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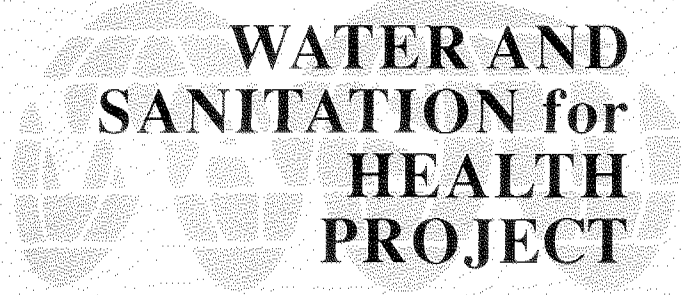
F I E L D R E P O R T

# ANDEAN REGIONAL WORKSHOP ON ALTERNATIVE APPROACHES TO WASTEWATER MANAGEMENT

Santiago, Chile  
September 28—October 2, 1992

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WASH Field Report No. 394  
March 1993



**WATER AND  
SANITATION for  
HEALTH  
PROJECT**

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Santiago, Chile  
September 28—October 2, 1992

Prepared for the Office of Health,  
Bureau for Research and Development  
U.S. Agency for International Development  
under WASH Task No. 357

by

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and  
Alan Hurwitz

March 1993

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Water and Sanitation for Health Project

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## **RELATED WASH REPORTS**

*Wastewater and Solid Waste Management: Guidelines for Project Identification.* (Draft) March 1993. Prepared by William B. Lord, Pete Andrews, Larry O'Toole, Fernando Requena, Daniel Varisco. Technical Report No. 88.

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## ACKNOWLEDGMENTS

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## ACRONYMS

A.I.D.	U.S. Agency for International Development (Washington, D.C.)
CORFO	Corporacion de Fomento de la Produccion, Chile
ESAs	External Support Agencies
IDB	Inter-American Development Bank
INCO	Chilean engineering consulting firm
MINVU	<i>Ministro de la Vivienda y Urbanismo</i> (Ministry of Housing and Urban Affairs)
PAHO	Pan American Health Organization
UNDP	United Nations Development Programme
USAID	U.S. Agency for International Development (overseas missions)
WASH	Water and Sanitation for Health





## EXECUTIVE SUMMARY

In 1991, the Bureau for Latin America and the Caribbean (LAC) in the U.S. Agency for International Development requested that the Bureau for Research and Development and the Water and Sanitation for Health (WASH) Project contact USAID missions throughout Latin America to determine their interest in participating in wastewater management workshops designed to help address the cholera threat. The response was overwhelmingly positive, especially in the A.I.D.-assisted countries in South America.

As a result of the interest expressed by the USAID missions, the LAC Bureau requested that WASH plan and implement a wastewater management workshop in South America. In consultation with WASH, the LAC Bureau decided to make cholera assistance funds available to support workshop participation of up to 25 persons from Bolivia, Chile, Colombia, Ecuador, and Peru.

A workshop entitled "Alternative Approaches to Wastewater Management" was held in Santiago, Chile from September 28 to October 2, 1992. The workshop design followed a sequence that centered around a conceptual framework for developing new approaches to wastewater management. The framework was developed by WASH. Through the participatory design of the workshop, the presenters tried to convey three essential messages:

- the systems nature of the wastewater management problem,
- how new tools such as methods for wastewater reuse, economic and policy instruments, and appropriate technology could be applied to the problem, and
- how different actors, including the public and the private sector, play a key role in solving the wastewater management problem.

The workshop included a trip to EDIFICA, an International Trade Fair held in Santiago. EDIFICA hosted a panel in which participants from the workshop and members of the Chilean private and public sectors discussed the role of the private sector in wastewater management. The panel session was attended by approximately 120 persons.

By all accounts, the workshop was a success. Several aspects of the workshop design could have been improved upon, but the overall goals of the workshop were reached. As a follow-up activity in Chile, WASH recommends that USAID/Santiago consider providing technical assistance in two areas: in facilitating the negotiations that are required to allow privatization of utilities to occur and in assisting Chile in the development of wastewater planning/decision models on a watershed or regional basis.

As a follow-up activity in the other countries that participated in the workshop, WASH recommends that the USAID missions support national level workshops to advance the implementation of new approaches to wastewater in each country.

Finally, WASH recommends that the LAC Bureau consider funding regional workshops, similar to the Chile workshop, in Central America and the Caribbean.

## **Chapter 1**

### **INTRODUCTION**

#### **1.1 Background**

In 1991, the arrival of the cholera epidemic in Peru sparked an increase in interest in addressing the poor sanitation conditions in Latin America. Latin America suffers not only from poor coverage of the population with adequate sanitation facilities, but also lacks almost any kind of treatment of wastewater before it is discharged to the environment. Only 2 percent of the total volume of wastewater generated in Latin America receives treatment. Adequate management of wastewater is one of the key interventions for addressing cholera and other diarrheal diseases.

In 1991, the Bureau for Latin America and the Caribbean (LAC) in the U.S. Agency for International Development requested that the Bureau for Research and Development and its Water and Sanitation for Health (WASH) project contact the USAID missions throughout Latin America to determine their interest in participating in wastewater management workshops designed to help address the cholera threat. The response was overwhelmingly positive, especially in the A.I.D.-assisted countries in South America.

#### **1.2 Request for the Workshop**

As a result of the interest expressed by the USAID missions, the LAC Bureau requested that WASH plan and implement a wastewater management workshop in South America. In consultation with WASH, the LAC Bureau decided to make cholera assistance funds available to support workshop participation of up to 25 persons from Bolivia, Chile, Colombia, Ecuador, and Peru.

For several reasons, Santiago, Chile was chosen as the site for the workshop. First, USAID/Santiago expressed a strong interest in holding the workshop in conjunction with EDIFICA, an international trade show which in 1992 was advertised as a fair that would showcase environmental technologies. Second, USAID/Santiago already had been supporting the development of innovative wastewater treatment projects in three small towns in Chile. Third, it was perceived that Chile was more advanced than the other countries in planning to improve the wastewater management problem and that understanding Chile's experience could be useful to the other countries. Chile's program also included plans to get the private sector more involved in finding solutions to the wastewater problem. To this end, Corporacion de Fomento de la Produccion (CORFO), the Chilean holding company for water and wastewater utilities, co-sponsored the workshop with USAID/Santiago.

### **1.3 Scope of Work and Workshop Personnel**

A scope of work for WASH's involvement in the Regional Wastewater Workshop in Chile is contained in Appendix A. As outlined in the scope of work, the purpose of the workshop was to introduce a more comprehensive approach to wastewater management than that attempted in the past. The workshop was based on a WASH-developed framework for wastewater management that not only relies on strategies that incorporate the application of technology, but also considers the role of institutions (in its broadest sense) and the use of policy instruments. (See Appendix C.)

In order to implement such an innovative conceptual framework, WASH decided to use a wide variety of resource specialists for the workshop planning and implementation. In addition, because of the widespread interest in wastewater management, WASH sought and received the participation of several other international agencies in the planning and implementation of the Regional on Alternative Approaches to Wastewater Management Workshop. These agencies included the United Nations Development Programme (UNDP)/World Bank technical assistance program in Washington, DC, the UNDP/World Bank project office in Bolivia, and the Pan American Health Organization (PAHO).

The persons involved in the workshop were:

Alan Hurwitz (WASH Consultant)—Workshop Designer, Lead Facilitator

J. Ellis Turner (WASH Project Director)—Co-designer, Co-facilitator, Framework Presenter

Rita Cestti (UNDP/World Bank, Washington, DC)—Co-designer, Presenter on Policy Instruments

Fernando Requena (WASH Consultant/CDM staff)—Presenter on Wastewater Finance, Technology, and Case Studies

Juan Antonio Poblete (WASH Consultant)—Presenter on Economic Instruments

Jennifer Sara (UNDP/World Bank, Bolivia)—Presenter on Peri-urban sanitation

Alberto Flores (PAHO/CEPIS, Lima, Peru)—Presenter on Health and Technology

Fernando Hidalgo and Eduardo Adana (INCO, Santiago, Chile)—Case Study Developers

Local support for the workshop was provided by Interferias. The workshop was held in the Hotel Santiago Park Plaza in Santiago, Chile.

## Chapter 2

# WORKSHOP PLANNING

### 2.1 Planning

Initial planning for the design of the workshop started with a team planning meeting that was held at the WASH Operations Center in June 1992. During that meeting team members agreed upon the overall workshop approach, goals, and objectives and selected the number of participants (approximately 25) and the participating countries (Bolivia, Chile, Colombia, Ecuador, and Peru). At the end of the team planning meeting, WASH, UNDP/World Bank, and A.I.D. staff attended a briefing at which the sponsoring agencies were given a chance to review the workshop design and offer suggestions.

During the period from June 1992 until the workshop was held (September 28—October 2, 1992), the workshop team worked to finalize the design and select the workshop participants. Names of possible participants were obtained from the USAID missions in each of the participating countries. WASH also recommended suitable participants in those cases where an inadequate number was identified by the mission.

### 2.2 In-country Preparations

Because of the complexity of the workshop design—which included a site visit and a visit to EDIFICA, the international fair—WASH contracted with the local firm Interferias to provide all secretarial and logistical support for the workshop. Interferias provided one full-time secretary and other part-time assistance to ensure a smooth-running workshop.

Prior to the workshop WASH used the services of INCO, a local engineering consulting firm, to make arrangements for the field visit to Melipilla, identify panelists for the workshop, and to prepare videos for the two case studies that would be used in the workshop.

Four working days before the workshop, the lead facilitator and co-facilitator arrived in Santiago to review the arrangements for the workshop, to visit Melipilla, and to meet with all technical resource persons, EDFICA personnel, and the workshop panelists. In addition, the team met with USAID personnel and CORFO personnel to brief them on the final design of and arrangements for the workshop.



## Chapter 3

### WORKSHOP IMPLEMENTATION

#### 3.1 Workshop Goals and Objectives

The workshop was intended to help participating countries improve their abilities to develop new approaches to dealing with their wastewater management problems. Within this context, the following goals and objectives were established for the workshop.

- Participants will appreciate the limitations of current wastewater management approaches in addressing challenges in Latin America (i.e. cholera) and develop a stronger commitment to trying new approaches.
- Participants will gain awareness of new or under-utilized technical options and tools for evaluating new options.
- Participants will be able to use a "systems approach" to analyze actual and potential wastewater management situations, i.e., including institutional and economic as well as technical factors, and apply it to at least one "back home" situation.
- Participants will be more effective in promoting desired changes within their own wastewater management systems.
- All of us (participants and facilitators) will better understand the applicability of diverse wastewater management approaches to Latin America.
- Participants will leave the session with a stronger sense of being a significant part of an extensive network of people who deal with wastewater management from many different perspectives and professional roles.

#### 3.2 Participants

Twenty-five people participated in the workshop. Four participants came from Bolivia, nine from Chile, four from Colombia, three from Ecuador, and five from Peru. See Appendix C for a list of participants and their organizations.

#### 3.3 Workshop Methodology, Content, and Schedule

The workshop methodology was based on adult learning principles, emphasizing active participation in sessions to draw on the participants' individual experiences. In keeping with the interactive nature of the workshop, a balance of lectures, field visits, panels, and small-group work was employed.

The workshop (See Appendix B for workshop design) followed a sequence that centered around a conceptual framework for developing new approaches to wastewater management. For a full description of this WASH-developed framework and its application, see WASH Technical Report No. 88 entitled Wastewater and Solid Waste Management Guidelines for Project Identification.

The workshop was opened by the A.I.D. Representative (Claude Bovet) and Rene Abeliuk Manasevich, Executive Vice President (Ministro Vicepresidente Ejecutivo) CORFO. The opening was followed by a keynote address by Jorge Lopez Bain, President of the Institute of Engineers in Chile. Both Abeliuk's and Bain's addresses are contained in the workshop workbook.

Following lunch on Day 1, the participants were taken to the town of Melipilla, about an hour's drive from Santiago. This field visit gave the participants a chance to view the experimental wastewater treatment station at Melipilla and meet with town officials and representatives of the community. During the visit to Melipilla, the townspeople and the participants discussed the town's sanitation-related health problems and the impacts (positive and negative) of the wastewater treatment plant.

The wastewater management framework developed by WASH was presented on Day 2 of the workshop. During the framework presentation and the following half day session, presenters tried to convey three main points:

- the systems nature of the wastewater management problem,
- how new tools such as wastewater reuse, economic and policy instruments, and appropriate technology could be applied to the problem, and
- how different actors, including the public, play a key role in solving the wastewater problem.

The presenters defined the elements of the framework and used examples to highlight how they could be applied. Because of the design of the workshop, many of the sessions exposed the participants to the wide variety of actors and perspectives in the wastewater system. Of particular note, however, was an afternoon session on Day 3 during which the participants got a chance to experiment with and discuss some of the new wastewater management ideas through two case studies, the Chilean towns of Calama and Panguipulli. At the time of the workshop, WASH had been preparing wastewater feasibility studies for these towns for USAID/Santiago. INCO, a WASH subcontractor, presented the background, including a video, on the situation in Calma and Panguipulli.

Day 4 of the workshop consisted of presentations about and discussion of the role of various technologies in wastewater management and a visit to EDIFICA, the international trade fair. At EDIFICA, four of the workshop participants (one from each of the visiting countries) and representatives of the Chilean wastewater management sector, which includes public and private entities, participated in a panel discussion on roles and opportunities for the private



sector in wastewater management. The panel had an audience of approximately 120 persons who were attending the fair. Sergio Almarza, Advisor, Ministry of Housing and Urban Affairs (MINIVU) moderated the panel, which was covered by both the television and newspaper press.

Day 5 of the workshop included action plans development by the participants, a panel presentation by External Support Agencies (ESAs), and the workshop closure. The ESA panel included representatives from A.I.D., PAHO, the UNDP/World Bank, the Inter-American Development Bank, and GTZ, the German aid agency.

- Each of the participants received a workbook, copies of all overheads and handouts, and a certificate of completion for attending the workshop. A complete copy of the workshop workbook is held in the WASH library.



## **Chapter 4**

### **WORKSHOP ASSESSMENT**

#### **4.1 Participant Evaluation**

##### **4.1.1 Goal Attainment**

The participant evaluations, which were translated from Spanish and are contained in Appendix D, indicated that attendees were satisfied that the workshop had met most of their expectations. On a scale of 1 to 5 (five being the highest) the attendees gave 12 ratings of 4 and 13 ratings of 5. Some of the problem areas that were highlighted by the participants were: not enough advance notice of the workshop, slow transportation to the Melipilla site visit, more time needed for technical presentations and examples, disappointment with the EDIFICA fair, and some individual concerns about particular presentations.

##### **4.1.2 Workshop Organization**

Overall the participants felt that the workshop was extremely well organized, and they appreciated the opportunity to share experiences and discuss topics in addition to the usual technical ones.

The wastewater management framework received mixed review. Some participants, especially from Chile and Colombia, grasped the systems concept and could see its relevance to their situation. In fact, those participants would have preferred to go into more depth and work with practical applications of the various instruments and strategies in the framework.

Others—particularly participants from Bolivia, Ecuador, and Peru—were less able to grasp the more sophisticated elements of the framework and wastewater management strategies. This was probably due to the limitations of their experience in their very traditional and constrained country situations. They did, however, understand the concept of moving “upstream” to try to address wastewater through a wider variety of approaches, such as reuse, recycling, waste reduction, innovative treatment, etc.

That all of the participants appreciated what they learned from the interaction with the townspeople in Melipilla reinforced the need to understand and communicate with the public in the planning and implementation of any public project or program.

Several participants suggested better linkage between the workshop concepts and the case studies.

## **4.2 Facilitator Assessment**

### **4.2.1 Workshop Goals**

#### *Overall value*

The workshop was a timely event in that the cholera threat and failure of traditional approaches made the participants very receptive to new approaches and a new paradigm. In fact, at the very beginning, several participants stated that they hoped that the workshop would be participatory and would present innovative ideas, not just focus on the technology issues.

As the participants noted, more time could have been spent on the explanation of the framework. This would have helped to broaden their understanding of the framework.

Overall, the workshop was very successful as a first step in helping the participants break out of their traditional perspectives and see themselves as agents of change with some new ideas to apply to the wastewater management problem.

#### *Content and teaching aids*

Overall, the workshop's design concept and flow worked very well. While the depth of the presentations may not have been satisfactory to all, the mix was quite adequate considering the different skill levels of the participants.

Two changes would have helped substantially in improving the effectiveness of the workshop. First, an enhanced graphical presentation of the framework might have helped make the wastewater management concepts more understandable. Second, the case study work should have revolved around a large watershed or the national level, rather than individual towns or cities. It is at the higher level that the concepts and use of policy and economic instruments and other innovative strategies can be illustrated best.

The EDIFICA fair had been billed as an international construction and environmental technology fair. In reality, the fair was limited to general construction and building equipment and supplies and featured almost no wastewater or environmental equipment. Despite the fact the fair was a disappointment, the panel discussion held there was well attended. Overall, the panel discussions would have been more effective if they had included shorter presentations and more facilitated interaction among the panelists and the audience.

### **4.2.2 Planning and Site Preparation**

The facilities and logistics were excellent. As with all workshops there is a trade-off between taking advantage of excellent support and allowing the "home town" participants to get away from the office. In this case though most of the participants were able to attend nearly all of the workshop, several persons had to be out at key times. Choosing a site far enough away from all participants' offices should always be considered, if feasible.

### **4.2.3 Schedule**

The schedule worked extremely well. The only glitch was the time that it took to travel to and from Melipilla. The use of several smaller vehicles probably would have made the trip much faster.

### **4.2.4 Participants**

The original idea was that high-level decision makers from a cross-section of ministries would represent each country at the workshop. Since this proved impossible to orchestrate, the workshop was attended primarily by technical personnel, although nearly all had significant responsibilities for wastewater program management. In the future, an even more concerted effort should be carried out to reach the highest levels of decision makers in wastewater management programs. The workshop design is ideally suited to a broad mix of high-level personnel.



## Chapter 5

### RECOMMENDATIONS

#### 5.1 Follow-up National Workshops

The notion of using the Chile workshop as an initial step in a longer process was present from the beginning stages of the planning process. However, it may have taken on more significance in view of the high level of interest in follow-up activities that a number of participants conveyed at the conclusion of the Chile event. Representatives from virtually all of the countries present expressed interest in some kind of national training and/or planning activity in their country. A country-level workshop would permit the participation of a wider array of institutions in the wastewater management process. These institutions would include not only all of the significant government organizations, but also the private sector and appropriate nongovernmental organizations.

WASH believes that these national events could be extremely valuable in contributing to the overall purpose of A.I.D.'s anti-cholera technical activities, i.e., the effective application of the systems approach to the pressing issues of wastewater management in Latin America. WASH would like to offer a conceptual framework and some suggestions for these events. The Chile workshop can be seen as principally a training event, with some opportunities for initial planning activities, e.g., communication among the countries, and initial planning activities for each country group. The main goals were to introduce and explore experientially a conceptual framework which can provide possible new directions for action in addressing wastewater management issues. A main point of the framework is the value of involving a wide range of groups in the planning process. Some of these groups were represented at the Chile workshop; but, no country was even close to the critical mass necessary to produce a plan with any real possibility of implementation.

WASH views the possible national workshops as the strategic planning events which are suggested by the model. These national workshops would reverse the priorities of the Chile event, i.e., function principally as planning events with some initial training and present an opportunity to bring together the groups in each country relevant for creating some elements of a plan or plans through a carefully structured and guided activity. WASH believes that some strategic planning and intergroup communication approaches from other contexts will be useful in this process. WASH also believes that important preparations in the target countries will be necessary to identify appropriate groups and representatives of those groups, orient the participants to the models, approaches, and process, and where possible, give the groups the opportunity of getting together beforehand to discuss their individual perspectives and develop their group views on issues.

WASH would like the sessions to result in people taking action. Because individuals' actions are likely to occur within the context of their organizations, WASH views the national workshops as sessions including groups rather than individuals. Finally, WASH believes it will

important to work with and through an appropriate counterpart organization within the target country. Identifying the appropriate organization with both stature and the right orientation may be crucial to the success of the venture. It was hoped originally that the pilot event in Chile might provide some candidates for counterparts and perhaps vanguard planning groups for individual country sessions. There is every reason to believe that this has occurred as a result of this initial effort. In order to take advantage of the momentum which currently exists, it will be important to follow up with interested participants.

WASH recommends that each of the USAID missions that sent participants to the Chile workshop consider providing support (alone or with other ESA's) to develop a national level workshop (described above) in their host country.

## **5.2 Other Regional Workshops**

### **5.2.1 General**

Another important strategic question relates to the value of regional events. The pilot seemed to produce a lot of enthusiasm and learning, according to all available data; however, it did not produce much in the way of specific tangible results. One might argue that since the national events probably will be necessary in any case, as described in the previous section, it might make more sense to focus on their implementation from the beginning of planning for the regional workshop. Thus applying the shared resources to activities with more direct results.

WASH believes the regional events are very useful to the overall purpose of these activities. On the demand side, they provide a one-shot opportunity for a number of countries to experience, explore, and actively consider the conceptual framework. At a minimum, some increase in awareness is achieved on broad and usually very interdependent concerns. In addition, since a number of countries are exposed at once to the concept of a strategic approach, the sessions provide an opportunity for the most appropriate countries to be selected (or ideally self-selected) for follow-up activities. Finally, if successful, they can produce a vanguard of educated supporters (and possible counterparts) for the follow-up national events. On the supply side, they provide an opportunity for some economy of scale to bring to bear a wide range of resources on the problems of a whole region. After these regional events, it may not be necessary to get as much outside technical input at the national level.

WASH understands that possibilities are currently being discussed for regional activities in Central America and the Caribbean. Central America seems ideal for this kind of approach. The countries are relatively interdependent; they also share a more significant history of regional cooperation. Those qualities may serve to counterbalance the reality of different levels of advancement among different countries, a reality which may have diminished the benefit for some participants at the Chile event, particularly those from countries which consider themselves more advanced. Exchange among the country groups was an important aspect of the event for many participants. Perhaps the organizers can help maximize this benefit and minimize the potential problem of different levels by making this goal more explicit up front



and providing a context within which these national differences are less important. The Caribbean also seems to be a region of potentially high impact for this type of intervention. The national follow-up activities could be carried out in a shorter time frame due to the countries' small sizes.

It is important to continue to insist on a critical mass of participants from (three to four persons in the case of the Caribbean) all participating countries. More participants might make them more cost effective. Their design makes it possible to absorb some additional participants without adding resources to the Chile model of two senior principal facilitators and a number of resource and support people.

WASH recommends that the LAC Bureau consider providing support for regional wastewater workshops (similar to the one in Chile) in Central America and the Caribbean.

### **5.2.2 Design Changes**

As indicated in Chapter 4, there were some limitations in the workshop design and implementation. To address these limitations the following changes should be considered in future designs of the workshop.

- The designers should be careful about the amount of time required for the field trip(s). Picking the site(s) which require(s) a minimal amount of travel and ensuring the maximum efficiency in travel and logistics are critical considerations.
- More thought should be given to how to present the wastewater framework. It is a complex system that requires many levels of understanding and discussion.
- More time is needed for the presentations of the technical elements of the framework, i.e. the use of economic and policy instruments, the role of the public, the role of the private sector, etc.
- In order to maximize the use of case studies, the examples chosen should be at the level of a watershed, a region, or the national level. Only at such levels can one illustrate the interaction of the players in the system, how the different non-treatment strategies and tools are used, and how phasing of strategy implementation can be used to minimize economic impact.

## **5.3 Follow-up Technical Assistance in Chile**

### **5.3.1 Facilitating Government – Private Sector Negotiations to Promote Privatization**

One area which the framework highlights but seems hardest to put into practice is the role of the private sector. Unlike contracting for design and construction services, achieving the benefits of private-sector finance, ownership, and program management is an extremely

complex process where multiple actors are involved, external factors must be considered, and management is ongoing.

In Chile, privatization of water and wastewater utilities is a very hot political issue. Its adversarial nature has made identifying truly collaborative approaches more difficult. This was very apparent during the panel discussion at the EDIFICA fair. WASH suggested to the organizers of the EDIFICA panel and to the representative from MINIVU that a necessary next step in the privatization process is facilitated discussion between the government utility owners (such as EMOS) and the private sector. Both EDIFICA and MINIVU personnel felt that this was a good idea. Although the law to support privatization exists, discussions are needed for both parties to understand each others' needs and to start the process for negotiating the win/win situations that will enable privatization to occur in this sector. The WASH team recommends that U.S.A.I.D./Santiago consider providing support to the Chilean government and the private sector to facilitate a negotiating process that will lead to successful utility privatization.

### **5.3.2 Developing Wastewater Planning Models**

It is clear that Chile is committed to addressing the environmental degradation that is caused by the lack of adequate wastewater management. At the same time, resources are scarce, and there is a justifiable concern for the impact that major wastewater treatment schemes would have on economic growth. Application of the wastewater management framework will help lower the cost of implementing adequate wastewater management programs. However, certain tools are needed to allow decision makers to judge the effectiveness of proposed strategies, to establish priorities, and to decide on realistic phasing schemes. Planning models to accomplish these objectives currently are being developed in Eastern Europe and other regions. The WASH team recommends that A.I.D. consider providing support to the Chilean government for the development of such planning models on a pilot basis.

**Appendix A**  
**Scope of Work**



**SCOPE OF WORK**  
**LATIN AMERICAN SEMINARS ON WASTEWATER MANAGEMENT**

**BACKGROUND**

The current cholera epidemic in Latin America has demonstrated the need and created significant interest in the area of wastewater management. Current levels of wastewater collected and disposed of are very low. Treatment of disposed wastewater is almost non-existent region wide. This suggests that any attempt to improve the situation must start with a comprehensive approach to wastewater management. Furthermore, recent attempts by PAHO and others at developing region or country action plans have had limited success due to an overall weakness in the sanitation sector. A cable sent to AID missions in Latin America by R&D/Health exploring mission level of interest and need for a seminar on wastewater management received thirteen positive responses out of the fourteen that were received. The responses from the missions reflected a wide range of regional and country needs and circumstances.

As a first step, this task will design and implement a seminar for Chile, to which the Andean countries of Bolivia, Ecuador, Peru and possibly Colombia will be invited as observers. Based on the lessons learned and the interest generated through carrying out this activity, additional seminars will be implemented in other countries and/or regions in Latin America. In general terms, the criteria for holding seminars in a country or for a regional grouping of countries will be expressed interest and ability to act on wastewater management problems.

It is anticipated that a related WASH task, "Assessing the Effectiveness of Wastewater and Solid Waste Management" will contribute information which can be used in these seminars. This task, which is now underway, will identify options available and appropriate to developing countries for improving the management of solid waste and wastewater, addressing technical, institutional, legal, regulatory, financial and social issues.

Wastewater is defined as off site liquid waste that becomes a public problem. This may include feces (in liquid form), sullage (from dishwater etc.), rainwater, industrial pollution, and untreated or poorly treated discharge from sewers. Management is defined as a comprehensive approach encompassing the range of private and public options (including legal, economic, social, technical) to avoid deleterious effects on human health and the environment.

The overall purpose of the seminar will be to raise awareness of the different technical and management approaches for addressing wastewater problems.

The seminar content will include:

- A presentation or development by participants of a framework for approaches to wastewater management.
- Discussion of country and regional specific wastewater problems.
- Presentation of practical suggestions and case studies on innovative and nonconventional approaches that are working in other countries.

It is expected that as a result of the seminar participants will:

- Have a better understanding of the global picture of wastewater conditions and its impact on health and the environment.
- Have a better understanding of technical aspects of wastewater collection and treatment.
- Have a better understanding of alternative wastewater management approaches.

The seminar will be 3 to 5 days in length; the exact length and dates for this initial seminar will be determined in consultation with the mission. The audience will be high level managers and engineers of institutions responsible for wastewater management and appropriate personnel from USAID/Chile. The workshop will be conducted in Spanish.

It is expected that there will be between 20-25 participants. This will allow a maximum of 17 Chilean and USAID/Chile participants and up to 8 observers from Andean Region countries (2 each from Bolivia, Peru, Ecuador and Colombia). Participants will be identified through the networks of the USAID missions, PAHO, IDB and other institutions as needed. Participants will be asked to come prepared to discuss the status of wastewater management from the perspective of their agency and country.

#### **TASKS**

The following tasks may be modified at the team planning meeting and as the actual design of the workshop becomes more defined, but in general they are as follows:

#### **ENVIRONMENTAL ENGINEER**

1. Participate in a TPM.
2. Review cables and interview relevant people knowledgeable about the wastewater situation in LAC. Consult with WASH staff, AID/LAC, the USAID mission, PAHO and, at the direction of the USAID mission, relevant wastewater management institutions and individuals.

3. Based on the information collected, help the facilitator design a 3-5 day seminar.
4. Identify innovative examples of wastewater technologies and/or management with potential applications in Chile and the Andean region. If appropriate, case studies will be developed for presentation at the seminar. In addition, relevant experts may be identified and invited to participate in the seminar.
5. Help carry out the logistics of seminar implementation including the contracting of local staff if necessary.
6. Help facilitate the workshop.
7. Help write a report summarizing the lessons learned, next steps, and suggestions for future seminars on wastewater management.

#### **FACILITATOR**

1. Participate in a TPM.
2. Review cables and interview relevant people knowledgeable about the wastewater situation in LAC. Consult with WASH staff, AID/LAC, the USAID mission, PAHO and, at the direction of the USAID mission, relevant wastewater management institutions and individuals.
3. Based on the information collected, design a 3-5 day seminar.
4. Help carry out the logistics of seminar implementation including the contracting of local staff if necessary.
5. Serve as lead facilitator at the workshop.
6. Help write a report summarizing the lessons learned, next steps, and suggestions for future seminars on wastewater management.

#### **END PRODUCTS**

1. A WASH field report in English
2. The field report will be translated to Spanish.

#### **PERSONNEL**

In order to implement this activity, the following personnel will be hired, they all must be fluent in Spanish.

Trainer - 10 days preparation and workshop design and 5 days for workshop facilitation. Total days: 15

Sanitary/Environmental Engineer with a strong wastewater treatment background - Approximately 25 days doing the necessary research, interviews and, possibly, case study write ups, and seminar participation. If needed, field trips may be authorized to gather data for the case studies.

Expert consultants - TBD. If needed, expert consultants may be hired to develop specific case studies and present at the seminar.

#### **SCHEDULE**

The mission has not been able to advise WASH of the exact dates. However, we expect the workshop to take place within the next three months.



**Appendix B**

**Workshop Design**



## DRAFT DESIGN

(revised after meeting of 15-16 July 1992)

### Monday

8:30

#### Introduction

- Opening
- Goals
- Reaction to Goals / Introductions
- Agenda / Logistics / Groundrules (norms)

10-10:20±

**\*\* Break \*\***

#### A Broad Perspective for Considering WWM Programs

10:20

- Keynote to set broad context and scope for the ramifications and possibilities for WWM

11:15

- Identifying Criteria for Assessing WWM Efforts  
Small group exercise (we provide categories to encourage broad scope)  
Group reports --> additions --> discussion (reports by rotation)

12:20

- Intro and background info on sites

12:30±

**\*\* Lunch \*\* / Planning info needs for visits (small groups over lunch)**

2:30

- Site Visits (same 4 groups as above)
- Small Group Preparation of Reports (eve)

### Tuesday

8:30

- Assessing WWM Efforts  
Small group reports --> discussion

10:25-10:45±

**\*\* Break \*\***

10:45

#### A Systematic Approach for Planning and Implementing WWM Efforts

- Presentation of Framework (outside portion)
- Mapping of Site Visit Case Using Framework (large group activity)

12:30

**\*\* Lunch \*\***

- Presentation of Action Elements and Intervention Points

- Brief Application to Participant Cases
- Illustrative Case Examples

**Wednesday**

**8:30      The Actors and Dynamics of the WWM System**

- Presentations by Representatives of Key Groups
  - Community, NGO, private sector (vendors/industry), government (regulator/service provider), providers of capital
- Interaction Among Group ("Donahue" style)

10:20-10:40±      **\*\* Break \*\***

10:40      • Group Questions & Discussion

12:30      **\*\* Lunch \*\***

**2:30      Promoting Change within the WWM System  
Application of the Framework to a Live Case Example (Calama)**

- Review of Framework
- Overview
- Introduction of Planning Tool (Force Field Analysis)
- Application (small groups)
- Learnings and Discussion

**Thursday**

**8:30      The Role of Expanding Technology**

- Categories and Examples of New and/or Underutilized Technologies

10:20-10:40±      **\*\* Break \*\***

10:40      • Advantages & Disadvantages -- Criteria for Assessment in Different Situations (possible model or matrix)

12:30      **\*\* Lunch \*\***

2:30      • Visit to "Feria" -- including session (2:30 - 4:00) on "Possible Roles of the Private Sector in Improving WWM Systems"

**Friday**

8:30 • The Role of Technology -- reports from the "Feria" Visit & Discussion

Where We Go From Here-- Planning for the Future

9:00 • Individual Action Plans (we provide format)

9:30 • Small Group Sharing / Critique of Action Plans (we provide format)

10:40-11± \*\* Break \*\*

11:00 • Donor Panel (USAID, WB, IDB , GTZ et al ??)

12:30 \*\* Lunch \*\*

2:30 • Learnings & Application of Learnings to Action Plans plenary session, preceded by "buzz groups" or other sharing activity (donors present)

3:30 Closure

• Evaluation & Next Steps

Adios !

## ORDEN DEL DIA PRELIMINAR

### TALLER REGIONAL HACIA UNA VISION MAS AMPLIA PARA EL MANEJO DE AGUAS RESIDUALES

Santiago, Chile  
28 de septiembre - 2 de octubre de 1992

#### METAS

1. Los participantes reconocen las limitaciones de los actuales enfoques del manejo de aguas residuales para hacer frente a los retos actuales en América Latina (por ejemplo, la epidemia de la cólera) y promover un compromiso más fuerte al ensayo de nuevos enfoques.
2. Los participantes toman conciencia de opciones y herramientas técnicas nuevas o subutilizadas para ampliar la gama de opciones.
3. Los participantes pueden utilizar un "Enfoque de Sistemas" para analizar situaciones reales y futuras para el manejo de aguas residuales, por ejemplo, los factores institucionales y económicos así como técnicos, y aplicarlo al menos en una situación cuando regresen a sus países.
4. Los participantes promueven con mayor eficacia los cambios deseados dentro de sus propios sistemas de manejo de aguas residuales.
5. Todos nosotros (participantes y facilitadores) comprendemos mejor la aplicación de diversos enfoques para el manejo de aguas residuales en el contexto latinoamericano.
6. Los participantes salen de la sesión con un sentido más fuerte de constituir una amplia red de personas (sistema de personas) dedicados al manejo de las aguas residuales, desde muchas perspectivas y diferentes roles profesionales.

## AGENDA

### Lunes, 28 de septiembre de 1992

- 8:30 - 10:00am      Apertura, introducción y análisis general del taller
- 10:20am - 6:30pm    Amplia perspectiva para considerar los programas de manejo de aguas residuales
- Discurso principal (Sr. Jorge López Bain)
  - Identificación de los criterios para evaluar las actividades
- 12:30                      Almuerzo (Pomaire)
- Visita al emplazamiento de Melipilla

### Martes, 29 de septiembre de 1992

- 8:30 - 10:30am      - Informe de los diferentes grupos sobre la visita al emplazamiento
- 10:45am - 6:30pm    Enfoque sistemático para la planificación de las actividades de manejo de aguas residuales
- Presentación del marco de trabajo
  - Aplicación del marco de trabajo a la visita al emplazamiento.
  - Presentaciones sobre las intervenciones jurídicas, dispositivas, normativas y económicos.
  - Ejemplos de casos ilustrativos
  - Aplicaciones a los casos de los participantes
  - Presentación sobre opciones de financiamiento
- Almuerzo (12:30 - 2:30pm)

### Miércoles, 30 de septiembre de 1992

- 8:30am - 10:30pm    Los actores y la dinámica del sistema de manejo de aguas residuales
- Presentaciones por representantes de grupos clave
  - Período de debate

10:30am - 6:30pm Promoción del cambio en el sistema de manejo de aguas residuales

Aplicacion a dos casos actuales

- Presentacion de un modelo de analisis
- Presentacion de los casos
- Trabajo en grupos pequeños con estudio de caso
- Debate

Almuerzo (12:30 - 2:30pm)

**Jueves, 1 de octubre de 1992**

8:30am - 12:30pm Ampliación de las aplicaciones de la tecnología

- Tratamiento convencional de aguas residuales
- Tratamiento no convencional de aguas residuales
- Manejo de aguas residuales en áreas periurbanas

Almuerzo (12:30 - 2:30pm)

2:30 - 6:30pm Visita a EDIFICA

- Grupo del sector privado (2:30 - 4:00pm)
- Visita a la feria

**Viernes, 2 de octubre de 1992**

8:30 - 9:00am Debate de la visita a EDIFICA

9:00 - 11:00am Elaboración de los planes de acción

11:00am - 12:30pm Grupo de organismos de apoyo externo

Almuerzo (12:30 - 2:30pm)

2:30 - 3:30pm Aprendizajes y aplicación de lo aprendido a los planes de acción

3:30 - 4:30pm Evaluación y clausura



Sabado, 3 de octubre de 1992

Todo el dia

Visita a EDIFICA (opcional para cada  
persona)

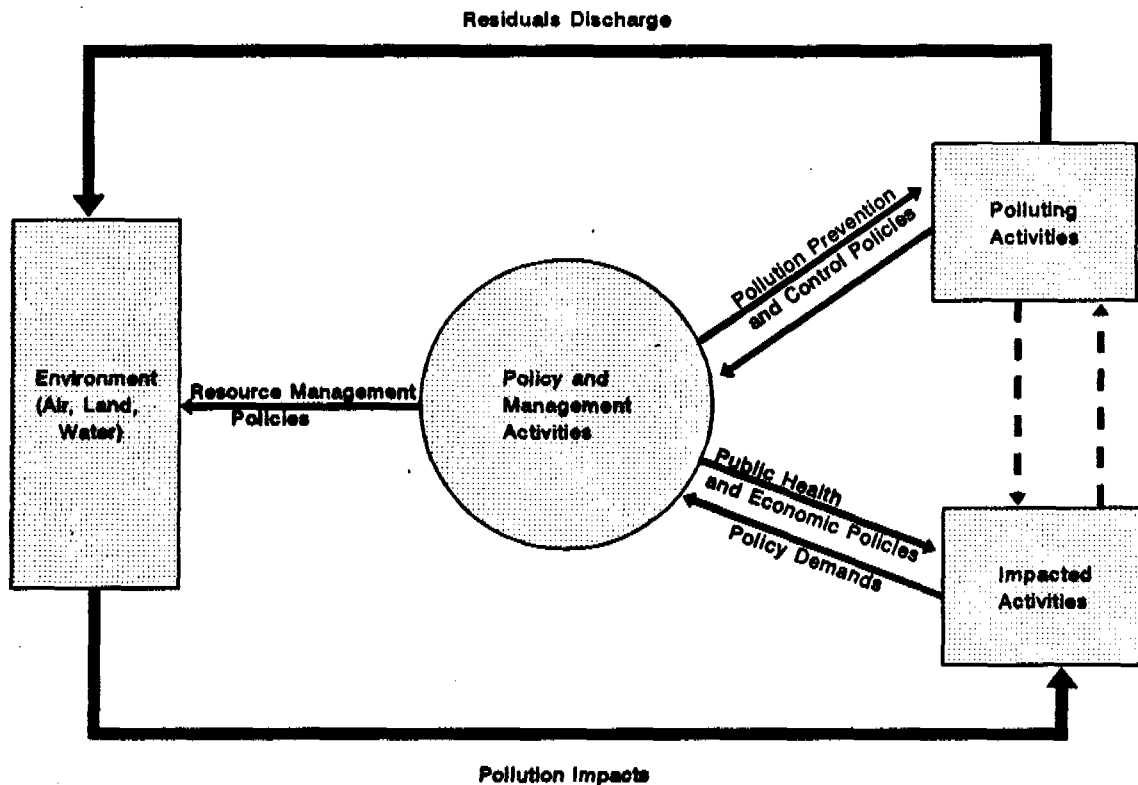


## Appendix C

### Comprehensive Approach to Wastewater and Solid Waste Management

In recognition of the need for realistic, effective, and sustainable national and regional approaches to wastewater management, WASH has developed a comprehensive management framework whose components reflect the multiple contributors to the problems and solutions: economics, environmental considerations, institutional strength, legal/regulatory issues policy, and public participation (See chart.). This non-conventional view requires the sector to organize itself in a new manner.

The purpose of the workshop is to expose key managers and decision-makers in the wastewater management sector to the framework's conceptual basis and practical application, and to provide them with an opportunity to plan its application in their own agency environments in accordance with specific problems they face.





## Appendix D

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11. Good.
  12. More time is required to consolidate the topics covered.
  13. It was well implemented. Poor coordination with Ecuador. Participation was decided at the last moment.
  14. Very good.
  15. Sessions beginning no sooner than 45 minutes after lunch. People need a rest after eating.
  16. (No response.)
  17. Perhaps provide more time for the analysis and presentation of topics.
  18. Very good. Perhaps a bit more time to consolidate what was learned.
  19. Without wishing to praise anyone, [I would like to say that] organization was excellent.
  20. Very important, as the workshop dealt with practical and timely problems as well as theoretical issues. Too little time for certain speakers.
  21. Excellent. [Workshop personnel] were successful in sticking to the scheduled starting and ending times.
  22. [The workshop] was participative and made it possible to share in the experiences of other countries.
  23. (No response.)
  24. [Send out] invitations further in advance. Very good opportunity for exchanges with other countries.
- Presentations:
1. Generally speaking, they met with [my] expectations.
  2. (No response.)
  3. All of the presentations were well focused and met some [of my] expectations.
  4. Adequate. Increase the number of days for dealing with economic-financial topics.
  5. (No response.)
  6. Very good work by INCO.
  7. The sessions where we spoke English were somewhat difficult to follow.
  8. (No response.)

9. Very good.
10. (No response.)
11. Good.
12. O.K.
13. Very comprehensible.
14. I understand that they were adequate and served to guide the subject matter being covered.
15. Good control of time!!
16. Good for the host country. They served to highlight its problems.
17. Some presentations involving new and complicated concepts were conducted too fast.
18. Excellent. All aspects of the problems of M.A.R. were addressed.
19. Most presentations were very good and, as the workshop proceeded, provided us with a basis for reaching a conclusion.
20. The most important one was that given by Ing. Poblete and Flores.
21. Good. Some were particularly well-focused and interesting.
22. Practical cases that were very easy to assimilate.
23. Some were not very well-focused.
24. Lack of preparation was observed in some. Somewhat improvised.

- Visits:

1. Appropriate to the state of development of the field of sanitation in the host country.
2. They were valuable.
3. We were not able to visit the facilities of the potable water processing plant in Santiago or the stabilization ponds of the plant adjacent to Melipilla.
4. Timely.
5. O.K.
6. (No response.)
7. EDIFICA was not a good idea.

8. Good.
9. Good.
10. Better estimates [are needed] of the time required.
11. Well chosen. It is too bad that it was not possible to see something of plants in Santiago.
12. O.K.
13. It was not possible to make the first visit.
14. Adequate, attempting to cover demonstratively the topics addressed.
15. Ooops! Planning of time. Planned menu would be faster.
16. [It would be good to have trips] to more sites experiencing similar problems.
17. (No response.)
18. Interesting.
19. The choice of Melipilla as a site to visit was very appropriate. However, I found the forum-debate in EDIFICA to be very superficial.
20. The visit to Melipilla was very important as it is both a current case as well as a case of experimentation for the future.
21. (No response.)
22. Well chosen. They provided good learning opportunities.
23. Sufficient.
24. They were useful.
- **Workshop classroom and meals:**
1. Good. A place with a more natural environment would be desirable.
2. Good.
3. Excellent.
4. Adequate.
5. O.K.
6. Very good.
7. [Too] dark. Good food.



8. Very good.
9. Very good.
10. (No response.)
11. Adequate for the seminar.
12. O.K.
13. Appropriate.
14. Very good as regards food. However, for those who suffer from claustrophobia, it must have been difficult to remain inside the classroom.
15. !
16. The workshop was very beneficial and the classroom was adequate. The food was good but should be more varied.
17. (No response.)
18. Very pleasant.
19. With respect to both classroom and food, I think the only possible comment is VERY GOOD.
20. O.K.
21. Absolutely in accordance with the established objectives: tranquil site, good acoustics, good food, etc.
22. Adequate.
23. Excellent.
24. Excellent.
- Hotel rooms
1. Very good.
2. Good.
3. Good.
4. Adequate.
5. (No response.)
6. (No response.)
7. Excellent.

8. (No response.)
  9. (No response.)
  10. (No response.)
  11. (No response.)
  12. O.K.
  13. Very good.
  14. Adequate.
  15. (No response.)
  16. Very good.
  17. (No response.)
  18. (No response.)
  19. Very good, although I was only in the room for sleeping.
  20. O.K.
  21. I was not [in a room].
  22. Very comfortable.
  23. (No response.)
  24. Excellent.
- Others:
1. I think that, overall, the expectations that I expressed on the first day of the seminar were met.
  2. (No response.)
  3. (No response.)
  4. (No response.)
  5. (No response.)
  6. The workshop should be held outside the capital city in order to encourage the participation of Chileans along with the rest of the group.
  7. Include the option of free time on the agenda.
  8. (No response.)

9. Good invitation. [Only a] few foreigners failed to show up, along with [representatives from] three or four organizations [who were] away from the country.
  10. (No response.)
  11. (No response.)
  12. (No response.)
  13. [The only problem was] just that we Ecuadoreans were separate from the rest of the participants.
  14. Please take the proper steps to avoid a situation where transportation problems prevent one from arriving to such important seminars on time.
  15. (No response.)
  16. To the extent possible, keep the entire visiting group together.
  17. Workshops should be held in [organizations] of which no participant is a member.
  18. Information [provided by] the groups was very accurate.
  19. (No response.)
  20. Transportation services to field trips O.K.
  21. I think that such a long workshop should include at least one afternoon of free time for relaxing and assimilating the material learned. As designed, the course is somewhat heavy going and I wonder if that influences ultimate performance (ability to associate).
  22. Good hospitality by the Chilean people.
  23. (No response.)
  24. Preparation was evident in the development of the workshop. Wide variety of invitees and a wide variety of events.
3. **What did you like most about the Workshop?**
1. The systemic approach based on group work.
  2. Presentation of analytical methodologies.
  3. The indiscriminate participation of all those attending the event.
  4. The participative aspect of the entire group.
  5. The dynamics and variety of participants. The facilitators.
  6. The dynamic and enabling aspects of the approach.

7. The presentation by Poblete.
8. Contact with professionals from other countries.
9. The methodology for participating, by specialties and inter-country, based on different experiences and responsibilities and in different contexts.
10. The subject matter, which is currently of considerable importance, as it has been addressed within a very comprehensive frame of reference. The dynamics.
11. Organization and dynamics.
12. The opportunity to be able to apply the topics covered in practical cases and particularly the individual problems of each country.
13. The ability of the instructors to transmit their knowledge.
14. Sharing experiences with people from other countries.
15. The organization (schedule). The participation of everyone in group activities. This is very rare.
16. [The opportunity] to become familiar with the problems existing in other countries and the potential solutions presented.
17. The innovation with respect to the way to address the subject. It was at all times examined from a technical point of view.
18. The approach to the problem from other points of view that are quite different from the traditional methods.
19. The dynamics and informality established at the outset, and especially the total participation of all participants.
20. Chilean experiences and presentations by consultants.
21. The human quality of the organizers and participants. It has truly been a pleasure to participate. In addition, the technical capabilities of all.
22. The way in which knowledge and experiences were transmitted.
23. The exchange of experiences, points of view, getting to know new people and the methodology presented for achieving objectives.
24. The discipline of the group and its integration.
- How has it contributed to your experience?
1. By providing new methodological proposals for addressing problems in the area of waste water treatment.

2. It was a good opportunity for reflection.
3. Acquiring a knowledge of similar problems in waste water treatment. Sharing experiences and seeking almost common solutions.
4. By enriching the framework of management.
5. By the broader vision of problems.
6. Better general view. Is good to know that WASH-AID and maybe the international... [Note: text not translated but rather copied verbatim].
7. By ratifying the value of economic aspects and accepting the fact that there is something called environment that is very valuable.
8. By providing another approach for addressing problems (not only sanitation-related).
9.
  - a. In almost all countries we are at initial starting points
  - b. Some approaches for managing change
  - c. The recognition of the need to commit all actors (I feel that I represent urban-rural users because of our considerable demand for new users of water and sanitation systems)
10. Orderly consolidation of partial aspects. A commitment.
11. By enriching my knowledge of the importance of conserving the environment and the management of waste water.
12. It has given me a broader perspective and in particular it has enabled me to compare the situation prevailing in my country with that existing in neighboring countries.
13. By attempting to instill leadership in me; I will attempt to do so.
14. Through the understanding that we must encourage change in order to seek the appropriate method for improving and achieving control over liquid waste.
15. Model for workshop was example for me. I am going to need to use Force Field Analysis in INTEC.
16. Very valuable because it has enriched and reinforced [my] knowledge.
17. Just as indicated in the preceding item. [The innovation with respect to the way to address the subject. It was at all times examined from a technical point of view.] It has enabled me to address the problem from a broader perspective that transcends technical aspects.
18. With regard to the need to consider the solution [to the problem] of the M.A.R. by addressing it as a system, and not only in terms of a sanitary enterprise-users (clients).

19. By demonstrating within a broad approach (framework) that there are ways and methods for dealing with the management of waste water by adapting it to each region with its own experiences and difficulties.
20. By broadening and updating my experience.
21. By broadening my view with regard to the national and regional (L.A.) sanitary problem and basically in the solutions that exist and ways to address the problems.
22. I [now] have a new approach to the solution of the sanitation problem in my country.
23. Through more generalized approaches to sanitation problems.
24. It has given me an additional focus and tools, plus an awareness of the problem.
4. What message do you have for the promoters?
  1. Expand this experience to Latin American countries.
  2. General appreciation for their willingness to serve.
  3. (No response.)
  4. I extend my appreciation to the entire staff for the treatment I received and for their patience in conducting the workshop.
  5. Improve order.
  6. (No response.)
  7. Since what is sought is a "broader perspective", it would be worthwhile to provide a bibliography for topics of interest.
  8. (No response.)
  9. Almost all positive, except for greater dynamics in presentation, i.e., like Ellis and Alan.
  10. They should promote events of this type at the national level. SENAPA is willing to be a counterpart in Perú. If there is interest, we should take action "now".
  11. Congratulations to the organizers and moderators; hopefully, seminars of this type could be conducted [in the future] with an improvement in performance based on the experiences obtained in this one.
  12. This type of seminar should be promoted in other countries. In the particular case of Perú, it would be very advisable to focus the seminar on the subject of development of the water and sanitation sector.

13. My appreciation for their having given me the opportunity to attend this course, which has been very useful.
14. Congratulations to the entire staff on their teaching ability and on the intelligent way in which they addressed the subject matter.
15. Thank you!
16. May they continue to organize similar workshops in countries such as Ecuador and Bolivia, which are most in need of such courses.
17. (No response.)
18. Congratulations on the organization [of the workshop]. This experience should be repeated in other countries.
19. This type of event should continue to be disseminated in other countries, since they are invaluable over the short-term.
20. [I would like to] have them visit our country of Perú some day to conduct a similar workshop - Trujillo - SEDAPAT.
21. Continue to hold these seminars and, to the extent possible, continue to keep the participants in this workshop informed with respect to developments.
22. (No response.)
23. Proliferate these events in pursuit of these same objectives for the time being; there is a great need for such events in L.A.
24. Suggestions. Their contribution was quite valuable with regard to awareness and dissemination of the topic.

- Do you have any suggestions for him/her?

Ellis Turner:

1. Good coordinator.
2. O.K.
3. Thank him for his contribution to this training activity.
4. No comment.
5. Improve transmission of his experience.
6. Considerable capability for transmitting his knowledge. Very good.
7. Improve Spanish; reading would be easier.
8. Very well balanced.

9. Invite him to visit Calama, Panguipuli and Curacavi when prefeasibility [studies] are available.
10. (No response.)
11. Congratulations on organization and moderation.
12. (No response.)
13. Thank you for your technical contribution.
14. Congratulations.
15. !
16. Congratulations.
17. A great capability for devotion and dedication.
18. (No response.)
19. Rather than a suggestion, my thanks for this opportunity to participate in the workshop.
20. Congratulations on the organization and [on your ability] as a speaker.
21. I think that your [special] contribution is the clarity with which you present the macro aspects of the M.A.R.
22. Continue to be a simple person.
23. (No response.)
24. O.K.

**Alan Hurwitz:**

1. Good moderation.
2. O.K.
3. Good organizer, excellent animator and considerable field experience.
4. (No response.)
5. Very good promotor. Highest grade.
6. Good luck!
7. O.K.
8. Good.



9. He should return to Chile, as he is very friendly and lost old friends. He is a good promotor of work [...] friendly.
  10. (No response.)
  11. Dynamic and good moderator.
  12. (No response.)
  13. Thank you for transmitting your knowledge.
  14. Nothing but congratulations!
  15. !
  16. Very good.
  17. [Illegible text] give thanks for your dedication and devotion.
  18. (No response.)
  19. Continue on with your dynamism in conducting events.
  20. Congratulations on the organization and [on your ability] as a speaker.
  21. You have radiated your human quality and thereby eliminated all formality in the group. I truly congratulate you.
  22. Continue teaching with joy.
  23. (No response.)
  24. O.K.
- Rita Cestti:
1. (No response.)
  2. O.K.
  3. Her contribution was necessary and useful.
  4. (No response.)
  5. Not much participation.
  6. Not much participation.
  7. Her arguments lacked strength.
  8. ?
  9. Excellent presentations.

10. (No response.)
11. Positive contribution.
12. (No response.)
13. Thank you for your technical reports.
14. Nothing but congratulations!
15. !
16. Do not forget Ecuador.
17. Not much participation.
18. (No response.)
19. (No response.)
20. Her experiences were very clear.
21. I think you represent well the Latin American woman and your experiences in the area are a contribution to the seminar.
22. It was easy to understand you.
23. (No response.)
24. O.K.

**Fernando Requena:**

1. He came only to take pictures and make weak jokes.
2. Needs a more in-depth knowledge of topics to be covered.
3. Very positive as regards transmission of experiences.
4. (No response.)
5. Not very flexible. No one holds the absolute truth.
6. (No response.)
7. He didn't contribute anything. Why did he come?
8. Very good.
9. Quite dense and incisive.
10. (No response.)
11. Excellent knowledge of the problems and good academic level.

12. (No response.)
13. Thank you for transmitting your knowledge.
14. Nothing but congratulations!
15. !
16. (No response.)
17. His capacity for devotion and perseverance.
18. (No response.)
19. It has been my pleasure to know you.
20. His experiences were very clear.
21. He has crystallized "problems". I think that has been his major contribution.
22. Speak Spanish more often and avoid making comments in English.
23. (No response.)
24. Be better prepared in the topic of financing.

Jennifer Sara:

1. (No response.)
2. O.K.
3. Positive as regards the project she manages.
4. (No response.)
5. Not much participation. In the future she should improve the transmission of her experiences.
6. Unconvincing (illegible word).
7. O.K.
8. Not only the cost of the investments in sanitation projects should be evaluated but also the operating cost; I think she is mistaken.
9. Very interesting but too telegraphic.
10. (No response.)
11. Positive contribution by her project.
12. (No response.)

13. Thank you for your technical contribution. I hope to receive reports on your work.
14. Nothing but congratulations!
15. !
16. Coordinate with Ecuador.
17. The topic she presented is extremely important. She should have been given more time.
18. (No response.)
19. Many thanks for the invitation and for the support that you give to us in the pilot project.
20. Her experiences are very clear.
21. Your presentation was excellent.
22. (No response.)
23. (No response.)
24. O.K.

**Alberto Flores:**

1. Interesting contributions.
2. O.K.
3. Very competent professional. His contribution was well received.
4. (No response.)
5. Too technical. Very little flexibility.
6. Talks a lot, and in a very doctoral tone of voice. Doesn't motivate change.
7. O.K.
8. Very good. Excellent criteria.
9. Very knowledgeable, but failed to transmit much of his knowledge.
10. (No response.)
11. Not very professional.
12. (No response.)

13. Thank you for your knowledge.
14. Nothing but congratulations!
15. !
16. Send technical information to Ecuador.
17. Professional with considerable experience. He should have presented or expounded on some topics.
18. (No response.)
19. (No response.)
20. His presentation was excellent.
21. The romanticism of the group, with a vision of the problems.
22. Your interventions taught [me] a lot.
23. (No response.)
24. It was too bad that he ran out of time.

J. Antonio Poblete:

1. Excellent presentation.
2. O.K.
3. Very good in the presentation of his topic.
4. (No response.)
5. Very personal and biased vision. Expand vision of the world. Not everything is economics.
6. Very economics-oriented. Lacked sensibility with regard to the topic covered.
7. The best. If only he could participate in more conferences on special cases.
8. Too obsessive.
9. Good specialist.
10. (No response.)
11. Good professional but he needs to be more modest; considerable personal ego.
12. (No response.)

13. Thank you for your knowledge.
14. Nothing but congratulations!
15. !
16. Very theoretical.
17. (No response.)
18. (No response.)
19. (No response.)
20. His presentation was very good. I am going to try to get an invitation to SEDAPAT, Perú.
21. Economic-ecological vision only. He was very commercial. As though people are excluded from that particular vision.
22. Typical university professor.
23. (No response.)
24. Excellent. Hopefully he will further disseminate the economic approach to the topic of environment.

**Fernando Hidalgo:  
(INCO)**

1. (No response.)
2. O.K.
3. His contribution was very important.
4. (No response.)
5. Too technical.
6. Very good technically, but he lacked commitment to the concept of persuading.
7. O.K.
8. ?
9. Very nice person but did not transmit much.
10. (No response.)
11. We didn't get to know him very well, but he has a good level [of knowledge].

12. (No response.)
13. (No response.)
14. Thank you.
15. Nothing but congratulations!
16. !
17. (No response.)
18. (No response.)
19. Less "ego".
20. (No response.)
21. (No response.)
22. (No response.)
23. (No response.)
24. O.K.

Eduardo Adana:  
(INCO)

1. (No response.)
2. O.K.
3. His contribution was important.
4. (No response.)
5. Not much participation.
6. (No response.)
7. I do not know him.
8. ?
9. Very knowledgeable but he did not transmit much. Very little time.
10. (No response.)
11. Same comment as for preceding. [We didn't get to know him very well, but he has a good level (of knowledge).]
12. (No response.)

13. Thank you.
14. Nothing but congratulations!
15. !
16. (No response.)
17. (No response.)
18. (No response.)
19. (No response.)
20. (No response.)
21. (No response.)
22. (No response.)
23. (No response.)
24. O.K.

7. Other Comments

1. Include aspects of environmental impact evaluation.
2. In general, for those speakers whose native language is not Spanish, greater accuracy in choosing terms [is important]. Sometimes it would be better to express the term in English, since if there is someone in the audience with proper knowledge, he or she could translate.
3. In general, I think the seminar has satisfactorily met the expectations of all participants with regard to the transmission of data and positive experiences.
4. Replicate an event in Perú within the framework of the cholera epidemic.
5. Perhaps [conduct] a panel activity at the end of the day with the same participants from the group, in order to consolidate results and conclusions.
6. (No response.)
7. I do not agree with the [decision to] include of some of the participants as their level of participation was quite low and they were not decision-makers.

The panel of agencies served no purpose -- inoperative.

The prior organization for the invitees was not done sufficiently ahead of time. I was uncertain as to what my role was to be and I think that it would have been useful for other people from my country to attend.



Please schedule additional time for something additional on the subject of environmental theory and [illegible word].

8. (No response.)
9. Sufficient time to address scheduled presentations, but with uneven time. For example, for the visits, too much time spent on slow transportation (better buses, smaller and lighter). [This] would free up time for greater [transmission of] knowledge and exchange [of experiences]. More time for discussion and reflection on these technologies and activities.

It was not possible to obtain insight through the Seminar into the advantages and disadvantages of the macroeconomic-social-institutional reality of the country so as to relate it to the examples visited and presented by INCO.

10. Coordinate at the local level aspects related to documents and printed materials involving the topic to be discussed.
11. Thanks to WASH and AID for allow me to attend this event, which has been of considerable benefit to me.
12. I would appreciate it if it would be possible to take into account the need for support currently required by the country for the reorganization of the sector, as a result of which we invite WASH to consider the possibility of providing us the support necessary.
13. Thank you. Thanks to AID in Ecuador and USAID, who provided us with this opportunity to attend this course sponsored by WASH.
14. I feel if that is desirable for similar seminars to be held in my country (Ecuador) in order to create a greater incentive with regard to processes of change at the level of public institutions that are currently involved in strategic areas. We hope we will be given appropriate guidelines for achieving this purpose, with the participation of professionals from a number of different countries, and especially Chile, which currently possesses a very interesting model, that we could analyze in my country in order to identify the best aspects that would help to improve our particular situation within our own context.
15. (No response.)
16. (No response.)
17. (No response.)
18. All of the organizers performed very well in their interventions, which were clear and concise; above all, they have made us see the need to integrate the rest of the actors into the program.
19. (No response.)

20. SEDAPA is going to make the necessary arrangements for a similar workshop to be held in Trujillo, Perú.

21. (No response.)

22. Organize a seminar in Perú.

23. They are a very pleasant and enjoyable team with a high level of professional capability.

They set a good precedent.

I had few expectations as a result of other prior experiences. The result was the opposite of what I expected.

Objective opinions of the Latin American context (by the team).

24. (No response.)

## FOLLOW-UP

1. In What ways do you expect to put to use the knowledge acquired in the seminar?
  1. By promoting [use of] this knowledge in the National University.
  2. By applying the methodology to improving the evaluation and presentation of projects both internally (for decision making) as well as externally (to obtain financing).
  3. As an advisor to the city council, primarily in the preparation of legislation that is appropriate to our particular situation.
  4. By conducting an event in my country to encourage actions that will contribute to providing a response to water and sanitation problems.
  5. By planning daily activities with a slightly different approach.
  6. Joint work with MIDEPLAN for small-diameter sewers and latrines for rural areas.
  7. By concrete actions.
  8. By acting as an agent of change in accordance with [my sphere of] influence and [my] field of action.
  9. On the Ministerial Committee on sanitary infrastructure. On regional and municipal committees. On the interministerial commission on environment and in the creation of the Minvu-WASH library (copies of documents). Provide (as I did with the three first projects) the following [which should be] significant and serve as pilot-examples.
  10. Put the proposal of the Perú group into practice.
  11. In the first place, by interesting my minister in creating the political will at the government level in the activities and transformations that we should carry out in the policies and strategies for intervention in the sector.
  12. From my position in the U.E. of the BID program, in charge of promoting the reorganization of the sector.
  13. Since I belong to the middle management staff of the IEOS, I am definitely going to try to promote changes in the institution.
  14. [Note: follow up sheet not attached to evaluation form].
  15. I am going to use Force Field Analysis to press my colleagues in INTEC to analyze their goals and define their roles in water [and] sanitation.
  16. By coordinating with my colleagues who have decision-making authority (Undersecretary for Sanitation).

17. By carrying out the Rural Sanitation Program (sewer). Through implementation and assessment at the watershed level with regard to water contamination and by being an element of change for solving the problems in each of them (the watershed).
18. Over the short term, share with my colleagues from the SISS the knowledge obtained in this workshop. Orient sanitary enterprises as regards the integration of other sectors to address the M.A.R.
19. By seeking and trying to comply with the objectives set forth, which consist of providing sanitary sewerage to the greatest possible number of people in my city, together with appropriate treatment.
20. By putting [the knowledge acquired] into practice in the firm where I work (SEDAPAT).
21. Through a change in my thinking based on the maturation of the material learned. Broadened vision. Subsequently, by convincing others in this regard.
22. We plan to be promoters of a work group that will recommend to the government a national plan for solving the integrated water and sanitation problem.
23. I will attempt to influence my authorities through an organization to coordinate institutional will. The error that exists today is that there are not many linkages or much coordination.
24. In the first place, as a methodology I think it was useful for me and for my subsequent performance in my job. An awareness of the subject of environment and of the importance of attacking [problems] by means of projects to be implemented in stages, etc. Probable support for future seminars.