the existing models of production and natural resource exploitation so as to ensure their sustainability; (vi) rehabilitate the transportation system, in a manner consistent with the Land Use Management Plan; (vii) improve access for the local population to basic services (health, education, water and sanitation, electricity and community services); and (viii) coordinate program activities with those of other institutions and donors.<sup>12</sup>

The underlying project intervention strategy, according to the project report, contained the following key elements, which, because of their relevance for other Bank projects in similar natural resource frontier contexts and facing similar local political economy, environmental, institutional and governance challenges, merit reproduction in full:

- Continue the process of consultation and consensus building with the community. This process must be maintained through the mechanism of discussion conflict resolution negotiation forum. The effort must include dialogue, training, coordination and delegation of responsibility to the communities. Consequently, the process will have to be a gradual one, aimed at establishing the consensus necessary to ensure active cooperation on the part of the local populace.

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<sup>12</sup> IDB, *op. cit.*, pp. 12-13.

- Establish a rational sequence for executing the proposed projects and activities. In terms of timing, this sequence must be directed first at strengthening land use planning mechanisms, protecting resources, and regulating forestry and fishery activities, moving on subsequently to improve the productive efficiency of those sectors and of the region's agriculture. In geographic terms, there must be a balance struck between promoting the recovery and protection of fragile areas and supporting development in production zones, which means that activities will have to be planned in accordance with the economic zones defined in the Land Use Management Plan.
- Simplify the criteria for land use management. The supervision and control required to make land use management work can be very costly, which means that criteria and procedures need to be established to facilitate the effective administration of resources. This includes a more operational definition of areas set aside for protection and special management in the province.
- Optimize public intervention. If the needs identified by the local populace are to be met, greater responsibility for public services will have to be delegated to local organizations. At the same time, an effective and transparent system of incentives will be needed to promote economic activity and to minimize direct public sector: intervention in the supply of goods and services as a substitute for private initiative. Only in such a context should consideration be given to specific measures to promote greater local value added, since otherwise there will be a risk of supporting unsustainable activities that run counter to the objectives of those measures.
- Rationalize the institutional structure and improve inter-institutional coordination. The institutional structure underlying public intervention in Darién is too complex and there is no local capacity to absorb the activities of so many agencies, public and private alike. This is clear in the duplication and counterproductive nature of efforts to date. Greater coordination is needed, since many public investments are conceived with no thought to land use rules, and incentives are provided for the occupation of areas that are supposed to be protected.<sup>13</sup>

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<sup>13</sup> *Ibid.*, pp. 12-13.

This complex project was structured into five components and multiple subcomponents, the most important of which can be briefly described (with their expected total costs) as follows:

**1. Land Use Planning, Titling, Management and Protection of Natural Resources** (US\$ 13.4 million). Instruments would be established to regulate land use, promote sustainable resource exploitation, and demarcate and regularize land ownership “in order to reverse current trends and modify unsustainable practices.”

- a. Regulatory Reform and Program Framework Law (US\$ 300,000), consisting in the amendment of existing regulatory instruments for land use planning and managing the forestry and fishery sectors...“To bring about changes to specific rules and procedures that will ensure the sustainability of the resources and the economic efficiency of their exploitation, with due regard to their social impact.”
- b. Implementing the Land Use Management Plan (POT) (US\$ 5.5 million), including: (a) management plans for three proposed zones: (i) the National Park and the Serranía de Darién, approximately 560,000 ha, including a plan for coastal management; (ii) Valle del Chucunaque, roughly 600,000 ha; and (iii) estuary of the Gulf of San Miguel, approximately 400,000 ha; and (b) other areas, specifically: (i) the Hydrological Reserve and the Forest of the Serranía de Cañazas, (ii) the Hydrological Reserve and Forest of the Serranía Filo del Tallo, and (iii) the Comarca Emberá-Wounaan. Implementation of these plans would include demarcation, protection and conservation work and they would be the product of a consultation and consensus-building process with the affected communities and civil society.
- c. Land Survey, Demarcation and Titling (US\$ 5.7 million), including the production of aerial photographs and cadastral surveys at the property and municipal level, over an area of 815,000 ha, covering 5,500 rural properties in the Darién region.
- d. Natural Resource Inventories and Research (US\$ 1.7 million). Inventories would be made of forest and fishery resources, and research would be conducted on the region's natural resources, “with due regard to the intellectual property rights of indigenous groups,” including: (a) forestry

inventories on 150,000 ha to be made available for commercial concessions; (b) inventory of fishery resources in the Gulf of San Miguel; and (c) support for the creation of a scientific center to conduct and coordinate research, taking advantage of the existing local capacity at the University of Panama, Smithsonian Tropical Research Institute, Panama Agricultural Research Institute (IDIAP), Panama Institute for Agricultural Science (ICAP), which is carrying out research on flora and fauna in the PND, and the Panama Center for Plant Research (CIFLORPAN), which is working on biological prospecting in the PND. The new center would also support ANAM's work in supervising and administering natural resources.

2. **Institutional Strengthening** (US\$ 13.6 million) Under this component, activities were planned to strengthen the capacity of national, provincial and local entities in the region and support the decentralization process by strengthening the capacity of local public institutions, including the Comarca of Emberá/Wounaan, and the indigenous congresses. Further details are provided in the project document.
3. **Productive Activities** (US\$ 3.0 million) to facilitate the restructuring of the local economy, enhance its efficiency and sustainability, and encourage its diversification. It would complement efforts at land use planning and changing the manner of resource exploitation. Many of these activities would be closely linked to the conveyance of land titles and the adoption of management plans. Other activities would support community initiatives in traditional fishing, ecotourism, handicrafts and small industry and the component was expected to integrate and complement other bilaterally financed projects underway in the region.

Transfer of Farming, Forestry and Fishery Technologies (US\$ 1.2 million) by promoting diversification away from low-productivity farming activities, the introduction of appropriate farming practices in buffer zones, the restoration of forest areas, and the use of appropriate technology in the fishing sector. It includes support through soil studies, integrated pest management and other key activities for diversifying and raising the technological level of farming, livestock raising and traditional fishing. It will be carried out through cooperative work focused on farms, demonstration herds, and fishing groups.

Critical Areas Management, Pilot Project (US\$ 350,000) including a system of transfers for conservation and protection services, in accordance with agreements to be worked out in the process of POT consultations. A scheme would be developed to provide incentives or direct grants to small farmers (some 200 families, with an average of 10 ha/family) located in critical areas, to compensate them for the opportunity cost of conserving and protecting the forest (i.e. payment for environmental services). As a pilot project, this scheme would be introduced in two priority areas identified by the POT. The incentives would initially be financed with project resources, but over the medium term with the proceeds of stumpage fees, and in the longer term from the marketing of environmental services.

Strategic Activities (US\$ 1.45 million) involving the provision of support for small projects prioritized by local communities during the consultation process and which would be coordinated with the execution of the management plans in each area, with a view to utilizing existing resources in projects funded by other donors. Financing would be provided for strategic activities, including feasibility studies, in support of community and NGO initiatives to improve the productive structure. Among the potential activities identified were: small-scale projects for converting extensive livestock grazing systems (pursuant to POT priorities); strengthening and consolidating organizations of traditional fishermen (some 600 fishermen) to manage fishery zones; and feasibility studies for areas identified as having ecotourism potential (“Heritage Routes”).

- 4. Rehabilitation of Transportation Infrastructure** (US\$ 33.0 million) to help reduce transport costs in producing areas, and encourage intermodal operations so as to enhance internal mobility for passengers and freight. It includes staged implementation of an Intermodal Transport Plan, in coordination with the Land Use Management Plan, and would be carried out in accordance with the Strategic Plan and Environmental and Social Sequencing Matrix (see below). The component would rehabilitate, improve or construct small ports, airports, feeder roads and sections of the existing highway and would be executed in three phases. The first stage would entail rehabilitation and upgrading of the Puente Bayano-Metetí-La Palma system with the objective of building “an efficient link between Panama City and La Palma (Old Darién), to serve the priority production zone (Agua Fría-Metetí),” including pavement of 134 km of the Pan-American Highway

(between Puente Bayano and Metetí), rehabilitation of other roads, and a study on cost recovery alternatives for transport facilities. The second phase would involve rehabilitation and upgrading of the Puente Bayano Metetí-La Palma system, involving both (Chucunaque and Tuira) river and road transport improvements, including rehabilitation of a second section of the Pan-American Highway (over some 30 kilometers between Agua Fria and Metetí). Finally, the third stage would consist of the upgrading of transport systems in the La Palma-Yaviza area, including possible projects on the left bank of the Tuira River, as well as rehabilitation of another part of the Pan-American Highway (between Canglon and Yaviza) and approximately 16 km of local feeder roads.

5. **Upgrading Basic Services** (US\$ 5.6 million) to help stabilize settlement patterns in producing areas and enhance the well-being of the local populace through the execution of projects that have been identified, prioritized and coordinated with the local communities, through the annual operating plans (POAs). Funding will be provided for pre-investment and investment in new works, and in expanding, upgrading and equipping existing facilities. Community support will be provided in the sectors of: education, health, basic sanitation, electrification, community facilities and urban planning, drawing upon and supplementing existing resources in sector investment and other projects. This component would be implemented in accordance with local cultural norms and the Land Use Management Plan.<sup>14</sup>

Total project costs were estimated to be US\$ 88 million and the implementing agency was to be the Ministry of Economic Policy and Planning (MIPPE) through a specially created Program Coordination Unit (PCU). Co-executing agencies included the Ministry of Public Works (MOP) for the road and airport infrastructure improvements, ANAM for the forest inventory and forestry regulatory management, Land Use Management Plan implementation, natural resource management, and “critical areas” research and management, the Ministry of Agrarian Development (MIDA) for land surveys, demarcation, and titling and agricultural and forestry technology transfer, AMP for fishery inventories and regulatory reform, port infrastructure and fishing zone plan implementation, and the Program Coordinating Unit (UCP) for the institutional strengthening and strategic activities involving water, sanitation, electricity,

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<sup>14</sup> *Ibid.*, pp. 14-21.

health, education and urban planning. Both a Program Executive Committee (CEP) and a Local Advisory Committee (LAC) would oversee it.<sup>15</sup>

One particularly interesting feature of the project design is the “Environmental and Social Sequencing Matrix” which, together with a “Strategic Plan,” was developed because of the need to “program investments strategically over time and space...due to the spatial planning arrangements for the program...and to anticipate and minimize the environmental impact of certain investments, such as the rehabilitation of the [Pan-American Highway] and other infrastructure works.” The Strategic Plan indicated the timetable of activities by “work fronts” and within each one by sub-zone, and over time, while, on the basis of this plan, the sequencing of required environmental and social protection and mitigation measures is contained in the aforementioned Matrix “to specify the conditions that must be fulfilled before initiating investments with significant impacts.” This Matrix, which was agreed upon during negotiations and would be incorporated as an annex to the project operating regulations (any change in which would require prior Bank approval) and be a condition for approving the annual operating plans, was also linked to specific performance indicators and verification methods. According to the project report, in defining this sequencing, two levels of territorial zoning have been taken into account. The first includes establishment of three Integrated Management Zones: (a) the Darién National Park and the Serranía de Darién; (b) the Valle del Chucunaque; and (c) the Estuary of the Gulf of San Miguel. The second level of zoning subdivides these three zones into protected areas or reserves and Sustainable Development Zones (ZDS). Priorities in these areas have been based on the importance of each area in the region's environmental and socioeconomic context, on the risks of disturbance involved in the program, as well as on the indirect effects of infrastructure investments and on the complementarity of the various activities and projects. Using these criteria, three work fronts have been defined to determine the spatial sequencing of execution.<sup>16</sup>

This document also assesses the project’s social and environmental feasibility, affirming that “the recommended operation implies risks of both a socio-cultural and an environmental nature. This reflects the difficulty of implementing actions to supervise areas where the demand for conservation is still very recent.” However, in the view of the Bank’s project team, “the risks of not proceeding with the program are even greater.” In addition, the team believed that the

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<sup>15</sup> *Ibid.*, pp. 25-27.

<sup>16</sup> *Ibid.*, pg. 28. Further details regarding each of these “work zones” is provided in the report, pp. 28-29.

proposed operation presented “an opportunity to achieve important progress, in terms of both conservation and the living standards of the inhabitants of Darién.” The report also observed that project feasibility would “depend to a large measure on compliance with the Strategic Plan and Environmental and Social Sequencing Matrix which establishes the steps needed to avoid the negative impacts identified in the Environment and Social Impact Report (ESIR).” It reiterates that “actions, such as demarcating protected areas and indigenous reservations, land surveys and title certification, and resolving landholding conflicts through consensus-building conflict resolution negotiation fora, are fundamental to the success of the program.” And it argues that “the sequencing approach makes it possible to define steps that must be met prior to bidding, together with the performance indicators and verification methods for each stretch of the highway or other works identified as having highly negative impact.”<sup>17</sup>

While this spatial planning and sequencing approach would seem to make sense assuming they are well implemented and closely supervised by the Bank, and the Strategic Plan and Environmental and Social Sequencing Matrix are presented – or at least summarized in tables – in Annexes to the project document, together with the program’s logical framework, no summary of the aforementioned ESIR, on which the Plan and Matrix are reportedly based, is provided either in the main text or as an annex to this report.

## **II. Supplemental Financing (PN L-1017)**

### **A. Background and Justification**

As observed at the beginning of this paper, additional Bank financing of US\$ 17 million was approved for this project in June 2007. The associated loan proposal document aptly summarized the original project’s underlying strategy and basic approach as follows:

The program provides an integrated approach to addressing the range of problems that affect Darién Province. The phased planning and implementation is based on a Strategic Plan agreed on with the government and an Environmental and Social Sequencing Matrix established to address the environmental and social risks of investments in the highway that provides access to the province. The program is fully compatible with the Bank’s policies, particularly with respect to promoting sustainable development and strengthening governability. Its objectives

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<sup>17</sup> *Ibid.*, pp. 38-39.

include engagement of the population in the province's social and economic development, and conservation and management of its fragile and rich natural resources.<sup>18</sup>

The supplemental financing request also observed that the Bank project was for an investment program that required the “completion of strategic activities to establish an appropriate legal and institutional framework before proceeding with construction of the planned infrastructure works and basic services.” Given that, in 1999, IDB had no alternative financing instruments available, a project was prepared that incorporated all of the estimated costs for the proposed investments, “including rehabilitation of sections of the highway, pursuant to the Environmental and Social Sequencing Matrix agreed on for the operation.” It likewise stated that, had the multiphase operation instrument existed at the time, it would have been “ideal” for this type of intervention. The new loan proposal reiterated that the main objective of the original project was to:

...contribute to the region's sustainable social and economic development and to the management and protection of its natural resources. Specifically, the program in progress is aimed at reversing the destructive trends affecting the Darién ecosystem (e.g. overexploitation of forests, soil, and fishing resources), seeking a dynamic balance between human, ecological, and economic factors to achieve sustainable development. The improper use of natural resources is due to the lack of effective monitoring and supervision mechanisms, compounded by the complexity of managing the large number of protected areas (Darién has 70% of Panama's protected areas), ineffective operational criteria, and the absence of incentives for the sustainable use of resources. These problems are aggravated by cultural, political, and social factors inherent to a situation in which the wealth of resources is in contrast to the poverty of the local populace. However, there are a number of opportunities to overcome these problems: the forestry, fishing, tourism, and agricultural sectors have great potential that can be realized by improving regulatory frameworks and requiring efficient allocation of public investments in basic services and the minimum transportation infrastructure required.

Based on the diagnostic assessment performed to reverse the trend of natural resource degradation and to create opportunities to improve the well-being of the Darién population, the following actions are required: (i) introduce specific changes in the

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<sup>18</sup> Inter-American Development Bank, *Panama – Supplemental Financing for the Darién Sustainable Development Program (PN L1017) – Loan Proposal*, (hereafter, IDB, *Supplemental Financing*), Washington D.C., 2007, pg. 7.

regulatory framework for extractive sectors; (ii) enhance the effectiveness of institutions in charge of natural resources management, and strengthen the management capacity of local governments and civil society; (iii) promote restructuring of the local economy towards more efficient production systems and activities that generate greater value-added locally; and (iv) orient public spending toward the efficient delivery of basic services and the development of the minimum transportation infrastructure required, and ensure the availability of financing for maintenance.<sup>19</sup>

After restating the project's objectives (as indicated in the previous part of this paper), the additional financing proposal highlighted several of the lessons learned from the implementation experience until that time. In addition to reaffirming that, had it been possible at the time the original operation was approved, a multiphase operation would have been the more appropriate Bank instrument to support the program, these lessons included:

- a high level of involvement by the communities and government authorities (the design process had a high level of participation from the communities, local and *comarca* [autonomous indigenous territory] governments, national institutions, and environmental organizations, and their involvement is ongoing) is important;
- the importance of promoting interagency coordination between co-executing agencies and other donors during project design and implementation (a number of meetings of this type have been held and the implementation plan integrates actions at the national, regional, and local levels); and
- activities for the sustainable management of natural resources at the sub-basin and subregional level (pilot experiences with forestry and silvo-pastoral co-management are being replicated with great success) should be promoted.<sup>20</sup>

Concerning project implementation, the supplemental funding request reported that the new administration that had taken office in September 2004 had confirmed its priority but requested a change in the principal executing agency by transferring all projects related to sustainable development from MIPPE, which had formerly been the responsible central government entity in this regard, to the Ministry of the Presidency through the National Sustainable Development Council (MP/CONADES), which had been “accountable to the Bank” for project implementation since 2005. It further observed that this agency had made

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<sup>19</sup> *Ibid.*, pp. 7-8.

<sup>20</sup> *Ibid.*, pg. 9.

“satisfactory progress,” including in terms of its compliance with the Strategic Plan and activities specified in the Environmental and Social Sequencing Matrix. In addition, an evaluation in late January 2007 had confirmed satisfactory implementation and had judged attainment of the project’s development objectives to be “probable or highly probable.” Beyond this, it affirmed that “the strategic activities that have been implemented satisfactorily include: (i) application of the Environmental Management Plan for the province; (ii) demarcation of Darién National Park and the two indigenous *comarcas*; (iii) development of management plans for Darién National Park, Gulf of San Miguel, and all the protected areas in the province, including their demarcation; (iv) land survey and titling for properties under dispute and areas directly impacted by the highway (a 10 km stretch of road); and (v) institutional strengthening of the National Environmental Authority (ANAM), the Panamanian Maritime Authority (AMP), the Ministry of Agricultural Development, and the Ministry of Health, among others, in addition to local governments and civil society...In addition, the executing agency has complied with its obligation to deliver annual financial statements for the program, audited by external auditors previously accepted by the Bank.”<sup>21</sup>

Despite the successful implementation of the project up to that point, additional financing was found to be necessary in order to complete the infrastructure works due to unexpected cost overruns, which, according to the loan proposal document, were due to the following factors: (i) increases in the prices of the products, inputs, and materials required to complete the planned works, some of which were delayed initially pending fulfillment of the conditions established in the program’s Environmental and Social Sequencing Matrix; (ii) the need to change the specifications of some projects due to additional requirements and soil conditions (factors that would only come to light during the course of program implementation) in order to ensure compliance with the stated objectives; and (iii) underestimation of the costs of program works (due to the inaccessibility of the province, contractors incurred higher than expected costs).” The report argued that these overruns were due to “special circumstances beyond the borrower’s control” and, thus, underlay the Government’s request for supplemental funding.<sup>22</sup>

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<sup>21</sup> *Ibid.*, pg. 10. “Strategic activities” (i) through (v), more specifically, were “planned to mitigate the indirect impacts of rehabilitation of the highway, ports, and airport in vulnerable areas,” according to this document.

<sup>22</sup> *Ibid.*, pp. 10-11. It observed further, for example, that “in the case of transportation infrastructure projects, the cost overruns were due to design improvements; contracting delays, particularly for sections IV and V of the highway, as a result of failure to comply with the criteria defined in the matrix; and increases in the prices of hydrocarbons and materials.”

## **B. Objectives and Proposed Use of Additional Financing**

With this as the context, the declared objective of the supplemental loan request was to “contribute to the sustainable social, institutional, and economic development of Darién Province and to the management and protection of its natural resources. The [additional loan] resources would target: (i) rehabilitation of the transportation system to facilitate the internal mobility of passengers and freight and access to the region, in a manner consistent with the current Land Use Management Plan; and (ii) improvement of access by the populace living along the highway to basic water and solid waste management services.” In pursuit of this (and the original) objective, the project would continue to be implemented under the original five component structure for: (i) land use planning, titling, management, and protection of natural resources; (ii) institutional strengthening; (iii) production activities; (iv) rehabilitation of the transportation system; and (v) upgrading of basic services. The complete cost of the supplementary project was estimated at US\$ 21million, of which the new Bank loan would finance 81 percent and the Panamanian Government the remaining US\$ 4 million (or 19 percent), bringing estimated project costs as a whole to US\$ 109 million – or a 24 percent increase over the original appraisal estimate – and Bank financing to US\$ 87.4 million, or just over 80 percent of the total cost. US\$ 14.42 million of the new loan was allocated to the transportation infrastructure rehabilitation and water supply and sanitation subcomponents (US\$ 6.22 million and US\$ 8 million, respectively) and the remaining US\$ 2.58 million to other components to complete unfinished activities.<sup>23</sup>

## **C. Project Implementation and Results**

In addition to two project completion reports,<sup>24</sup> this operation was also the object of a final external evaluation,<sup>25</sup> whose principal findings, conclusions, and recommendations will be briefly summarized below. According to this document, final project costs were US\$ 125.7 million, which represents a nearly 43 percent overrun in relation to the appraisal estimate of US\$ 88 million and a 15 percent overrun in relation to the re-estimated total project costs (US\$ 109 million) at the time the supplementary loan was approved in June 2007. In absolute terms, most of the additional costs were for the road rehabilitation component, which consumed slightly more

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<sup>23</sup> *Ibid.*, pp. 12-15. For further details as to what specific activities were to be financed see the report.

<sup>24</sup> Inter-American Development Bank, *Informe de Terminación de Proyecto (PCR) Programa de Desarrollo Sostenible de Darién*, July 30, 2009, and Inter-American Development Bank, *Informe de Terminación de Proyecto (PCR) Financiamiento Suplementario para el Programa de Desarrollo Sostenible de Darién*, June 23, 2011.

<sup>25</sup> República de Panamá, Ministerio de la Presidencia, Consejo Nacional para el Desarrollo Sostenible (CONADES), *Evaluación Externa Final del Programa de Desarrollo Sostenible de Darién PSDS – Informe Final*, prepared by OTSCORP, SA Optima Technical Services, SA), Panama, June 2011.

than half of all project resources (and 56 percent of the Bank loan), nearly doubling from an appraisal estimate of US\$ 33 million to an actual cost at completion of over US\$ 63.2 million, representing a relative increase of close to 92 percent. Project administration and supervision costs also rose by 85 percent – from US\$ 6.1 million to US\$ 11.3 million – over the project period. In contrast, actual costs for the land organization and environmental protection component at completion, at just over US\$ 9 million, turned out to be only two-thirds, thus considerably lower, than estimated at appraisal (US\$ 13.4 million), and final costs for the institutional strengthening and sustainable production components were also lower than originally anticipated. The most significant change in costs in relative terms when compared with the appraisal estimates, however, was for the basic and community services component which increased from US\$ 5.6 to US\$ 16.2 million, or by a very significant 189 percent.<sup>26</sup>

The project also took six years longer to implement than originally anticipated, according to the evaluation report. Without going into detail this was primarily because of reasons associated with “annual budget allocations.” Changes in central government also played a role, as the project was prepared during one administration and finished three administrations later<sup>27</sup> and, as noted above, it underwent a change in executing agencies in January 2005. Concerning the latter, more specifically, this report indicates that “taking into account the institutional weaknesses in the region, a complex temporary institutional arrangement was designed, including the Program Coordinating Unit (UCP), established as a special unit within the Ministry of Economy and Finance (MEF), coordinated with a unit in the Presidency for matters involving Darién, which later was transferred to CONADES, a unit within the Ministry of the Presidency; the Secretariat of International Coordination (SECOIN); the Local Consultative Committee (CLC), the Executive Program Committee (CEP); and the International Advisory Committee (CAI).”<sup>28</sup>

The evaluation report concluded that the “resources invested by the State through PDSD (US\$ 125.7 million between 1998 and 2010) definitely have had positive, significant and demonstrable results and impacts on the quality of life (“*nivel de vida*”) of the population of Darién, in accordance with the objectives set out in 1998.” In support of this assertion, the report states that the poverty indicator for Darién had decreased from 71.9% in 2003 to 52.7% in 2008

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<sup>26</sup> *Ibid.*, Executive Summary, pg. vi.

<sup>27</sup> There were changes in government in September 1999, September 2004, and September 2009. The project was prepared and Bank financing approved in 1998 and its final evaluation occurred in December 2010.

<sup>28</sup> *Ibid.*, pg. vii. My translation.

and the extreme poverty indicator in the province had fallen from 50.1% in 1997 to 21.2% in 2008. In addition, the Human Development Index (HDI) for the Comarca and Province of Darién had improved by 18.6% and 16.7% respectively between 2001 and 2007, compared with an improvement of 5.4% for Panama as a whole over this period. According to the report, these improvements “were due in good measure to the investments in basic services and to the increased economic activity generated by the pavement of the Pan-American Highway, as had been expected.”<sup>29</sup>

The project undoubtedly contributed, perhaps significantly, to these improvements. However, the report itself does not provide specific evidence to prove that the observed reduction in poverty levels and improvement in the HDI in the province during the years considered were, in fact, primarily the result of project-financed basic services, nor does it demonstrate the extent to which increased economic activity was actually the result of pavement of the road, as opposed to by other, non-project factors, or some combination of the two. This would require a more systematic assessment of the links (or lack thereof) between specific project investments and induced economic activity in the province and its internal distributional/poverty impact, as well as with respect to specific project investments in basic services and the presumed improvement in the individual social indicators that compose the HDI, among other analyses that were not undertaken as part of this evaluation. Nor does it take into consideration other investments and interventions by both the public and private sectors that may also have contributed to these positive changes in poverty levels and the HDI values for Darién over the course of the project period.

Thus, there is a serious potential “attribution” problem with these assertions – i.e., the extent to which the improvements in poverty levels and the HDI can actually be attributed to the actions taken under the project, as compared with other (i.e., non-project) factors and interventions, cannot be readily determined. The report does observe, however, that “despite these accomplishments, Darién and the *comarcas* are still among the poorest regions in Panama.” And it states that, “[while] the PDSD has demonstrated the feasibility of achieving significant impacts in a region...it is necessary to continue these efforts. It should be mentioned that a general goal of the Program was to bring Darién’s indicators closer to the respective national mean values, which it has achieved, but this is not sufficient.”

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<sup>29</sup> *Ibid.*, pg. vii, emphasis in the original.

More significantly – and also more worrisome – from a sustainable development perspective, it affirms that project achievements with respect to the protection and sustainable use of natural resources were “less impressive” (“*menos contundentes*”). Nor was it possible to conclude that “the agricultural frontier had stabilized when cattle ranching has had a rate of increase 10 times higher than the average for the country and the total area in pastures has increased above that considered appropriate for this use; land conflicts have grown; the tendency for intervention in protected areas has improved slightly but some of them have decreased in area and others, such as the Serranía de Cañazas and the Río Congo-Cucunatí wetlands, are no longer ‘protected areas’; the land titling has been a success as a judicial instrument but its social and economic impact is questionable, as the small land occupiers (“*los pequeños poseionarios*”) have not been converted into owners and farmers as was expected and an intense land speculation process has been generated.” It goes on to add that “at the actual land prices along the Pan-American Highway, small-scale agriculture is not financially viable” and that “land prices have increased more than five times in relation to 1998.”<sup>30</sup> Thus, it would appear that one direct impact of paving the road – which should not have been unexpected -- was to increase land prices in its immediate area of influence and, in all likelihood, drive out rather than help to settle existing low-income rural inhabitants.

The evaluation concluded that the project made “important progress with respect to its general objectives, especially in improving the welfare of Darién’s population, but it did not achieve its full potential.” These shortcomings, according to the report, were due in good measure to three factors: (i) some objectives were not feasible or realistic; (ii) the complexity of the implementation scheme and government management (“*gestión del gobierno*”); and (iii) to a lesser extent, the performance of the Executing unit. With regard to the first factor, for example, it noted that the objectives of the sustainable production support component were “very difficult” because they depended to a large degree on national agricultural sector policies that limited the financial feasibility of sustainable production in the province, while the “social objectives” with respect to land titling were not realistic to the extent that it was expected that the beneficiaries would then dedicate themselves to stabilizing their situation as small farmers instead of selling their lands and that adequate regularization of extractive activities based on the regional economy (such as forestry and fishing) was not viable in the prevailing political and institutional

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<sup>30</sup> *Ibid.*, pp. vii-viii.

context. With regard to the second factor, application of various instruments considered essential in project design, such as the land use management plan and the environmental and social sequencing of project interventions, among others, which sought to strengthen integration among project components and subcomponents and to guide the spatial and temporal implementation of project activities, in practice proved not to work well in the “centralized structure of the public sector.” And, in the case of the third factor, the PCU was unable to overcome the aforementioned obstacles to better inter-institutional coordination, which was considered “critical” for overall project success.<sup>31</sup> The report then proceeded with a component-by-component assessment.

Concerning the strategically important *Land Use Planning, Titling, Management and Protection of Natural Resources* component, the evaluation report concluded, *inter alia*, that:

- The project was not able to establish an adequate regulatory framework for the forestry sector largely because of the lack of political feasibility to reform the national norms, which affect many interests, ranging from indigenous communities to large forestry enterprise, in different ways.
- The implementation of the Land Use Management Plan was indispensable to organize (“ordenar”) the occupation and use of the territory and promote the sustainable exploitation (“aprovechamiento”) of the resources. For this reason, the project would finance the preparation and initiation of the execution of a series of management plans for the protected and other special management areas, which would serve as guidance for management by ANAM and other pertinent agencies.
- There is no specific evidence to show that these plans are under execution with the exception of the management plan for Darién National Park (DNP), even though ANAM and the other institutions have implemented various activities that are part of such plans. The DNP plan served to help bring about a debt for nature swap with USAID and is being implemented by Fundación Natura.
- Land use tendencies within the protected areas have characteristics similar to those in the production zones [i.e., where cattle raising dominates even in those areas with greater aptitude for agriculture].
- One of the premises of the project in order to consolidate the territorial organization is the definition of the legal status of the land, seeking to stabilize rural productive

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<sup>31</sup> *Ibid.* pg. 4. My translation.

activities in well defined zones, attempting to avoid the conflict in land use and facilitate access to basic services. Another premise is to prevent and mitigation possible land conflicts due to the ethnic segmentation of the population since the indigenous peoples claim additional lands in the Comarca, and settlers claiming land occupation rights seek titles to the areas they occupy as quickly and inexpensively as possible, and the agencies have the obligation to guarantee the preservation of protected areas which are of both strategic and general [public] interest.

- From the adjustments that were made to the Land Use Management Plan, one can conclude that the Protected Areas near the production zones ended up giving up land; this was clearly connected with the expansion of agro-ranching activities; and affected the internal and external ecological connectivity in the province and interrupted the longitudinal corridors that would ensure the passage of species across the isthmus. The protected surface has increased, but this is located in isolated zones where the risk of intervention is lower, thus the protective function of the National Protected Area System (SINAP) is at a disadvantage due to the expansion of the agricultural frontier and the zones of greater use in the area of influence of the Pan-American Highway.
- The result of the analysis of land use in relation to the objective of the component in the sense of ‘consolidating a land tenure pattern that guarantees the necessary security to promote its sustainable management’ denotes a “precarious” result from the point of view of sustainability. Even though the physical targets of the component were met, judicial security has not been a means to achieve environmental sustainability, nor, in all likelihood, economic sustainability since this system has incentivized a use [i.e., cattle raising] where surely the soil is not productive.
- The land cadastre and titling component, without analyzing the “dynamization” of the market and its negative effects on the sustainability of the province, has been in the wrong lane (“*contravía*”) with respect to the purposes and goals of the program.<sup>32</sup>

In short, it can be concluded that implementation of this component, which is the most important one from an environmental management and sustainability perspective, was problematic and its results were far from universally positive. Efforts to organize and control

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<sup>32</sup> *Ibid.*, pp. 5-31.

rural land use, as well as to mitigate some of the induced development impacts of the pavement of the Pan-American Highway, were only partly successful at best, leading, among other things, to increased occupation of parts of the planned protected areas, thus resulting in their loss of land, and interrupting important biodiversity corridors. Land titling activities, in turn, seem to have backfired in relation to their intended objective of fixing small farmers to the soil and securing their land tenure, leading instead to the sale and concentration of land holdings and their conversion from agricultural use to larger-scale cattle raising. These effects seem to have been particularly present in the areas closest to the upgraded Pan-American Highway itself, where land values and prices increased most significantly. From this standpoint at least, the project appears to have had very disappointing outcomes.

With regard to the *Institutional Strengthening* component, the report affirmed that the project undoubtedly helped “many public sector agencies in Darién to improve their installations and equipment, which has facilitated their day-to-day operations. However, it did not achieve its institutional objectives, even though these objectives were difficult to achieve.” Three factors seem to explain much of the “deficient results and impacts” of this component: (i) it was excessively optimistic to assume that a regional program, under the authority of an Executing Unit which was a dependency of a National Ministry, could introduce significant institutional reforms in the regional dependencies of strongly centralized ministries, where nearly all the decisions are taken at the central level and the regional offices only implement instructions with minimal autonomy; (ii) despite this excessively optimistic assumption and the weakness of the agreements among the Ministry of Economy and Finance and the national executing agencies for the project, the annual action plans were poorly formulated and the PCU did not provide the instructions or support necessary for their adequate implementation; and (iii) apparently there was a difference in the interpretation of the component’s objectives, which meant that even though outputs were achieved successfully, the desired results and impacts were not considered.<sup>33</sup>

In relation to the *productive activities* component, it stated that the project’s objective “to orient local production toward economically and environmentally viable practices was too ambitious, optimistic, difficult, or simple infeasible.” It added that “the economic development problem of Darién has the same basic characteristics as many other regions of Panama and of

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<sup>33</sup> *Ibid.*, pg. 42.

many other countries: producers require subsidies to guarantee the financial feasibility of some economic activities, especially in the agriculture sector and even more when one seeks to establish 'sustainable' agriculture which for cost reasons is not competitive in the market or which generated public benefits that are not appropriated by private farmers. In Darién, as elsewhere, in the absence of subsidies that incentivize the use of environmentally sustainable practices, the producers have opted for one of the only feasible activities: cattle raising.... An effort was made [under the project] to find environmentally sustainable models, but they were not financially viable and there was no policy to make them so, which would imply the need for important subsidies." Despite this problem, the report recommended that "the pertinent institutions [including the Agrarian Development Ministry and ANAM, among others] should continue to investigate the integrated (i.e., environmental, economic, and financial) feasibility of the production models proposed; "otherwise the investment of public resources implemented by the project [through this component] would be lost."<sup>34</sup>

With respect to the *transport* component, in turn, the evaluation report found, among other things, that the implementation problems did not prove to be an obstacle to obtaining the principal desired result, which was to facilitate mobility of the population within the region and its connection with Panama City, while reducing transport costs between the capital and Metetí "with effects on almost all of the transport network." It goes on to observe that this result "has undoubtedly had the anticipated impact: a significant increase in the economic activity in the area. In spite of the scarce availability of information concerning this impact, the growth of commercial activity along the Pan-American Highway and in Metetí is evident, which is reflected, for an example, in an annual increase of more than 10% in the energy demand in this zone." In addition, the cost of freight had fallen because of the decrease in vehicle operating costs, which "has been a source of growth in the local economy, as was expected." In summary, according to this document:

Pavement of the Pan-American Highway, as a subcomponent, has fully achieved the expected results and impacts, even though at a greater cost than projected due to the implementation problems. For the rest of the subcomponents (ports, airports, and other roads) the results and impacts are not evident. The information needed to reach a definitive conclusion is

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<sup>34</sup> *Ibid.*, pg 48. It also said that, "if the 'agricultural frontier' has surpassed its sustainable [i.e., holding] capacity and is incurring high environmental costs, the most immediate solution is the application of the Land Use Management Plan given the improbability that an adequate economic policy is approved and implemented in the agrarian sector oriented effectively to incentivize the production of crops and to disincentivize cattle raising."

not available but the evidence puts in doubt the viability of some projects like the airport of La Palma, the installations of Puerto Quimba and the pier of Yaviza. The access roads are probably stimulating land occupation (“*la intervención de áreas*”) without improving agricultural production. The lower transport cost for the forestry sector has encouraged [timber] exploitation in less accessible areas, but precisely to mitigate this impact the components for land management and institutional strengthening of ANAM were formulated. On the other hand, the paving of the Pan- American Highway, together with land titling, have contributed to the increase in land prices along the road and to the current process of land speculation and tenure concentration, for which they regulatory measures have been weak.<sup>35</sup>

And finally, concerning the *basic services* component, the report concluded that, even though it did not completely achieve some of its strategic objectives, it “undoubtedly registered significant advances in the expected improvement in the coverage and quality of the services.” More specifically, it observed that the component did not manage to finish the potable water system associated with the Pan-American Highway or the entire coverage of electricity for the public installations (schools, health centers, and community centers). Nor were all the medical personnel required in order to improve the delivery of health services assigned, while the education level of the population less than 17 years of age remained below the national average. This notwithstanding, it affirmed that the project “contributed with key investments and interventions in each sector and the sectoral institutions complied with their functions to bring the region closer to the levels of service in the rest of the country. As a result, the coverage of potable water and electricity increased significantly, as did life expectancy at birth and the level of education (*nivel de escolaridad*) of a critical group: youth less than 17 years of age who complete primary education and go on to the secondary level.” It likewise asserts, but without providing concrete evidence to support this claim or identifying other non-project factors that may also have contributed to this result, that “the achievements of this component have been essential to improve the indices of poverty in Darién, a fundamental objective of the program.”<sup>36</sup>

Other important, more general, conclusions of the evaluation with respect to project results and impacts and its effect on recent development trends in Darién were

- The dynamics generated in the commerce of land as a direct effect of the road and the process of land cadastre and titling are creating the conditions for the agricultural

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<sup>35</sup> *Ibid.*, pp. 51-52. Emphasis in the original.

<sup>36</sup> *Ibid.*, pg. 67.

frontier, in this case the cattle frontier, to continue to expand. This tendency is explained as part of a slow but irreversible process of soil degradation: in the production zones designated for sustainable development by the Land Use Management Plan, the cadastre and titling incentivized cattle raising activity, in clear conflict with the land use capacity. The underutilization of zones apt for pastures still exists while those that have the aptitude for intensive agriculture, forest uses, and permanent crops are being dedicated to grazing.

- There is partial evidence concerning the intervention in the Protected Areas. Information limitations do not permit a clear picture of the status of all the protected areas in the province, but that available indicates the persistence of processes that not only obey only the expansion of the agricultural subsistence frontier but also the sale of properties for the purpose of extensive cultivation.
- In the opinion of residents of the province, the deforestation process has not stopped, the weakness of ANAM continues to be one of the factors that contribute to the uncontrolled extraction of timber and the most recent forest policy has not had any effect because it did not address problems that had been repeatedly identified. The province of Darién lost forest at 1.6 times the national average between 1992 and 2000; its deforestation rate was 1.74%, while that for the country was 1.12%. For the 2001-2008 period, this tendency has continued in the areas outside the [indigenous] *Comarcas* and Darién National Park.
- In summary, it can be concluded that: (i) the program met its objective of improving the welfare of the population of Darién with respect to the national averages even though it continues to be among the poorest regions in the country; (ii) with respect to the objective of protection and sustainable use of the natural resource, in particular stabilization of the expansion of the agricultural frontier, the exploitation of coastal and marine resources, the intervention in protected areas and the tendency for deforestation, the achievement have been modest, the expected stabilization has not occurred even though the tendency for deterioration has been reduced in some cases, and the impacts of land titling have not been those that the program hoped for with respect to the sustainable use of natural resources. The project did not achieve all its potential and would have had more significant impacts if it had had better

implementation results and had complied with the conditions stipulated in the logical framework.<sup>37</sup>

### **III. Lessons and Recommendations from the External Evaluation**

According to the evaluation report this project generated “numerous lessons that should be assimilated by the diverse actors in the public sector and in the Bank independently of whether they repeat this type of operation (i.e., sustainable development programs), since they are related to the quality and impacts of public intervention in all sectors.” Among these lessons and recommendations were the following:

- The basic objectives of the project continue to be valid. The project had significant advances but it is necessary to continue this process.
- The utility and applicability of the mid-term review of the project should be a lesson learned. The modest results of the land management, titling and protection and environmental management component, in relation to the production zone, were identified in that evaluation, but the recommendations oriented toward preventing the impacts that are now being registered were not incorporated in what was left of project implementation. Even though the desired outputs were obtained, the sustainability that the project proposed was not achieved.
- The accelerated transformation of the production zones exclusively toward cattle raising, in conflict with the recommended land use, despite the warnings in the analysis, should be studied in greater detail.
- The poor [rural] population of Darién, to which the project was directed, on the one hand, improved their quality of life, but on the other is now submitted to an accelerated land market that is displacing it to the urban centers. Joint actions are needed by the pertinent institutions to analyze and present alternatives in relation to the implications and impacts of this process that in pursuit of the legitimacy of private property can generate social impacts and transform the pattern of natural resource use in the wrong direction (“*contravía*”) regarding the environmental requirements of Darién.

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<sup>37</sup> *Ibid.*, pg. 75.

- ANAM needs to strengthen the process of formulation and execution of the Management Plans of the Protected Areas. The technical guidelines for the elaboration of the studies are not congruent either in terms of time or costs to obtain the desired results.<sup>38</sup>

While, undoubtedly positive, the actual extent of the direct and indirect impacts of the project in terms of the welfare of the population of Darién, as identified in the evaluation report, can be questioned because that assessment did not take other contributing factors taking place at the same time into account, including what was occurring with the macroeconomic situation in the country more generally. There can also be no doubt that pavement of the Pan-American Highway in Darién under the project did have – and probably continues to have – important direct and indirect environmental and social results, both positive and negative, including some that were largely or totally unanticipated in the ex-ante impact assessments. The rapid increase in land values and prices – which should have been expected – in the area of influence of the improved road and the associated change in local rural land use from predominantly small-scale subsistence agriculture to larger-scale and better capitalized cattle ranching, as well as the associated expansion of the agro-ranching frontier into areas slated for formal protection, in the process maintaining high the provincial deforestation rate, are just some of the more significant of these impacts, especially in view of continued weak public sector institutional capacity (e.g., ANAM) and poor inter-institutional coordination.

#### **IV. Conclusions and Lessons**

In addition to and beyond what is stated above, which, for the most part, is extracted directly from the Bank's project documents, particularly the very interesting and quite detailed final external evaluation report, several other basic conclusions and lessons can be drawn from the Darién Sustainable Development Project experience. These are also of direct relevance for other major road improvement projects in tropical natural resource frontier areas characterized by a high level of ecological diversity and/or socio-cultural sensitivity.

1. The Darién Sustainable Development Project took an innovative approach to anticipating and addressing the potential adverse direct and indirect impacts of a major road

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<sup>38</sup> *Ibid*, pp. 91-92.

improvement, by incorporating this investment in a broader multi-sectoral regional development operation, which ambitiously sought to, at the same time, boost economic development, alleviate rural poverty, and protect biodiversity and other renewable natural resources. The request for supplemental financing later observed in retrospect that it would have been better if the Bank had supported this program through a multi-phase set of projects with the first one seeking to implement the preconditions in terms of environmental and social management and protection, including the required institutional strengthening, and the second financing paving of the highway and other infrastructure improvements together with the expansion of basic services.

2. Perhaps the most important general lesson of this project experience, however, is that no matter how well a complex operation such as the present one is designed and prepared, what matters at the end of the day is how – and how well – it is implemented. As a corollary to this, it is necessary both to have an in-depth understanding of the political-economic and institutional context and dynamics in which the project will be implemented and to be able to react quickly and adapt effectively when unanticipated events and impacts occur

3. Complex projects like this one, and even simpler operations in complex and challenging environments such as Darién, often take longer – sometimes far longer – and cost more – sometimes considerably more – to implement than initially anticipated. However, the combination of a complex project in a complex and dynamic environment will almost certainly experience substantial implementation delays and cost overruns, for which both governments and international financing agencies such as the Bank must be prepared in advance. Implementation delays are also particularly likely to occur – as was the case with the present project – when more than one government administrations are involved. Among other things, such delays and cost overruns have significant (negative) implications for the ultimate economic viability of such investments and this should always be reassessed – by recalculating economic rates of return based on actual costs and timing of benefit flows as compared with the appraisal estimates – upon project completion.

4. Unanticipated impacts of major road improvement investments – such as the rapid rise in rural land values and prices, significant land use changes and increasing land concentration in their areas of influence, as in the Darién case – can “derail” other project efforts to achieve relevant strategic objectives, such as “stabilizing the agricultural frontier,” “fixing”

small farmers to the land, and protecting areas that are rich in biodiversity, often with perverse (as well as unexpected) environmental and/or social consequences.

5. More generally, major road improvements (i.e., new construction and/or pavement of an existing road) in less developed agricultural and natural resource frontier regions are likely to have significant direct and indirect environmental and social impacts in their direct and indirect areas of influence. These impacts need to be anticipated and assessed up-front to the extent possible and appropriate plans to avoid, minimize, mitigate and/or compensate for them need to be carefully developed and properly implemented. Implementation of many of the necessary environmental and social management and protection measures needs to take place prior to undertaking the road improvements per se. Controlling land ownership, tenure and use and protecting biodiversity and indigenous populations and other vulnerable social groups (e.g., Afro-descendants, small subsistence farmers, etc.) in the immediate and more remote areas of influence of the proposed road improvement will be particularly important in this regard and should be a priority in the associated environmental and social management plans.

6. In view of the above considerations, the two phase approach recommended in the Bank's loan document for additional financing for the Darién would appear, indeed, to be the most sensible way to proceed – i.e. to ensure that the required safeguard measures are firmly in place in advance of any major road improvement. This is also important because physical investments, such as the construction or upgrading of transport infrastructure, especially major roads, while perhaps challenging from an engineering standpoint, nevertheless tend to be easier to implement – and generally also count with much stronger local and national political support – than “softer” interventions such as land use planning, regulation, and control, support to pro-poor productive activities, and environmental and social protection and management measures more generally, especially those involving global public goods such as biodiversity or vulnerable ethnic and other minorities who also tend to be among the poorest local residents.

7. Multi-sectoral regional projects like the present one need to be supported by appropriate national and sectoral policies, and mechanisms to adequately direct and coordinate multiple public institutions in different sectors and at different levels of government need to be in place and function effectively throughout project implementation.

8. Systematic monitoring and evaluation of projects, especially challenging and complex ones like the one reviewed above, are essential for an adequate understanding of what

actually happened – and what did not – in relation to what was intended and attempted, as well as with respect to the results and impacts of these interventions, both positive and negative and expected and unanticipated. More importantly, they are necessary in order to help replicate good practice and successful outcomes and to avoid the same pitfalls and/or making the same mistakes in future development projects having similar objectives and/or taking place in similar circumstances and/or contexts. However, these valuable lessons also need to be carefully and systematically incorporated into the design of relevant future projects.

9. A number of important “loose ends” and “unfinished business” from the project clearly remain in Darién, which continues to be comparatively poor and to suffer from insufficient protection of its rich biodiversity and inadequate support to its vulnerable indigenous and other low-income inhabitants, particularly in rural (but also urban) areas, which are still under (partly improved road-induced) pressure from other economic and social forces. In short, the sustainable development challenge still remains and may even have become more difficult and complex now that the paved Pan-American Highway is in place at least part way through the province. The Bank should, thus, seek to continue to help the national and local governments in the province, in close consultation and collaboration with the affected communities, to move forward in its efforts to achieve environmentally and socially sustainable development.

10. This will be even more important should the Pan-American Highway eventually be extended further to the east and south passing through what is known as the “Darién Gap” all the way to the border with Colombia, which would thus connect North, Central, and South America by road, and even further enhance and exacerbate the road’s direct and indirect economic, environmental, and social impact in the province. This sparsely inhabited area, moreover, is even more sensitive from both a biodiversity and a socio-cultural (i.e., indigenous peoples) standpoint.