



# **FINAL REPORT**

## **TECHNICAL SEMINAR ON WATER AND POVERTY FOR LATIN AMERICA AND THE CARIBBEAN: SETTING A RESEARCH AGENDA**

**INTER AMERICAN DEVELOPMENT BANK (IADB)  
AND  
NATIONAL CENTER FOR THE ENVIRONMENT (CENMA)  
UNIVERSIDAD DE CHILE**

**Santiago, May 22-23, 2003**

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This document is the Final Report prepared by the National Center for the Environment (CENMA) of the University of Chile for the Inter American Development Bank (IADB) to comply with number 5. of the Letter of Agreement signed by both institutions to specified the conditions under which the Seminar was carried out and organized jointly by them.

The Seminar was held in Santiago, Chile, on May 22 and 23, 2003. All the working activities of the Seminar were carried out at CENMA's headquarter in Santiago (Av. Larraín 9975, La Reina), and followed the Program that was established in advanced by CENMA and IADB (see Appendix 1). The attendants to the Seminar were IADB officials, CENMA officials, and invited professors and researchers from the University of Chile, and academicians, researchers and international experts from Argentina, Chile, The Netherlands and the United States (see Appendix 2).

According with the Letter of Agreement, CENMA carried out the administrative and organizational tasks of the Seminar, including, among others, preparing and coordinating the working sessions of the two working days, organizing and coordinating international and domestic transportation, lodging and secretarial services for all the attendants to the Seminar, preparing, elaborating and distributing all the printed and electronic material of the Seminar, etc.

## **I. ANTECEDENTS**

The Inter American Development Bank and the Fundación Centro Nacional del Medio Ambiente of the Universidad de Chile agreed to organized jointly a Technical Seminar on Water and Poverty for Latin America and the Caribbean: Setting a Research Agenda. The Seminar was financially supported by a contribution from the IDB-Netherlands Water Partnership Program (INWAP) provided by IDB to the Fundación under the terms defined in the Letter of Agreement signed by both institutions on April 22, 2003 (see Appendix 3).

## **II. ACTIVITIES**

The two days of the seminar were organized in seven working sessions. The first six of these working sessions, that were carried out during the entire first day and the morning of the second day, were structured as to have first the presentation of a paper by one of the attendants and, second, a general discussion on the paper presented and on some of the theoretical and empirical issues related to one of the different aspects of the two dimensions of the water-poverty relationship under analysis in the Seminar.

The seventh session, carried out during the afternoon of the second day, was organized as to have a general discussion on ideas, possibilities and means to develop research proposals on the water-poverty relationship in the LAC region.

## **DAY ONE (THURSDAY, MAY 22)**

### **Registration (09:00-10:00)**

Ground transportation was provided to foreign attendants from their hotels to CENMA's premises, where they gathered the rest of the attendants.

A folder containing general information about the Seminar, its program, the papers to be presented and a CD with some additional material was given to each attendant.

### **Opening (10:00-10:15)**

Eugenio Figueroa, the Executive Director of CENMA, welcomed all the attendants to the Seminar and shortly explained the purpose of it as well as the structure of the two working days ahead.

Diego Rodriguez, from IADB-Washington, explained the Bank's objectives in organizing this Seminar and gave some ideas on the type of results and products expected from the Seminar.

### **Working Session 1 (10:20-11:45)**

Edward Barbier, from the University of Wyoming, presented his paper "Water an Economic Growth", in which he depicts the influence of water utilization on economic growth using a growth model that includes water as a congestible non-excludable good used as a productive input for private producers. One of the issues addressed during the presentation was whether or not water scarcity constraints economic growth and how to characterize water in a formal model to tackle this question. The presenter also analyzed the notion of a widespread global "water crisis" which have been proposed and spread by some hydrological studies and how its own results suggest caution about it.

A lively discussion about the paper took place after the presentation in which many attendants intervened. Many of them pointed out the usefulness of having a formal approach as the one developed by Barbier. Some discussed the theoretical as well as empirical necessity of using formal models more regional and local in scope than the one presented by Barbier in order to deal more properly with water issues that are essentially local in nature.

The role played by water resources in determining the distribution of population in many countries was also discussed.

The water scarcity problem was also discussed, and many of the discussants pointed out that scarcity is a reality in many localities and regions in developing countries as well as in numerous localities in developed countries, but that it is difficult to imply from this evidence that there exists a global water scarcity problem.

The social problems arising from and related to water scarcity in many developing countries were also discussed, and some discussants agreed upon the necessity of studying them empirically.

### **Working Session 2 (12:00-13:45)**

Sebastián Galiani, from the Universidad de San Andrés, presented his paper “Water for Life: The Impact of Privatization of Water Services on Child Mortality” (co-authored with Paul Gertler and Ernesto Schargrotsky). He analyzed the privatization campaign of water companies that took place in Argentina in the 1990s, and covered approximately 30 percent of the municipalities of the country. The presenter emphasized the importance of carefully developing internal and external consistency in empirical studies as this one. The study hypothesized that increased access to the water and sanitation network, and potential changes in service quality, improved health outcomes of young children, and found that child mortality fell by approximately 8 percent in the areas where water systems were privatized. It also found that the poorest population experienced the largest gains from privatization of water companies in terms of reduction in child mortality and, therefore, that privatization had a progressive effect on reducing health inequality in Argentina.

A detailed discussion on the paper followed the presentation, largely centered on the methodology used, the sources of the data employed, etc. Most of the participants agreed on the importance of having such a detailed and meticulously elaborated empirical research in an area as privatization of public utilities that is so relevant for developing countries all over the world.

Many discussants made comments on the importance of access to safe water in developing countries and its links with health in young children and population in general.

The importance of the mechanism and of the contracts under which privatization occurs was also discussed. Most of the discussants agreed upon the necessity of studying more carefully the characteristic and clauses of the different types of contracts that have been used to privatize public utilities in different countries. The perception of most of the attendant is that the conditions stated in the privatization contracts could make a big difference regarding the final performing of the companies after privatization. Prescheduled investment arrangements stated in the contracts could be very relevant in this regard.

### **Working Session 3 (15:30-16:45)**

Andrés Gómez-Lobo, from the Universidad de Chile, presented his paper “Subsidy Policies for the Utility Industries: A Comparison of the Chilean and Colombian Water Subsidy Schemes” (co-authored by Dante Contreras). The presenter analyzed the differences between the individual means tested subsidy that is used in Chile and the geographically targeted subsidy that is employed in Colombia. He explained that the Chilean subsidy scheme is better able to identify poor households compared to the subsidy Colombian scheme. He also showed that the overall impact of both schemes is quite similar for the first three deciles of the income distribution. The Chilean means tested scheme shows a quite large targeting error and more than 70 percent of water subsidies accrue to households over the third income decile. In contrast, almost all Colombian households receive some kind of benefits, which implies a high and inefficient fiscal cost of the subsidy scheme.

An interesting discussion followed the presentation of the paper in which many commentators expressed the importance of studying in detail the targeting properties of water subsidies schemes in developing countries as well as the distorting effects of subsidies.

To many attendants the use of subsidies in many developing countries leads to significant increases in water consumption, which can be of most importance in areas where water provision is critical and expensive.

The idea of analyzing the conditions under which privatization of water companies has taken place in developing countries in the recent decades was further discussed following what it had been said during the morning sessions. Many commentators emphasized the importance of having the right combination of the privatization of water companies, the contracts under which this privatization occurs, and the appropriate water regulatory institutions and agencies.

#### **Working Session 4 (17:00-18:20)**

Ricardo Luján, from INCAP-Guatemala, presented his paper “The Impact of Introducing Water and Sanitation at Community Level, Contribution to Food and Nutritional Security of Population” (co-authored by Jorge Matute, Héctor Gamero, Claudia Mérida, Rafael Pradesaba, Olga Torres, Ricardo Mancía, Reinaldo Chanchán, Daniel Flores, Marvin Mejía, Jonathan Claros and Francisco Alvarado). The presenter analyzed the PROSAGUAS Program developed by CARE-Salvador, and explained that the paper demonstrated the causal relationship between the introduction of water, education, environmental sanitation and community organization, on the one hand, and a significant reduction of diarrhea prevalence in children of less than two and less than five years of age, on the other. He also explained that the study showed that the improvement in living conditions resulting from the Program had a positive effect on the nutritional condition of these children, therefore, also improving food and nutritional security of the population. The presenter emphasized the education and community organization and involvement components of the Program which made a big difference with respect to other programs that concentrate only on water access or sanitation components. In fact, the education and community organization and participation components were crucial to provoke changes in mothers’ knowledge, attitudes and practices as well as in unhealthy environmental conditions in the communities where the Program was implemented.

A long and detailed discussion about the paper and its methodologies developed after the presentation. Most of the attendants agreed on the key role that community participation and grassroots activities can play in water projects, in particular, and in social programs, in general. There was agreement in that, due to the fact that water problems generally are very local in nature, community involvement in identifying, defining and designing the specific activities of projects aimed at improving water availability, water access and water usage is crucial.

Some of the attendants referred to their experiences with different natural resource and/or poverty related projects in different countries of Asia, Africa and Latin America, and the main part that community participation had in them.

Most of the commentators agreed in that much more research is needed to understand how to foster community participation and peoples’ involvement in water management and sanitation projects. Many think that inter-country comparisons of community participation in natural and environmental resource related projects could be very useful to shed light on how to improve development projects’ performance in the future.

Some commentators expressed their believe that research projects need to broaden their usual focus to let a broader approach to human and community incentives that are larger and richer than the purely economic incentives usually defined in a rather narrow fashion.

## **DAY TWO (FRIDAY, MAY 23)**

### **Working Session 5 (09:00-10:30)**

Douglas Southgate, from Ohio State University, made a presentation on “Rural Poverty, Agriculture and Water Value” in which he talked about three research projects he has been involved with in Latin America.

The presenter talked about a project developed in Quito, Ecuador, through which water provision was significantly improved in a ten-year period. In 1988 there were water subsidies for 50% of the cost, 40% of the population had no water connection in their houses and there was no environmental protection. Through better management and community involvement, in 1998, the situation changed radically to a much more efficient system, which now subsidized only 10% of cost, had only 10-15% of households without water connections and now also had a fund for watershed management.

Douglas Southgate also presented empirical data produced by an ongoing project of FUSADE in El Salvador, related to the quality of water consumed by rural households in this country. The data was collected in the third sample of a series of four samples that FUSADE is taken for its study.

In terms of bacterial contamination, 61% of the samples showed presence of fecal bacteria, and 52% had Echerichia coli. Regarding chemical pollution, 18% of the samples presented 2,4 D, 12% had atrazina and 0.3% of them had banned insecticides. However, for these chemical pollutants only very few households showed concentrations above de maximum admissible levels determined by USEPA. For the specific cases of nitrites and nitrates, 4% of the samples showed concentrations above the USEPA’s maximum admissible levels, and for arsenic and led the figure was 1%.

The water quality conditions found by the study come from a water provision in which less than 50% of the households are connected to the water system, 26% of them obtain their water from wells and 20% from rivers and natural springs. Moreover, 65% of the households do not use any water treatment. Though 35% of the households say that they use chlorine to treat the water they use, in only 11% of the samples the presence of chlorine was detected.

Regarding sewage services, only 7% of the households have toilets, while 82% have latrines and 11% have no system at all

There are significant differences between poor and non-poor households regarding water sources, the utilization or not of evacuation systems for used waters, and the treatment or not of water. A very important and interesting area for future research is the links between the water quality of a household and its human capital formation, on the one hand, and its ability to get out of poverty, on the other.

The third case presented was a study that is carried out in Ecuador and analyzes de value of water and the benefits of preserving watersheds in the area of Cotacachi, located North

of Quito. A survey was carried out to a sample of 80 families living in rural areas, half of them with watered lands and the other half with no-watered lands and almost all of them very small farmers of indigenous origin.

In the area where the study is being conducted potable water is partially subsidized and irrigation water is almost completely subsidized, although the small farmers are obliged to partake in the cleaning of watering channels.

Almost all household heads complement the incomes they made in their agricultural activities with out of farm work. In their small farms they use traditional production techniques, which implies that they do not use improved seeds, fertilizers or agricultural chemicals. Therefore, the productivity of their farming activities is quite low.

A preliminary work using a linear programming model of a typical small farm operation demonstrated that the shadow price of irrigation water is minimal. On the other hand, a contingent valuation study to estimate the willingness to pay for drinking water showed that most of the households would pay US\$1 per month or more to get a source of clean and safe water. The estimation shows that the willingness to pay of these households increases with the income of the family.

The study also demonstrated that there is a long standing tradition of water subsidies which has created a “subsidy mentality”, or a “subsidy culture”, which makes it very difficult for this population to accept the idea of increasing water tariff, even with the purpose of improving water provision and water quality.

The discussion after the presentation centered on the importance of studying the variables determining the valuation and use of water within rural households. There is a need to use in empirical studies comprehensive models that take into consideration the simultaneous decisions of households regarding their production activities as well as the satisfaction of their consumption needs.

Studies addressing the issue of water subsidies within a general framework are also needed, since subsidies can have inimical impacts not only on the efficiency with which water is used but also on economic incentives for households’ activities.

### **Working Session 6 (11:00-12:45)**

Henk Folmer, from Tilburg and Wageningen Universities, made a presentation on “Keywords to Address a Research Agenda Discussion”.

The main keywords identified by the presenter were:

- What are the problems?
- Which are the theories available to deal with these problems? It seems that the state of production and consumption theories is sufficient to deal with the problems at hand.
- There is a need for systematic and comprehensive empirical evidence
  - Impacts on consumers
    - Child mortality; school performance
    - Health impacts in general
    - Water as a consumption good

- Production impacts
  - Water and economic development
  - + regional and sectoral studies
  - + model specification
- Water quantity
- Water quality
- Water management
  - Adoption of water saving technology
  - Development of institutions
    - Private versus public
    - + charges and subsidy schemes
    - Collective action
- Methodology
  - Multidisciplinary approach
    - Sociology, psychology, anthropology
  - Data analysis techniques are sufficient
  - Systematic data collection
    - Cross nations comparisons
    - Benefit transfer techniques
    - Experiments (real world)
  - Policy evaluation studies

There was a long discussion after the presentation. Many pointed out that the keywords included encompassed most of the crucial research issues needed to be addressed in the LAC region.

Some people explained the difficulties to separate water issues from environmental problems and the importance of dealing with watershed management when doing empirical research in developing countries. Most agree that from a policy perspective it also does not make much sense to separate water issues from other more general environmental issues.

Everybody agreed that collective action related to water and water management issues is a most relevant topic to do research in the region. Some think that using a local perspective in applied water research is even more important than doing regional studies.

Studying the type and mechanisms of intervention used in water project seems to be crucial due to the fact that empirical evidence tends to show that those cases where collective action is at the center of the intervention carried out are the successful ones. On the contrary, those programs or projects that are directed from outside and aimed to solve some particular problem have generally failed. A necessary starting point for a research project in this topic would be an extensive review of the available empirical literature.

Other aspect that was extensively discussed by the attendants was the importance of studying and understanding the political economy process behind the development projects in developing countries. Preaching is not enough to be successful, understanding the political process is critical since this can provide some keys on how to put in gear the appropriate social motivations and mechanisms to obtain the objectives pursued.

Other issue most central to developing countries, and particularly important to Latin American ones, is the taxation of economic rents in natural resources. In the case of Chile,



for example, taxing the large economic rents generated by its mining, fishing and forestry sectors could be far much more important to future economic development than discussing numerous of the usual projects aimed to improve the management of some resources or reducing the environmental impacts of some activities.

On methodological matters for a research agenda on water and poverty, most commentators agreed that field experiments can provide very useful information. In general the techniques to conduct field experiments are available, but future research needs to tackle causality issues seriously. To do this properly, it is very important to conduct very detailed studies.

Other aspect that was considered important by the discussants is the understanding of the political economy of water provision in the LAC countries. The general feeling among the attendants was that the theoretical framework of economic science is appropriate to deal with some of these issues; nevertheless, it was also clear to them that there exist a lack of research work on culture and cultural determinants of social and individual behavior.

To studying water and poverty links in the region some commentators considered that four dimensions are very important: 1. Water subsidies in different areas, rural as well as urban, and how much governments want and should intervene; 2. Quality of water services, an aspect that seems to be crucial and which would include quantity as one of its dimensions; 3. Continuous provision of water services in the future, incorporating the appropriate mechanisms to do the necessary maintenance of the infrastructure and to finance them permanently; and, 4. Political economy of reforms and institutions in the water sector, including issues related to companies that provide water services and to water resource management.

Understanding who gains and who losses with maintaining the status quo can be a fruitful approach to analyzing the political economy of water problems in LAC countries. Research in this area has been mostly anecdotal. Some of the commentators think that Brazil could be an interesting country to perform this type of analysis.

Another methodological issue analyzed was that, given the large amount of experiences that already exist on water projects in the region, studying why some experiences have worked and why some others have failed could provide interesting insights for the future. In this regard, many considered that studying the types and characteristics of the contracts made by governments with companies that provide water and sanitation services could be very fruitful as was discussed in the previous working sessions.

With respect to collective action, many think that there is also enough empirical evidence that can be systematically researched in order to understand why some collective initiatives have been successful and why other have failed. Some interesting political economy lessons could be learned from this.

The issue of household decisions on water use and water allocation was also addressed by the discussants. When analyzing water use by poor people it seems that we generally believe that we understand how poor households use and value water. In rural areas, households use and sell their resources. To say that it is possible to separate decisions on water consumption from decisions on water use for production purposes makes very little sense when talking about poor rural households living mostly out of agricultural activities, sometimes mainly for self consumption. Its is necessary a much more detailed research to

know where the water comes from for these households, how do they get it and use it, and what is the additional investment these households need to do to get water and use it more efficiently and productively. There is no guarantee that the usual assumption that is good to provide more water to poor rural households is always correct. It may well be wrong since the provision of more water can have some distorting allocation effects.

Some other water issues that are generally neglected were also discussed. For example, most attention is paid to water scarcity but almost no attention is given to problems created but too abundant provisions of water in short periods of time, which can cause large problems in urban areas. This is a common problem in countries of the LAC region to which almost no research effort are directed and which have attracted very little political attention in spite of its inimical welfare consequences. This is a problem that has been left out to engineers to deal with and into the analysis of which no sound economics has been used yet. In Chile there is currently a law project submitted to the Parliament that proposes to incorporate flood control charges to the water bill of households. There is also evidence from contingent valuation studies that people in the country is not willing to pay much for water flood control.

Related to this issue there is evidence in Chile that water collectors for flood controls that have been built with costly public investment have been used by population as waste dumps. There is no research done to understand why this has happened. This is an example of lack or failure of collective action since the so called "juntas de vecinos" (neighbors committees) have not operated in these instances.

Other relevant empirical issues regarding water and sanitation services and poverty are the ones related to the difficulties that households face to connect to swage systems or potable water services that pass through the front of their houses and that generally have been built with a high social investment. There is evidence that in some countries of the region household simply do not have the little money needed to do make the investment to connect to these services. However, very little research has been done in this area.

Research is also needed regarding the quality of services provided by water programs already developed in many countries in the region. For example, in Mexico there are localities where families pay US\$ 12-20 per month for water services but they additionally pay other US\$ 50 for bottled drinking water. There is very little information about this, and it is necessary to do research not only on the conditions of water provision and services but also on the regulating agencies and the way regulators do their jobs. Many water and sanitation laws and regulations of some countries in the region seem to be direct copies of laws and regulations from other countries, regardless of how appropriate they can be to the specific domestic conditions.

It was generally agreed that methodologies are readily available to do efficiency and allocative analysis for optimal water provision in some microeconomic contexts. However, to deal with water and poverty issues a much broader and complex analytical framework is needed which is yet to be developed. It is necessary to think about water and poverty issues within a much more comprehensive and global context.

Regarding community collective action, research is needed in the area of laws and regulations that constraint its possibilities in some countries and make it more difficult to implement. Some commentators think that in many countries of the region there exist poor solutions for poor people and rich solutions for rich people, the empirical analysis of which

could provide insights on the political economy of water and sanitation programs and projects as well as on the existing impediments and obstacles to community collective action.

With respect to methodology, some commentators believe that using contingent valuation studies can be inconvenient not only due to their high cost but also because they have failed to convince people. However, across the LAC region, there seems to be enough variation of water tariffs and consumption, not only within countries but also along time, that could allow to do research using most common demand studies.

Another important issue for research is monitoring and enforcement. Many attendants believe that in the LAC region there is really a lack of will to enforce regulation. This is directly related to political economy issues previously discussed as well as to issues related to the interaction between poor and non-poor in Latin American societies. An interesting area of study linked to regulation monitoring and enforcement is the connection between economic and social openness and enforcement.

There was also stated that evidence from Central America shows that water sector reforms in the region have produced some losers which allows to understand why these reforms have encountered some opposition. Research can provide more understanding of the political economy of these issues as well as on the demand side for water services.

Rural water projects is another area of interest for research. There are huge differences in this type of projects and lessons can be learned from analyzing their successes and failures.

Water crises management is another area of research that can be important in the LAC region, since there seems to be a lack of understanding of and experience on this type of issues. The Colombian city of Bogotá experienced a six-month of no water supply due to a structural failure in a tunnel, which shows the big impact that lacking the ability to deal with water crisis can have for large segments of urban populations.

Some commentators brought into the discussion the issue of water pollution control. This appears to be an important area to incorporate in the future research agenda since large investments are expected to take place in the next 15-20 years in the LAC region.

### **Working Session 7 (14:00-16:15)**

Eugenio Figueroa opened this final working session explaining that its objective was to try to bring down the discussion of the previous six working sessions and to come up with some more concrete ideas to produce a research agenda on water and poverty that could be materialized in the near future. He invited the participants to elaborate during this session on the ideas discussed previously and especially on those discussed during the fruitful last session of the morning. He finally invited Diego Rodriguez and Sergio Ardila from IADB-Washington to provide some more information about the possibilities of actually implementing a research agenda that could eventually be delineated during the coming discussion.

Sergio Ardila explained then which are some of the most promising research areas from the point of view of the IADB, in the sense that the answers coming from them could help

the operations of the Bank in the future. The first area he mentioned was the role of the State in water and sanitation projects, programs and regulations. In this respect, more comprehensive and complex welfare analyses are needed. There is clearly a need to better understanding which subsidy schemes are better, more efficient and cheaper. Cross-country comparisons could be very helpful to this purpose. There is also a need to provide regulatory institutions and governments simple formulas to calculate appropriate subsidies and to determine whether they should be provided for water and/or sewage services. Analyzing how and to what extent subsidies affect the permanent provision of services by companies and the conditions under which this provision can be sustainable also seems to be very important at this moment. Studying water service provision and its different dimensions is also crucial, since there are huge variations in the quality of services, and large variances can be found in water pressure, service reliability, flour content and water taste and flavor, to mention some of them. It is also important to shed light on the actual uses of water by households and their determinants, which is especially relevant for poor rural households which mix consumption and production uses. The relationship between poverty and water services has to be studied with respect to these issues. To provide a meaningful policy context not only to fruitfully analyze this relationship but also to provide some insight to eventual future projects and programs it is necessary to do research in some of the institutional and political economy issues that were discussed in the previous working sessions. This analysis requires incorporating issues related to water resource management.

Diego Rodriguez explained some operational aspects regarding the design and possible implementation of a research agenda on water and poverty. He mentioned that the first task would be to identify two or three areas that could be useful for IADB in terms of project design and project execution. This task would hopefully be carried out during this Seminar mainly. After that, a work should be done in order to prepare a more structured research proposal that would be presented by the IADB to The Netherlands Fund that financed this Seminar and is open to receive research suggestions on water and poverty.

Community participation was mentioned by many as a key research area for studying means of reducing poverty and increasing welfare in countries of the LAC region through water scarcity alleviation, provision of water and sewage services to households, increasing water use efficiency in small agricultural producers, improving general sanitary, health and environmental conditions with the introduction of new personal and community practices brought about with education and participatory programs linked to potable water and sanitation programs, etc. Fruitful research avenues to explore would be, on the one hand, contrasting successful and unsuccessful water projects and programs within and across countries of the region, and, on the other hand, comparing community participation experiences in countries of different parts of the world.

Many of the attendants thought that when studying and analyzing the consequences of water services privatization in future research it would be useful to try to understand the channels through which improvements occur. The idea would be to identify which are the elements that really make the difference. For example, when child mortality is reduced, it would be useful to find and recognize those elements within the households, the community, the regulators and/or the companies that channeled the underlying behavioral changes.

Extending in the future the work done in Argentina on privatization of water companies to sanitation services is also thought to be useful. It was reiterated the convenience of

carefully looking in future research to the aspects conditioning the results, with especial reference to the contracts and regulations defining the privatization mechanism and process.

Closely related with this, the experiences in many countries of the region make necessary to analyze not only to the privatization process per se but the more general and complex combination of privatization and changes in regulation. An example of this is the usual argument against privatization because it necessarily implies rises in water tariffs, which would be deleterious to the poor. The experience seems to show that this is not necessarily true, but the point is difficult to demonstrate empirically.

Another interesting aspect worth to analyze is changes in public management and regulation. There is room for and it would possibly be very fruitful to make a comparison between reforms of the public sector and their consequences on public management in different countries of the region, Chile and Argentina for example. There is no contradiction in improving public management and also privatizing.

There is a need to analyzing this issue of private versus private management more carefully and with a much greater detail. Studying not only if the company providing the services is private or public, but carefully analyzing the real underlying incentives determining its behavior, on the one hand, and the real independence of the company from the political power to make and implement its own decisions. An interesting example in a neighborhood of the Colombian city of Barranquilla was mentioned, in which there were big water service problems until the government handed their management over to a private company that operated very well the services of a small area of the city. The small company made large improvements in water services in the neighborhood for some years, until the authorities incorporated politicians to the board of directors of the firm. As a result of this, everything went down to the drain again. The analysis of this type of experiences in the region could provide useful lessons for the future.

Other commentators felt that privatization has been going on for a long and that it is important and make a lot of sense to look to new areas for research, and two of the one already discussed in the Seminar seem very promising. One is public managed operations and how to improve them. The other is community-managed operations, which can be of enormous importance for poor areas in the LAC, Asian and African regions.

Answering questions from various of the attendants, Sergio Ardila from IADB explained that the research proposal is quite open at this stage and, therefore, it is very useful to try to define three or four areas of interest within which it would be possible, later on, to determine more specific research projects. Two aspects are important for defining these areas of interest as well as for determining more specific projects later on. The first is that there exists the feeling that the concern on the relationship between water and poverty has tended to disappear from the lending process of the Bank. The second is the necessity of finding new ideas, ways and mechanisms that can help to improve the design and implementation of water and sanitation projects in the Bank. The funds provided by the Dutch Government can be used to do research in areas related in a very broad sense to institutional development and water and poverty. Regarding the eventual research projects, they could be of one to two years probably, and they could include data production and collection.

Some commentators expressed the idea that to link water resource issues and poverty in a meaningful research project it is necessary to focus on the rural sector and peripheral urban areas. When dealing with the water-poverty relationship in the rural environment two aspects are important: property rights and interactions with other sectors of the economy. In general, in the rural areas of the LAC region poverty and water and other resources issues are directly linked to not well-defined property rights. The interactions of the rural sector with the commercial sector are also a key aspect that has to be analyzed to study water and poverty matters in a proper way. The political economy of the system would be very important to analyze in order to obtain lessons for project design and implementation. This analysis should include at least three main components and actors in the political economic process: the poor, the government and the commercial sector.

Regarding the rural areas of the region, some commentators think that irrigation projects can be an important area to look at. The trend in the last decades has been that IADB promotes the transfer of irrigation facilities to users, transferring assets to water users. A common problem in the region is that the associations of water users are not eligible for credit, which creates big problems since they are not able then to invest and do appropriate maintenance of irrigation systems.

An important issue underlying all social decisions regarding water projects and water management is the social price of water. An interesting area of research would be defining a simple methodology to calculate the social price of water and to apply it in different countries of the region.

An interesting emerging issue in Chile is the type of new problems the sanitation and sewage systems of some cities will face in the future. Since by the end of the present decade the country will have large treatment plants to treat a large proportion of its urban water, it is expected that chemical water contaminants will become a much important issue in the medium run. This may imply the necessity of expanding the sewage system to treat industrial liquid wastes and residual water.

Many agreed that there is no doubt that a crucial issue to have in mind to develop a relevant research agenda is that a blind growth policy will provide growth at the cost of poor. What is needed are strategies for commercial development with an appropriate compensation to the poor. For example, if a big dam diverts water from small poor agricultural producers and generates growth in commercial sectors of the economy, it is necessary to find compensation mechanisms, which allow repaying back the losses generated by the project to the poor small producers. Research to establish appropriate mechanisms for this type of compensations is very much needed in the region. It would be very useful to find ways of incorporating these considerations in the designing process of water projects. As a matter of fact, this is an issue that extends far beyond water projects, since it really touches resource allocation and growth in a much more general sense.

At the end of the discussion there was a general feeling that during the two working days of the Seminar the participants had made a real progress in identifying some key areas that any research agenda on water and poverty issues for the LAC region ought to address to be relevant. There was also a feeling that with some additional work and having a set of guidelines or terms of references constructed from those areas already identified in a general sense, it would be relatively easy to define more some specific research projects to develop in the future.

**Closure (16:15-16:30)**

Eugenio Figueroa thanked all the attendants to the Seminar for the interesting and fruitful discussions produced in every one of the working sessions and promised to keep them informed of the coming process to formulate a formal research proposal.

Diego Rodriguez also thanked all the participants and explained that he will work from the report of the Seminar that will be prepared by the organizers to produce an initial draft of the terms of references that will serve to initiate and conduct the process of formulating a formal research proposal. He also promised to send information on the development of the proposal to all the participants in the coming months.

**I. CONCLUSIONS**

The Seminar clearly fulfilled its purposes, since it:

- gathered a group of officials from the IADB, and academicians, researchers, consultants and practitioners from universities, institutes, institutions and companies of the LAC region as well as the United States and The Netherlands, with an extensive experience in theoretical and empirical research and field work in different areas of economic development, poverty, agricultural economics, rural development, public utility sectors, economics of regulation and natural resource and environmental management and projects and, in particular, in water and sanitation programs in rural as well as urban areas;
- created an environment that made possible and provoked an open, informed and enlightening discussion on the central issues of the water-poverty relationship and its crucial aspects to be included in a meaningful and relevant research agenda for the LAC region;
- identified some key research areas within which it would be possible to define specific research topics for a relevant research agenda that could be developed in the future to contribute with new and innovative ideas to improve the management of water resources and to reduce poverty in the LAC region, and in the developing world in general, in the future.

The key research areas that during the Seminar emerged as important to be considered at the moment of defining a research agenda can be summarized in the following six broad and non mutually excluding categories

1. Water resource management, collective action and growth issues;
2. Political economy of water resource allocation and use and its implications for economic growth and poverty reduction;
3. Valuation, use and management of water resource by poor households, in rural and urban areas;

4. Public and private water resource management, privatization of water and sanitation services and determinants of private companies performance, improvement of public water and sanitation services, political economy and institutional aspects of the regulatory process of water and sanitation services;
5. Comparative analysis of successes and failures in water and sanitation projects in the region;
6. Inter-country and inter-region comparisons of collective action for water management and of regulatory institutions and mechanism for water and sanitation services.



**APPENDIX 1**

**PROGRAM OF THE  
TECHNICAL SEMINAR ON WATER AND POVERTY  
FOR LATIN AMERICA AND THE CARIBBEAN:  
SETTING A RESEARCH AGENDA**

**TECHNICAL SEMINAR ON  
WATER AND POVERTY  
FOR LATIN AMERICA AND THE CARIBBEAN:  
SETTING A RESEARCH AGENDA**

**Santiago, May 22-23, 2003**

The National Center for the Environment (CENMA) of the University of Chile and the Inter American Development Bank (IADB) are organizing this international seminar devoted to analyze, theoretically as well as empirically, the relationship between water resource and poverty in Latin American and the Caribbean countries, and to develop research proposals on the subject.

The purpose of the technical training seminar is to gather international specialists and IADB officials with research and working experience in water resource, poverty and economic development to study two dimensions of the water-poverty relationship. The first one is related to the traditional approach of water resource and the satisfaction of the basic needs of the population of the LAC region. The other dimension focuses on water's role as an input in the production function of different economic sectors, as well as on its contribution to the economic growth and development of the countries in the region.

The participants to the seminar are invited in their personal capacities to analyze the current state of knowledge and empirical research regarding these two dimensions of the water-poverty relationship and to identify possibilities to conduct future empirical work on the subject in some countries of the LAC region.

The international seminar will be held in Santiago, on May 22 and 23. See the attached Tentative Program.

**TECHNICAL SEMINAR ON WATER AND POVERTY  
FOR LATIN AMERICA AND THE CARIBBEAN:  
SETTING A RESEARCH AGENDA**

Santiago, May 22-23, 2003

**PROGRAM**

**MAY 22 (Thursday)**

**09:30 Opening**

Eugenio Figueroa B., Executive Director, CENMA  
Diego Rodríguez, Environment Division, Sustainable Development  
Department, IADB.

**10:00 Session 1:**

Presentation: Edward Barbier (U. of Wyoming), "Water and Economic Growth".

**Discussion on the Water-Poverty Relationship:**

- Theoretical links between water resource, welfare and poverty;
- Existing empirical evidence on the water-poverty relationship;
- Personal work (experience) in the area

**11:30 Coffee break**

**12:00 Session 2**

Presentation: Sebastián Galiani (U. de San Andrés), "Water for Life: The Impact of the Privatization of Water Services on Child Mortality"

**Discussion on Two Dimensions of the Water-Poverty Relationship:**

- Water, poverty and basic needs satisfaction;
- Water, sanitation and health;
- Water and human capital;
- Water and productivity;
- Water and export (natural resource)-oriented economies;
- Water in agriculture;
- Water in mining;
- Water and economic growth;
- Water and development.

**13:30 Lunch break**

Lunch at CENMA

**15:00 Session 3:**

**Presentation: Andrés Gómez-Lobo (U. de Chile), “Subsidy Policies for the Utility Industries: A Comparison of the Chilean and Colombian Water Subsidy Schemes”.**

**Discussion on The “Welfare Approach” to the Water-Poverty Relationship at the “Macro Level”:**

- Water and sewage services as poverty indicators;
- Water and health at the aggregate level;
- Water and national health costs
- Empirical evidence

**16:15 Coffee break****16:30 Session 4:**

**Presentation: Ricardo Luján (INCAP-Guatemala), “Impacto de la Introducción de Agua y Saneamiento a Nivel Comunitario, como Contribuyente a la Seguridad Alimentaria y Nutricional de la Población”.**

**Discussion on The “Welfare Approach” to the Water-Poverty Relationship at the “Micro Level”:**

- Water, poverty and individual productivity;
- Water, poverty and gender;
- Water, poverty and family productivity and income;
- Water and the determinants of human capital;
- Water and household production
- Water, children and education

**17:45 End of working session**

**20:00 Dinner at Restaurant “El Ají Verde” (Address: Constitución 284; barrio Bellavista)**

**MAY 23 (Friday)****09:00 Session 5:**

**Presentation: Douglas Southgate (Ohio State U.), “Rural Poverty, Agriculture and Water Value”**

**Discussion on The “Production Approach” to the Water-Poverty Relationship at the “Micro Level”:**

- Water and production at the firm level;
- Water and firm’s productivity;
- Water and sector production and productivity;
- Water and agricultural production and productivity;
- Water and the agro-industrial sector;
- Water and energy (hydroelectric) sector;

**10:30 Coffee break**

- 11:00 Session 6:**  
**Presentation: Henk Folmer (Wagenigen University/Tilburg University) “Water Issues in the Northern Plains of China”**  
**Discussion on research opportunities and possibilities:**
- **Water and economic growth;**
  - **Water, infrastructure and growth;**
  - **Water, investment and growth;**
  - **Water, growth and development**
- 12:30 Lunch break**  
**Lunch at CENMA**
- 14:30 Session 7:**  
**Discussion on Research Proposals on the Water-Poverty Relationship in LAC from the “Welfare Approach”**
- 15:45 Coffee break**
- 16:00 Session 8:**  
**Discussion on Research Proposals on the Water-Poverty Relationship in LAC from the “Production Approach”**
- 17:15 Closure of the Workshop**  
**Diego Rodríguez, IADB**  
**Eugenio Figueroa B., CENMA**

**APPENDIX 2**

**ATTENDANTS TO THE  
TECHNICAL SEMINAR ON WATER AND POVERTY  
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**ATTENDANTS TO THE  
TECHNICAL SEMINAR ON WATER AND POVERTY  
FOR LATIN AMERICA AND THE CARIBBEAN:  
SETTING A RESEARCH AGENDA**

Name	Institution	Country
Andrés Gómez- Lobos	Universidad de Chile	Chile
Cofré Paola	CENMA-Universidad de Chile	Chile
Diego Rodríguez	BID-Washington	Uruguay
Douglas Southgate	Ohio State University	USA
Edward Barbier	University of Wyoming	USA
Eugenio Figueroa	CENMA-Universidad de Chile	Chile
Guillermo Donoso	Universidad Católica de Chile	Chile
Henk Folmer	Tilburg University	The Netherlands
Humberto Peña	Public Works Ministry-Chile	Chile
Jorge Ducci	Solin S.A.	Chile
José Miguel Benavente	Universidad de Chile	Chile
Milford Aguilar	CENRE-Universidad de Chile	Chile
Ramón López	University of Maryland	USA
Ricardo Luján	INCAP-Guatemala	Guatemala
Sebastián Valdés	Bitrán y Asociados S.A. - Universidad de Chile	Chile
Sebastian Galiani	Universidad de San Andrés	Argentina
Paola Cofré	CENMA-Universidad de Chile	Chile
Sergio Ardila	BID-Washington	Colombia