

FINAL REPORT

**CITIES MATTER:
ENERGY EFFICIENCY IN THE WATER SECTOR
NOVEMBER 3-7, 2003, MEXICO CITY, MEXICO
NOVEMBER 17-21, 2003, BANGALORE, INDIA**

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ACRONYMS

ADB	Asian Development Bank
ASE	Alliance to Save Energy (India)
BOT	Build-operate-transfer
BWSSB	Bangalore Water Supply and Sewerage Board (India)
CMA	City Managers' Association (India)
EMC	Energy management cell
ICLEI	International Council for Local Environmental Initiatives
ICMA	International City/County Management Association
LAC	Latin America and the Caribbean
NRW	Non-revenue water
TERI	Tata Energy Research Institute (India)
UFW	Unaccounted-for water
USAID	United States Agency for International Development

ABSTRACT

The International City/County Management Association (ICMA), under contract with the Energy Office of the United States Agency for International Development (USAID), developed and delivered the course “Cities Matter: Energy Efficiency in the Water Sector” in two regions—Asia and Latin America. The five-day course included energy efficiency techniques for concrete results coupled with tools for management, operations, and decision making at the local and state level. The course was presented in Mexico City, Mexico, for participants from Latin America and the Caribbean on November 3-7, 2003, and in Bangalore, India, on November 17-21, 2003, for participants from Asia. Representatives from Brazil, the Dominican Republic, Honduras, Nicaragua, Paraguay, and Mexico; and India, Sri Lanka, and Philippines participated in the respective courses. This report provides an overview of each course, the results, and recommendations for follow-up that will further the impact of the courses.

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1 INTRODUCTION

The International City/County Management Association (ICMA), under contract with the Energy Office of the United States Agency for International Development (USAID), developed and delivered the course “Cities Matter: Energy Efficiency in the Water Sector” in two regions—Asia and Latin America. The course augmented excellent work already completed by the Alliance to Save Energy (ASE) on the technical aspects of energy efficiency by putting this work into a broader local government and policy framework based on ICMA’s experience. The result was a five-day course that includes energy efficiency techniques for concrete results coupled with tools for management, operations, and decision making at the local and state level.

The course was presented in Mexico City, Mexico, for participants from Latin America and the Caribbean on November 3-7, 2003, and in Bangalore, India, on November 17-21, 2003, for participants from Asia. Representatives from Brazil, the Dominican Republic, Honduras, Nicaragua, Paraguay, and Mexico; and India, Sri Lanka, and Philippines participated in the respective courses. Participants were nominated by USAID Missions throughout the regions.

The objectives of the course were to:

- Develop an understanding of the role of energy and energy efficiency within the context of local government and municipal management.
- Raise awareness of and competence in the application of energy-efficient techniques among municipal managers and practitioners at the local level.
- Establish a forum for discussion and dissemination of appropriate tools and best practices. Establish new networks of local practitioners based on memberships within municipal associations in the relevant country to encourage ongoing dissemination and sharing of information as well as institutionalization of tools, materials, etc.
- Highlight potential for synergy with other USAID programs by identifying champions within municipal associations and possible candidate cities for pilot applications of tools and best practices.

The course content followed the same basic format with regionally specific case studies and site visits. Each course was adjusted to meet the needs of the participants attending the course, so the final agenda and the application activities were slightly different in each (see Appendices A and D).

What follows is an overview of each course, the results, and recommendations for follow-up that will further the impact of the courses.

2 COURSE OVERVIEW – ASIA

The Asia course took place in Bangalore, India, and was attended by representatives from three countries: Sri Lanka, India, and the Philippines. The seven-person delegation from Sri Lanka included engineers from the central government, a university, and major cities' electricity boards. Almost all Sri Lankan participants were members of the Sri Lanka Energy Managers Association. The delegation from the Philippines consisted of two participants who were both from the city of Iloilo's water district. (Two additional participants from Cebu were confirmed but did not attend.) The delegation from India included representatives of municipalities and water boards as well as the coordinators of state level city managers' associations. (For the complete participant list, please see Appendix B.)

Participant expectations were generally consistent with the course objectives. Because of the diversity of the participants' backgrounds, some were more interested in specific examples of energy efficiency in the water sector and how to disseminate them, while others were more interested in the technical aspects. The course design handled this diversity by having the participants work together to see both sides of the issue.

2.1 Course Topics

The focus of the course, as determined by USAID during the development phase, was energy efficiency in the water sector. Bangalore was selected as the site due to the world-class potable water treatment plant and energy efficient pumping stations of the Bangalore Water Supply and Sewerage Board (BWSSB), which served as the site visit for the course.

In addition to the main focus on the water sector, the course also presented some information on street lighting. Many participants selected for the Asia course indicated interest in street lighting due to the percentage of municipal expenditures it requires. Mr. Subodh Shah from Vadodara included street lighting in his presentation, and additional materials on the topic were included in the background readings.

Participants in the Asia course demonstrated special interest in the budget and how it can be used as a management tool for delivering services, calculating payback, preparing a pre-feasibility study, and conducting a tender. In the area of budgeting, the ICMA trainers used a U.S. example to demonstrate how funds for a specific service or utility (water) are segregated from the overall budget (fund accounting) and how the accounting and financial reports allow decision makers to see when there is any irregularity, which helps them manage the service. Many participants expressed that this type of budgeting is not common in their countries and noted the difficulty of demonstrating cost savings as well as tying cost savings to particular management actions or improvements.

Calculating and demonstrating payback is key to persuading decision makers to conduct an energy audit and implement recommendations that will conserve energy and save money. However, in systems where the funds saved do not return to the entity (e.g., municipality, water service), the incentive for cost savings is severely hampered. The example given during the course was that the state budget often benefits from the savings made by a municipality due to the financial relationship between the two levels of government.

The participants had many questions about pre-feasibility studies and tenders and stated that in their experience the tender process rarely includes the amount of detail referred to in the presentation. Some participants also noted that the tender process could be strengthened with more information on the proper way to prepare and manage the tendering process. The issues of budgeting, payback, and tendering underlined the importance of looking at energy efficiency not only from the perspective of an audit and cost savings, but also how those actions relate to the overall operations and management as well as decision making regarding services. Early in the course, participants asked many questions related to tendering and other management issues related to the ability to convince decision makers that the investment in energy efficiency will pay off for the local government.

Due to the interest in and current need for this topic, the trainers added the topic of tendering to the agenda on Day Four so that it could be addressed in depth. The trainers revised the session on Day Four entitled “Energy Efficiency Improvement Opportunities” to cover consumption modeling, energy cost-saving strategies in water utilities, calculation of payback, and the tendering process (presentation and exercise). The topic of financing options, which was originally in the agenda, was addressed in handouts only because many participants were already familiar with the information included, and their needs indicated that the tendering process was a higher priority.

Generally speaking, participants responded well to the course content and were receptive to the interactive discussion and overall design.

2.2 Case Studies and Site Visit

Case studies included the work done by the International Council for Local Environmental Initiatives (ICLEI) in energy efficiency and a detailed look at the work and results of the city of Vadodara, India, which has not only conducted energy efficiency audits, but also implemented dramatic cost-saving measures. From the case study on Vadodara, participants learned not only about energy efficiency in the water sector, but also in street lighting. A very important concept that resonated with the participants was the establishment of a revolving fund, which will allow cost savings generated by better energy efficiency to stay with the entity that generates the savings.

The third day of the course was devoted to a site visit to the pumping station and the water treatment plant at the Bangalore Water and Sewerage Supply Board. The site visit gave the participants an opportunity to observe some of the technical aspects of energy efficiency discussed during the course. For many participants, it was their first visit to a pumping station and water treatment plant. For others, who are engineers in these sectors, the site visit was an opportunity to view a state-of-the-art-plant. The environmental expert trainer as well as engineers who work at the plant guided the tour of the Bangalore water treatment plant and pumping station.

Two additional, real-world examples of energy efficiency and good management practices were presented in the course. On the way to the site visit in Bangalore, the participants visited the Tata Energy Research Institute (TERI), which is involved in energy efficiency work and

whose office building is a tangible example of using energy-efficient construction as an alternative to traditional methods. TERI has constructed its office building using measures such as double walls and rooftop gardens to significantly lower operating and maintenance costs and decrease environmental impact.

Second, Mr. Murthy, the Commissioner of Bangalore, not only made the opening remarks but also graciously took the time to present to the group many different projects that the city has undertaken to improve services to citizens. Mr. Murthy is a progressive commissioner who has been the key liaison for the ICMA Resource Cities partnership between Bangalore and Reno, Nevada. His practical experience and comments on issues such as tax collection, public/private partnerships, and public sanitation helped illustrate the importance of good management to the delivery of all municipal services.

2.3 Results – Strategies Developed

The course ended with presentations from five groups on their strategies for taking action that will increase energy efficiency in the water sector in their communities or municipalities. Because there were many association representatives interested in the dissemination of best practices and current findings in this area, there was a sixth group of representatives of the Alliance to Save Energy and some of the City Managers' Associations of India. Members of the sixth group focused on how they will collaborate to encourage greater energy efficiency by broadly disseminating key information and encouraging replication.

The presentations were based on small group activities throughout the course that facilitated the application of concepts presented to the participants' daily work. Participants discussed the status of energy efficiency in their respective countries or municipalities and then, through guided discussions and small group sessions, explored possible ways to make improvements. To focus the discussion, each group identified a policy objective that it would achieve through better energy efficiency in the water sector then later articulated an action plan for a specific municipality or state to meet the selected objective. In their presentations, the groups considered the following questions:

- How will energy consumption be reduced?
- What factors should be considered to calculate payback?
- How will you ensure that the payback is accounted for?
- How will you account for long-term sustainability of project implementation? Consider staff training, monitoring, financial management, etc.
- Who are the decision makers? What do they need to know to approve the project?

The notes from each group's presentation are below.

2.3.1 Group I - India

Members: Mr. R. N. Bhatti
Mr. V. C. Pathak
Ms. Renu Bhagwat
Mr. Yashesh Anantani
Mr. Pradeep Kumar

Policy Objective: Minimize municipal energy costs without compromising quality, quantity, and the citizens' interests.

Critical Issues

The critical issues to be addressed, according to Group I, were the following technical issues uncovered as part of an energy analysis (which includes the calculation of a payback period of 11 months):

1. Replacement of 250 W HPMV to 150 W HPSV (#500)
2. $Nos \times W \times Hrs \times 365 = \text{savings}$ (220,825 KWH/annum = Rs 6.62 Laks @ 3.32) (*writing of number unclear*)
3. Investment: Rs 750 Laks less materials rec. = Rs 1.5 Laks; actual = Rs 6.0 Laks
4. Payback = 11 months

This project would begin in one ward to improve its lighting with the intention of replication in other wards. The group recommended that all savings incurred be put into a revolving fund to specifically address other energy savings and electrical management issues, which will provide an incentive to managers to implement the program. (Normally cost savings are not kept locally, so there is little incentive to save energy.)

When the course trainers asked about labor cost savings, the group clarified that the cost savings did not include labor because this project did not involve any overall change in labor. The trainers also mentioned that with net present value the payback would be less than the eleven months presented and stated that in order to get approval from and encourage decision makers, a pilot project that can show tangible results is a good starting point. The group clarified that the overall benefit to citizens was not just that there would be better lighting on the roads, but that better lighting would mean fewer accidents, which would improve the quality of citizens' lives.

2.3.2 Group II - India

Members: Ms. Deepti Nanawati
Mr. H.G. Nandish
Sumathy Rangrajan
Ms. Sindhu Varne
Mr. Nagendraiah

Policy Objective: Design efficient water supply systems to create a new system and improve the efficiency of old systems as a step to achieve self-sufficiency.

This group decided to give two kinds of examples: one in Mysore, dealing with the process by which they would improve the water systems, including energy efficiency in support of a broader vision; and the second in Hunsur, applying concepts discussed in the course such as demonstrating how a walk-through inspection can serve as an energy audit.

Mysore Case Study

Vision for the city – to make the city an industrial, technical, educational, and tourist hub and a good place to live, supported by good quality service (“augmented water supply system”).

- Step 1 – Planning Phase: Survey needs of the city and the existing system (socio-eco); identify the shortfalls (contour mapping)
- Step 2 – Technical study – Perform an energy audit; inputs into the existing system (performance)
- Step 3 – Undertake a comparative study (towns of comparative sizes)
- Step 4 – Obtain approval from the authorities
- Step 5 – Conduct feasibility studies
- Step 6 – Consult with consumers (willingness to pay)
- Step 7 – Build capacity and create awareness
- Step 8 – Implement the bidding process for a detailed project report (training, monitoring, awareness)
- Step 9 – Implement the bidding process

Technical study – Augmenting the water supply systems.

Hunsur Case Study

- Step 1 – Survey and technical study

Observations – Analysis

1. Capacitor banks not working
2. Pumpsets more than 25 years old and NR valves not working
3. No power/energy metering for individual pumpsets
4. Starters missing
5. Contract demand usage more than that: 100 KVA → 160 KVA (60 KVA)

Proposed Energy Efficiency Methods

1. Addition of capacitor banks
2. Replacement/refurbishment of pumps and checking its functioning with regards to the duty point
3. Starters – adoption of soft starters
4. Application for required demand to avoid penalties – replacement of suitable capacity transformers
5. Metering systems to be introduced to each pumpset to measure the power consumption

Factors Considered for Payback

Savings achieved through non-payment of penalties towards contract demand and Pf
More efficient pumps → less power consumption → savings (compared to present amount paid towards power cost of implementation)

Sustainability of Project

- Training the personnel in operations and maintenance by scheduling daily, weekly, and monthly checks of each component.
- Creating awareness among the staff regarding the savings achieved from simple steps.

The group estimated that an energy efficiency audit would cost Rs 250,000, but that the potential for savings, given the types of problems observed, is considerable. They said that funding for the audit would come from the municipal council or through a grant from the central government.

2.3.3 Group III - India

Members: Mr. Adlakhia
Mr. L.G. Dhoke
Mr. Piyush Rout
Mr. Aurobindo Ogra
Ms. Anshu Sachdeva

Policy Objective: Provide an efficient water management system.

Pilot Project: 55 million rupees for New Mumbai

Problems

1. Huge amounts of unaccounted-for water
2. Poor storage capacity
3. Affordability to the poor
4. Energy consumption
5. Human resource development
6. Inefficient billing and collection

Solutions/Project implementation of ISO 14001 (EMS)

1. Water audit/energy audit
2. Construction of new storage tanks
3. Computerization of billing and collection
4. Single window system
5. Staff training
6. Benchmarking of performance
7. Professional expertise

Investment

Project cost estimated at Rs 50 million through private sector participation and a build-operate-transfer (BOT) arrangement

Decision Makers (options)

- Identify one administrative ward
- Less investment
- Success stories
- Fund (financial/institutional bonds)
- Payback period (2 years)
- Pilot project

Performance Criteria

Indicators	Current Units	Year	Desired Outcome
1. Area Coverage	Properties	2003	95%
2. LPCD	100	2003	150
3. UFW	40	2003	15
4. Energy Consumption	3000/Kv	2003	2550/Kv
5. Exp. on WS	500 million	2003	450 million
6. Recovery	350 million	2003	500 million
7. No. of training programs	0/year	2003	3/years
8. Persons trained	Nil	2003	15%
9. Elected officials	Nil	2003	25%
10. Best practices	Nil	2003	Documentation
11. Complaint grievances	No	2003	At administrative ward level

The trainers recommended that because this is a complex proposal with many different sub-projects, it would be important when presenting the information to decision makers to clearly articulate the time of payback for each of the seven projects rather than saying that payback for all projects is two years. It may be possible to stagger projects, which would make it easier for decision makers to fund the projects. That way, savings from one project might pay for the next one. Another recommendation was to seriously consider the timeframe and make sure that the estimates presented to decision makers are as accurate as possible so that the credibility of the technical staff is supported, not undermined.

2.3.4 Group IV - Sri Lanka and the Philippines

Members: Mr. E. M. Piyasena
Mr. D. D. Ananda Namal
Mr. Bethmaga Sudath
Mr. Mario Angara Amatorio
Mr. Jaime Jalbuena

Policy Objective: More water at less cost.

Factors to Consider for Payback

1. Cost of equipment
2. Cost of operations and maintenance
3. Life (time) of equipment
4. Savings

How to Ensure Payback Is Accounted for

1. Use of revolving fund from savings
 2. Proper accounting – entry account
- Decided to use local developer because less expensive
 - Eliminated one pump – not needed for lifting water
 - Capacitators – when starting backwash pump, lights would dim – so made a change there
 - Will use saved funds in one account/revolving fund to finance other projects

How to Account for Sustainability

1. Training
2. Continuing education (keep knowledge updated)
3. Proper monitoring & evaluation – not just during project, but ongoing; 10-year monitoring & evaluation plan

Who Are the Decision Makers?

The group answered questions and clarified that if money were saved, the intention would be to reduce the tariff (for consumers). Because raw water pumping will be eliminated, a pipeline will be installed. The installation process will take two months, and the eliminated pump will be sold. A jockey pump will be used (to compensate for lack of storage). Gravity will be used for distribution.

The capital cost of the two projects is 10 million pesos (US\$180,000), and the implementation time is two years. There is metered water and a tariff so it is possible to show related revenue that can be used for future improvements. The city has received 200 million pesos (US\$3.6 million) from the Asian Development Bank (ADB) for the project and will work in collaboration with the ADB. The city decided to use local firms because the cost was 2 million versus 25 million pesos for foreign firms. Because of bad experiences with the private sector or third-party firms in the past, the city of Iloilo plans to do the project in-house with outside help only to lay the pipes. The local government employees will be paid for the extra work, and for two years they will do two jobs—this project and their regular job as well.

2.3.5 Group V - Sri Lanka

Members: Dr. R. A. Attalage
Mr. P. P. Subashinhe
Mr. H. K. Illeperuma
Ms. HRP Wanniarachchi

Policy Objective: Water for more people with better quality and service (Colombo).

Project: Identify and Reduce Non-Revenue Water (NRW)

Benefits of the Project

- Reduced expenditures
- Increased revenue
- Delayed investments
- Savings to improve quality of service (revolving funds)

Steps

1. Install meters at appropriate locations to identify NRW
2. Establish the monitoring mechanisms to identify NRW
3. Quantify and analyze NRW
4. Stop leaks, remove illegal connections, and eliminate illegal actions

Results

1. With less pumping → save energy (reduce the need for pumping by repairing leaks)
2. Cost of instrumentation and labor to restructure for monitoring
3. Capacity building of staff, maintenance, and collaboration of instrumentation; Financial model to monitor
4. Technical – Municipal Engineer; Overall – Municipal Commissioner

The presenters from this group answered questions and clarified that they already know that there is 50 percent water loss, but they do not know from where. Regarding a cost/benefit analysis they stated that they know the future demands already so with the existing capacity they will be able to serve future demand. There is already a waiting list for service. The group agreed that they could possibly stagger the project by starting with a pilot project.

2.3.6 Group VI – CMAs and ASE – Dissemination/Replication

For the final group discussion, Group VI focused on how to work together to further disseminate the core concepts of energy efficiency in the water sector with a broader audience, including municipal corporations as well as other levels of government. ICMA/India, the Alliance to Save Energy (India), and the City Managers' Associations (CMAs) agreed to collaborate on broader efforts to reach out to the local government community.

Members: Ms. Urvi Mankad
Mr. Krishna Gopal
Mr. S. Srikumar
Ms. Leena Pishé Thomas
Ms. Sudha Setty

Strategy for Dissemination and Information Sharing

- Disseminate literature from ASE (articles, executive summary of energy audits, success stories, and information on formation of energy management cells).
- Establish an e-mail list with ASE, the CMAs, and ICMA/India.
- Set up an energy management cell (EMC) in the CMA office or else with the states.
- Share information on seminars and training programs held by ASE. Encourage participation by CMA members through cooperation with the state coordinators.
- Have CMA members participate in energy audit walk-throughs.
- Create a list of technical consultants in each state.

2.4 Feedback from Evaluations

Participants rated the course 7.5 overall on a scale from one to ten, with ten being the best score possible. Some commented that course was too general, others said it was too technical, while for others the balance of the technical with the managerial information was appropriate. Several participants commented that they learned a lot. (Full text of the evaluations can be found in Appendix C).

Many participants commented that the steps of the energy audit and the tendering process were the most useful for them. Other topics noted as most useful included budgeting, cost savings, and decision making/policy related issues. For some participants the case studies were the most useful.

Participants noted that they generally liked the case studies very much and would like to see even more examples of specific applications of energy efficiency in the water sector and in other areas as well, especially from the other counties represented, to increase information sharing. The BWSSB and the Vadodara case studies were most appreciated. (The visit to TERI and the case study by ICLEI were not mentioned.) One person even noted the special presentation from the city of Bangalore as being the most useful, even though it was not a planned part of the course.

Participants generally found the small group discussions useful in that they allowed participants to delve into more depth and apply the discussions to their own circumstances. A few participants commented, however, that the activities should have been more structured.

Most participants said that they would recommend the course to their colleagues. Some noted that this course addresses the lack of information and awareness about the issues of energy efficiency. Many emphasized that it is useful to have practical details including site visits.

Recommendations for future courses included a few comments that the course should be shorter. Some participants suggested adding more technical details, while others suggested fewer technical details and more managerial aspects. One person suggested that it is important to have all stakeholders present. Generally, participants seemed pleased with the overall rhythm of the course, the facilities, and the logistics.

2.5 Lessons Learned

The combination of the techniques and practices of a specific area, such as energy efficiency in the water sector, with broader policy, decision-making, operations, and management issues is very useful, which discussions during the course sessions reinforced. For USAID, the usefulness of this combination suggests the importance of coordinating programs that emphasize improved management practices (e.g., budgeting, tendering, contracting out) with those that provide technical skill training necessary to make energy improvements. Even when core staff have additional technical skills, decision makers still have to be convinced of the benefits before they agree to make improvements.

The participation of teams from the same municipality—decision makers as well as technical staff—for this type of course is useful. However, because commissioners may not be available for a five-day course, it may be preferable to stage a separate, large conference for decision makers that would emphasize the results and benefits of energy efficiency techniques. The conference could be followed by smaller, more hands-on workshops or courses for the staff of the same municipalities. On the other hand, a single large event could incorporate some initial sessions for the whole audience, with follow-up sessions for more technical staff.

On the topic of energy efficiency in the water sector, sharing information across countries is interesting and useful, but in a region with so much need in the area and with diversity even among states in India, it may be preferable to hold courses for teams from various regions of the same country, rather than different countries.

Participants respond well to a training program that includes content presentations, discussions, applications, case studies, and site visits because it gives them an opportunity to put into context and apply what they have learned.

The issues raised by participants with regards to tendering, management, and operations, as well as how to convince decision makers, demonstrated the need for a comprehensive approach to energy efficiency in the water and other sectors.

2.6 Next Steps/Recommendations

- Present one-day courses that include a site visit or relevant case studies with a brief overview of the value of the energy audit and of implementing energy saving measures to decision makers. The purpose of these courses would be to pique decision makers' interest and encourage them to allow their staff to gather further information on the subject. The CMAs could offer these courses in cooperation with the Alliance to Save Energy.
- Follow up with the municipalities represented in the course to encourage them to follow through and apply what was learned during the course.
- In the case of India, the state-level associations can serve as a catalyst or facilitate information sharing through events, publications, and cooperation with other programs, such as the Alliance to Save Energy. After the course, the state-level associations established ongoing email contact to initiate the cooperation.

- Replicate this course in each of the participating countries so that representatives from additional municipalities and regions have an opportunity to attend. (The organizers may adjust the course to include tendering, as was done in this offering, and shorten the course to four days to make travel easier for participants.)
- Consider developing a course on tendering and bidding practices that emphasizes the management and operations aspects of not only planning and implementation of the bid, but also management of the project and service delivery.
- Provide more specific hands-on training with the energy audit and other techniques, in response to comments from participating technical staff that they would like more hands-on training. If possible, the Alliance to Save Energy or other programs should provide this training.
- As more examples of concrete cost savings become available, consider a national conference to showcase results.
- Tie future discussions of energy efficiency to management issues, including decision making and long-term operations and maintenance.
- Transfer and replicate best practices in energy efficiency among cities in the region.
- Develop a Cities Matter course focused specifically on decision making at the local level that would look at the processes as well as the players involved in reaching a conclusion. One complaint frequently heard during the course is that it is often unclear who can make a particular decision. The City Managers Associations might be able to use their influence to encourage changes that would facilitate action.

3 COURSE OVERVIEW – LATIN AMERICA & THE CARIBBEAN

The course for the Latin America and the Caribbean (LAC) region took place in Mexico City, Republic of Mexico, and was attended by representatives from the following countries: Paraguay, Dominican Republic, Nicaragua, Honduras, Brazil, and Mexico. Participants from Mexico represented the following regions: Oaxaca, Mexico State (including Mexico City), Chihuahua, Puebla, Culiacan-Sinaloa, and Guadalajara.

The largest delegation was from Mexico, followed by the Brazilian delegation, which included representatives from the states of Porto Alegre and Caera. The participants were a mix of engineers from the water and energy sectors and political leaders such as city mayors from Nicaragua and Honduras. Representatives of water associations and consumer advocacy bodies also participated in the course.

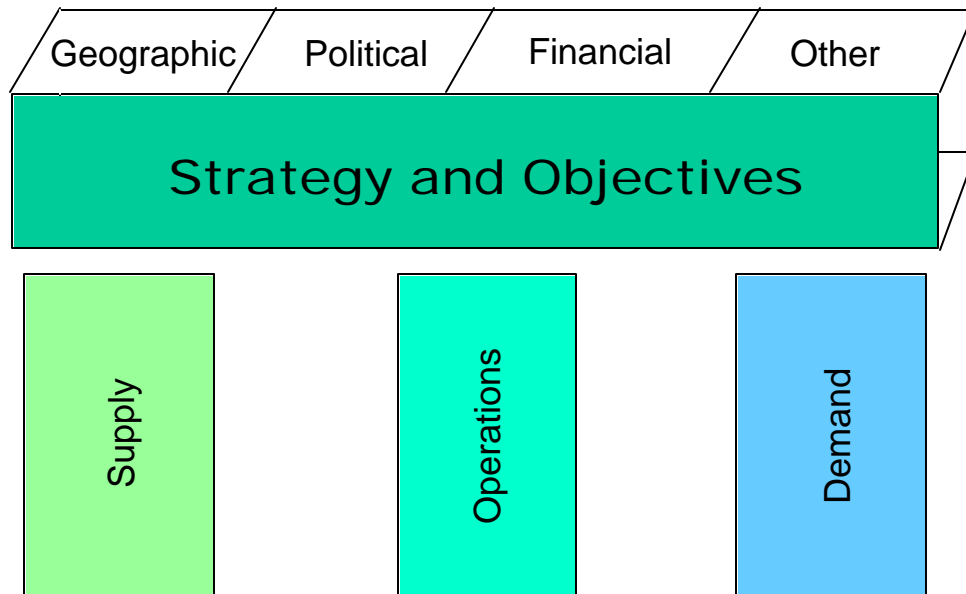
The focus of the course, as determined by USAID during the development phase, was energy efficiency in the water sector. Mexico City was selected as the site for the course due to its regional accessibility. In addition, Mexico City offered some interesting examples of energy efficiency in the water sector because it conveys water through a macro distribution system known as the Cutzamala System. This system brings water from 150 kilometers away to Mexico City and its environs, which are at an altitude of 2,800 meters above sea level. The case studies in the state of Mexico also provided examples of practical and innovative mechanisms for imple-

menting energy efficiency plans as well as for bringing about management improvements in water operations.

Participant expectations were generally consistent with the course objectives. Because of the diversity of the participants' backgrounds, some were more interested in specific examples of energy efficiency in the water sector and how to disseminate them, while others were more interested in the technical aspects. The course design handled this diversity by having the participants work together to see both sides of the issue.

Notwithstanding their diverse backgrounds, the participants in the various discussions came to a common conclusion: an effective utility is one that can charge for services what it costs to provide the services. In addition, the utility should have a sound financial standing, and to achieve this standing it is necessary to have adequate information and management systems. In this regard, it was particularly useful to visit the water operators in Tlalnepantla, state of Mexico, to see their management practices and the effect that energy savings measures have had on their daily operations.

Many participants selected for the Latin America course indicated interest in not only integrating energy efficiency measures but also in bringing about a "holistic" approach to better management of the sector. A good example is the reduction of unaccounted-for water (UFW) and the impact of reduced pumping costs. To respond to participants' interest in a holistic approach to water sector management, the Director of ICMA/Mexico made a presentation on Day Three in which he summarized the use of the three "pillars" of good management of a water utility to achieve good energy efficiency. He presented the pillars of supply, operations, and demand, and discussed their intertwined relationship with the participants. The group concluded that these three pillars form part of the strategy and objectives of improved management and good energy efficiency measures. The diagram below, which resulted from the discussions of the group, illustrates this point.



Following this presentation, the Alliance to Save Energy presented a case study in Mexico in which some of these aspects were put to the test. The case study explained key benefits as well as other potential issues that could be addressed to achieve further improvements in the future.

Additionally, the participants expressed significant interest in using the private sector as a catalyst for change. For this reason, the participants asked for the environment/energy expert to present options for establishing public-private partnerships (PPPs) and explain how the private sector could help bring about operational, managerial, and technical benefits. In addition, the course participants wanted to hear about direct and practical examples of PPPs in practice. Thus, a brief presentation was added to exemplify PPPs in action.

Participants in the Latin America course demonstrated special interest in the role that management has in implementing change. To meet this need, the local government management expert made a presentation that established the importance of developing adequate strategies and having the management competence to ensure that objectives are reached. By citing specific examples of management techniques and tools, the expert highlighted the key areas in the implementation of a management and operational program that will lead to improved energy efficiency.

On the site visits the participants took with them a list of issues that addressed improvements from a supply, demand, and operational perspective. This list was developed jointly as a summary of the previous days' sessions. During the site visits, the participants filled in these questionnaires and used them as a basis for asking detailed questions at each of the sites visited.

Generally speaking, participants responded well to the course content and were receptive to the interactive discussion and overall design.

3.1 Results – Strategies Developed

As an outcome of the course, the participants discussed key issues from the supply and demand perspectives and from a customer point of view. In addition, the participants examined the issues from a price/tariff perspective. The issues and actions to mitigate them are summarized in the following table. The main issues for which improvements can be achieved are outlined in the first column, and specific actions to mitigate the problems/issues are provided in the second column.

Key Issues and Mitigating Actions

Supply	
Main Issues	Mitigating Actions from a Supply Perspective
<ul style="list-style-type: none"> • Leakage • Unaccounted-for water • Inadequate distribution of the system • Over-dimensioning of the system • Incorrect choice of equipment • Old-fashioned, obsolete equipment • High friction in the pipes • Deficient maintenance • Old-fashioned management of operations (“we have always done it this way”) • Wastewater treatment (i.e., secondary treatment) • Regeneration and reuse of water • Disorganized investment • Lack of technical information 	<ul style="list-style-type: none"> • Redesign of the system • Establishment of section valves (District Metering Areas—areas for measurement) • Minimizing of leaks and water losses • Capital investment in projects (starting small) • Reduction of booster pumps • Modernization of the equipment (and consideration of leasing arrangements rather than purchases) • Pipes with low friction • Motors with regulated speed • Capacitors • Transformers • Improvements in management of operations and maintenance • Reduction of water in the first phase • Reduction of water from sedimentation (in the wastewater process) • Systems with variable speeds in aerators • Consideration of overflow tanks • Grey water for non-potable use (e.g., aquifer recharge) • Establishment of pilot projects • Establishment of monitoring systems • Development of financing systems (e.g., BOT) • Use of associations (ICMA), contracts with clients and providers, local NGOs
Demand	
Main Issues	Mitigating Actions from a Demand Perspective
<ul style="list-style-type: none"> • Indiscriminate use of water • Lack of awareness • Lack of consumer “buy in” 	<ul style="list-style-type: none"> • Application of residential and commercial technologies (e.g., lower-consumption toilets) • Introduction of low-energy heaters • Use of benchmarking to compare efficiencies • Discount programs for users who install lower-consumption devices (e.g., design of a scheme that covers part of the costs) • Payment or reduced billing to industries that reduce consumption
Public Information	
Main Issues	Mitigating Actions from a Public Information Perspective
<ul style="list-style-type: none"> • Disconnect between the public and the operator 	<ul style="list-style-type: none"> • Presentations/seminars in schools • Participation of communication agencies via radio, TV, and other media

Price/Tariffs	
Main Issues	Mitigating Actions from a Price/Tariff Perspective
<ul style="list-style-type: none"> • Complicated structure of subsidies • Artificially low prices • Unrealistic tariffs • Limited school budgets, which lead to a great demand for subsidies and special treatment 	<ul style="list-style-type: none"> • Participation of communication agencies via radio, TV, and other media • Involvement of the community

At the end of the discussions on key issues and mitigating actions, the group split into sub-groups in order to present specific action plans that would lead to improved energy efficiency. The groups were organized by country, and in the case of Mexico (which had the highest number of participants), the groups were organized by regions of the country. The following section lists the members of each group and summarizes the presentations made. Some of the issues and actions that the groups identified were repeated. For the purpose of this report, the repeated issues and actions were not included, as they were covered by another group's presentations.

3.1.1 Brazil

Members

Antonio Comunello Accorsi
Klaus Dieter Neder
Renato Rolim Ribeiro

Main Issues/Actions

- Make better use of information and information management systems.
- Start with the development of a customer cadastre.
- Develop a cadastre of distribution network.
- Based on the cadastre of the distribution network, start developing different sectors of the network and establish different flow levels for each sector.
- Establish a set of systems for stabilizing distribution through the use of small reservoirs to absorb capacity and to deal with peaks in demand.

3.1.2 Honduras

Members

Jose Felipe Borjas
Jose Ruben Henriquez

Main Issues/Actions

- Develop a program for UFW.
- Plan for management and administration of investment funds targeted at enhancing the continuity of service.

The group also gave a description of the current situation of the National Water and Sewer Service and their development perspective for the future.

3.1.3 Mexico 1 (Oaxaca)

Members

Arturo Cruz Victoria
Lourdes Ricardi de la Cruz
Victor Porras

Main Issues/Actions

- Key to the water system is the need for an understanding of the distribution system. The group proposes to use macro meters and divide the system into hydraulically discrete areas.
- Improved collection and reduction of bad debts will focus on government institutions and big consumers.
- A tariff review is needed to establish, at the very minimum, cost-recovering tariffs.

3.1.4 Mexico 2 (Estado de Mexico)

Members

Wilfredo Acosta Salazar
Victor Garcia Reyes
Mario Alfonso Coral
Jose Millan Lopez

Main Issues/Actions

- The group members discussed the need for improvements in the equipment to allow for low-quality electricity.
- Tariffs should reflect demand from each customer, so that the customer's tariff increases as consumption increases. The group discussed the benefits and drawbacks of such a mechanism.

3.1.5 Mexico 3 (Delicias)

Members

Juan Ochoa Bunsow
Manuel Casavantes

Main Issues/Actions

- Because this state is in the desert, water conservation by the public is essential. Therefore, the group proposed the use of water-saving devices on the customer side coupled with a program for water conservation and education of the public at large.

- In addition, the group looked at a specific strategy for energy conservation through better use of equipment, involving some replacement and better use of energy in their installations by taking advantage of lower electricity tariffs for off-peak usage and of other energy-saving devices such as low-consumption bulbs.

3.1.6 Mexico 4 (National Water Commission)

Members

Luis Lopez Ortiz
Ernesto Flores Sanchez

Main Issues/Actions

The National Water Commission is the greatest carrier of bulk water for the whole of the Valley of Mexico. Given the vast expense of pumping water from 150 kilometers away, energy conservation is at the top of their agenda. The National Water Commission representatives suggested the following measures for energy efficiency:

- Development of an operations and maintenance manual for pumps and wells.
- Establishment of agreements with the energy companies to ensure better-quality energy, the use of control valves to avoid air in the system and pumping air, the use of regulation tanks, and the use of “harmonicas” and their impact.
- Development of relevant technical documentation that will allow water officials to use benchmarking and comparative information to monitor and ensure better performance. The documentation should also give clear guidance for selecting key performance indicators as well as determining the most suitable energy efficiency parameters that are consistent with good management.

3.1.7 Nicaragua

Member

Sadrach Zeledon

The following were the key actions proposed:

- Use of pumps only when off-peak electricity tariffs apply.
- Reduction of energy costs through efficiency and more rational electricity use in offices and other installations.
- Improvements in billing and collection through a better customer cadastre.
- Reduction in UFW.
- Introduction of a program to improve and publicize the company’s image.

3.1.8 Paraguay

Members

Cirilio Agüero
Mario Raimundo Fleitas

Main Issues/Actions

- Improve rehabilitation and maintenance techniques.
- Develop an adequate customer and distribution system cadastre that would allow macro metering and reduction of UFW.
- Introduce a customer education program to teach people to use water rationally.

3.1.9 Dominican Republic

Members

Freddy Lara Felipe
Luis Gregorio Espaillet Garrido

Main Issues/Actions

A key issue facing the Dominican Republic is the extremely high cost of energy due to the privatization of the energy distribution company. This has placed an incredible burden on the water company. The group's key strategies include:

- Considering the use of automatization through a center of operation.
- Developing a system for billing and collection.
- Dividing the work force into specialized work groups from an operational perspective.
- Ensuring that the electricity company's bills are accurate, as this has not been the case to date.

3.2 Feedback from Evaluations

All participants said that they would recommend this course to their colleagues. Participants commented positively on the active participation, on the highly relevant content, on the quality and professionalism of the trainers, and on the opportunities to interact and to acknowledge problems in other countries. They appreciated learning about the alternatives for better management and administration of energy, and seeing technicians and political leaders united to share their experience and knowledge of the subject. A few participants commented that the subjects presented were too broad to be covered in a five-day course and resulted in a somewhat superficial treatment of the topics. (See Appendix F for the text of the evaluations.)

The topics noted as most useful were human resource administration and the opportunity for energy savings and energy efficiency in the water sector. The case study from Brazil and the site visit to Tlalnepanitla were the most widely appreciated of the actual examples presented during the course.

Participants unanimously agreed that the small group discussions were useful. They appreciated the opportunity to share ideas and visualize solutions to common problems that they could apply in their own situations.

3.3 Lessons Learned

- Good management and administration is a combination of:
 - Clarity of objectives and strategic direction
 - Identification of short-, medium-, and long-term actions
 - Implementation of specific activities related to operations, management, finance, and energy efficiency.
- Energy efficiency techniques must fit into a general framework of better management.
- The cost of electricity is one of the highest operational costs of a water and wastewater operator.
- The cost of electricity has a number of constituent factors, which, if understood properly, can be used to reduce costs (e.g., off-peak tariffs).
- Water operators can achieve energy savings by evaluating operational activities in a systematic manner and understanding the cause and effect of changes in these activities.
- The keys to savings are in the attention water operators give to the energy tariff structure, the quality of energy provided, the actions taken to deal with energy quality, and the specific operational characteristics.

3.4 Next Steps/Recommendations

- Distribute a newsletter via e-mail on a bimonthly or quarterly basis so that participants can share experiences and stay in touch. Effective interchange of information between participants is key to ensuring that they implement the lessons learned as a result of the training. Since the training, participants have in fact been exchanging information in particular with the state of Caera, Mexico, and representatives of Mexico's National Water Commission.
- Develop standard operational procedures that will enable more effective and efficient use of energy in the provision of water and wastewater services. As a first step, the National Water Commission of Mexico made its general operational procedures available via the Internet.
- Develop a series of manuals for decision making by senior managers. These manuals will help managers develop a decision matrix for differentiating between important issues and urgent ones.
- Tie future discussions of energy efficiency to management issues, including decision making and long-term operations and maintenance.
- Develop a course on the development of a management information system that will enable adequate data capturing and processing and decision making for best practices in operational energy usage.

- Follow up with the operators as well as municipal administrators who participated in the course to encourage them to follow through and apply what they learned during the course.
- Replicate this course in each of the participating countries so that additional municipalities and regions have an opportunity to attend.
- Consider developing a course on introducing the private sector to operational and energy efficiency measures through targeted actions such as reduction of unaccounted-for water.
- Consider developing a series of targeted energy audit programs that will identify ten easily applied, high-priority actions. A key issue raised during the course was that many operators and municipalities responsible for the provision of water and wastewater services are being subjected to higher energy tariffs either as a direct result of the privatization of the energy sector in their countries or in preparation for an imminent privatization. The higher tariffs have increased the urgency of improving efficiencies in service delivery. To assist in developing the targeted energy audit programs, the Alliance to Save Energy and ICMA could make ten-day visits to water and wastewater operators in various locations.
- Develop a set of performance indicators for municipal water and wastewater activities.
- Develop a Cities Matter course focused on decision making at the local level. The course would look at local decision-making processes as well as the players involved in reaching a conclusion. This recommendation stems from a complaint frequently heard during the energy efficiency course that it is often unclear who can make a particular decision.

3.5 Conclusions

The common thread between course participants was their realization that energy efficiency measures cannot be applied as a separate unitary function. Instead, they must form part of an integral plan of operations that includes the following tasks:

- Implementing a macro metering program to determine current production levels.
- Developing a zoning program to achieve a good understanding of UFW and account for a higher percentage of water. Currently, for every 100 liters of water produced, only 60.8 are delivered to customers, and of those only approximately 50 liters are actually billed for.
- Implementing a micro metering program.
- Increasing pumping efficiency through better understanding of the distribution network and rehabilitation of equipment.
- Making customers aware of their use of water, the impact of discharged sewage, and the cost of production and treatment of water and wastewater.
- Integrating energy efficiency measures in an overall management and operational approach.

Based on the site visit in Tlalnepantla, it was evident that water operators can achieve efficient use of energy through a comprehensive and integrated strategy of energy efficiency coupled with the correct operational and management strategies.

APPENDIX A

COURSE AGENDA – ASIA

Cities Matter: Energy Efficiency in the Water Sector

Asia Course - November 16-21, 2003

Agenda

Venue: Park Hotel, MG Road, Bangalore

Sunday, November 16 – Welcome

Terminology and Concepts

The course glossary will be reviewed to ensure that participants from various countries agree on the basic definition of key terms to increase the level of understanding and concrete information sharing.

Presenters: Deborah Kimble, Local Government Management Specialist and
Terry Driscoll, Environmental Policy Analyst

Welcome Reception

All participants are invited to the opening reception to mingle and informally get to know one another and the trainers.

Monday, November 17 – Establishing the Framework

An energy efficient urban service system takes advantage of cost-effective technologies and management practices to ensure the cost per unit of a high quality product, such as water, is as low as possible for the customer and includes conservation efforts on both the supply and demand side of service delivery. Day one focuses on the framework at the local and national level within which decisions are made that impact energy efficiency, especially in the water sector.

Inaugural Session	9:00
Welcome and Speaker Introductions Ms. Ann Bueche, ICMA	9:00
USAID Perspective on the Training Program Mr. N. Bhattacharjee, USAID	9:05
ICMA International Programs Ms. Deborah Kimble, ICMA	9:15
CMA Movement in India Ms. Manvita Baradi, ICMA/India	9:25
Relevance of the Training Program to CMA Karnataka Agenda Mr. M.R. Sreenivasa Murthy, IAS, President CMA Karnataka and Commissioner, Bangalore City Corporation	9:35
Inaugural Address Principal Secretary, Urban Development	9:45
Vote of Thanks Mr. Nilay Mitash, IAS, Secretary CMAK and Director Municipal Administration	9:55
Break	10:00
Introduction to Course Objectives	10:15

Course Objectives:

- Develop an understanding of the role of energy and energy efficiency within the context of local government and municipal management.
- Raise awareness of and competence in the application of energy-efficient techniques among municipal managers and practitioners at the local level.
- Establish a forum for discussion and dissemination of appropriate tools and best practices. Establish new networks of local practitioners based on memberships within municipal

associations in the relevant country to encourage ongoing dissemination and sharing of information as well as institutionalization of tools, materials, etc.

- Highlight potential for synergy with other EGAT/ENV/EET programs by identifying champions within municipal associations and possible candidate cities for pilot applications of tools and best practices.

Session Summary:

The purpose of this session is to set a context of investigation, analysis and evaluation as it relates to competitiveness of cities vis-à-vis one utility—water. Some predict that water will be the gold and oil of the 21st century. Availability and / or the scarcity of water is both natural phenomenon and a man-made fact. Determining how to assess and address the water reality in a participant's country is important regardless of the cause.

Moderator: Deborah Kimble, Local Government Management Specialist

Learning Goals Exercise

10:30

Session Summary:

Participants have an opportunity to share their expectations for the course and to introduce themselves in order to facilitate dialogue and interaction throughout the course. Participants are expected to play an active role throughout the five days. Expectations from the trainers and the learning goals are introduced.

Moderator: Ann Bueche, Local Government Training Expert

The Urban Services Environment: Foundation for Complex Decision making

11:00

Session Objectives:

- Illustrate the complexity of water policy;
- Present a list of factors and outcomes participants should consider when making a water service delivery decision in order to achieve a stated policy; and
- Articulate principles of good management participants can consider and work from throughout the remainder of the course.

Session Summary:

Understanding the geographic, political, and financial aspects that dictate the boundaries of water service and how water service relates to other services and service providers is an important step in identifying how energy efficiency can be achieved. Policies, laws, land-use, and capital investment plans are tools that can impact the method of water delivery and the quality of the

water. Looking at water delivery from various angles will demonstrate the complexity of the issue and serve as the course framework.

This session has three segments.

Part one will be a broad based look at the multiple factors that influence water policy and will outline general policy and program approaches.

Part two will narrow the focus of the session considering a more detailed regional case study. The case study will articulate how a given city improved and manages its water services with increased energy efficiency detailing cost savings, increased service, improved management, etc. as one component of overall better development and management of infrastructure and services. Emphasis will be on the components of better management.

Part three will allow participants to start the process of building an analytical framework from which to craft their own water policy. Participants will analyze the presented case study to identify the critical issues that made the situation successful and they will add those areas that might not have been addressed that they believe are important for increased energy efficiency in the water sector.

Part One: Framing the Issues

Presenter: Deborah Kimble

Part Two: Narrowing the Focus

Case Study

Presenter: Emani Kumar, ICLEI

Part Three: Critical Issues from the Case Study

Moderators: Deborah Kimble & Ann Bueche

Lunch

13:00

How Energy Efficiency Can Save You and Your Constituents Money

14:00

Session Objectives:

- Draw the linkages between policy objectives and two tools: planning and management – as ways to increase competitiveness of a region and sustain availability of water;
- Identify the key elements that lead to inefficient treatment and distribution of water and the related cost; and
- Highlight some of the financial advantages to moving to efficient use of energy as a way to achieve overall community objectives.

Session Summary:

How does water management relate to energy efficiency? How much energy is used to produce potable water or process wastewater in various countries and regions around the world? What is the current cost of energy use in your community (or country)? This session provides an overview of the various ways, on both the supply and demand side, that energy efficiency can be addressed in the water sector and identifies the potential savings that can lead to more efficient provision of services, extend services to the growing community, and create better ways to provide services to residents. In **part one** the presenter will lay out some of the most important aspects of planning for more efficient treatment and distribution of water and in **part two** a follow-on presentation will be made on the management aspects of water efficiency.

Part One: Planning for Better Efficiency

Presenter: Terry Driscoll, Environmental Policy Analyst

Part Two: Water Operations and Management

Presenter: Sudha Setty, Alliance to Save Energy

Policy Objective/s in Energy Efficiency in the Water Sector**16:00*****Session Summary:***

Based on the information presented so far, participants will begin to analyze the conditions in their own communities or countries. Participants, working with their peers from the same country, will articulate their policy objective/s of increased energy efficiency in the water sector. What would they hope to achieve for their communities? Do they hope to increase access, service, etc.? To take on the effort to increase efficiency in the water sector there has to be a bigger purpose, an expected outcome in order to be clear why increased efforts are undertaken.

Moderators: Deborah Kimble & Ann Bueche

Tuesday – Energy Efficiency in the Water Sector – Current Practices and Options

These sessions address current options for improved energy efficiency in the water sector as well as how local governments (or other levels of govt.) that manage water services can take steps to ensure that their management practices are appropriately oriented to make the most of operational and capital expenditures.

Opening Remarks and Overview of the Day 09:00

Session Objectives:

- Link the general information from day 1 with the session of objectives of the day;
- Present specific tools that can be used for making more informed decisions; and
- Allow participants to identify ways in which they will begin to address the problems of their respective water systems and policies based utilizing the tools defined.

Moderator: Deborah Kimble

Presentation of Opening Day Findings 09:15

Session Summary:

Participants will have the opportunity to present in a plenary session the critical issues they identified the previous day. This will allow the speakers and participants to begin to narrow the focus and illustrate specific ways in which the tools presented can address the participants concerns.

Moderator: Ann Bueche

Case Study: What is an Energy Audit? 10:00

Session Summary:

Often the first step in improving energy efficiency in the water sector comes from an energy audit. This session will take a more in-depth look at the process and expected results by presenting a case study of a city that has conducted an energy audit followed by a summary of key components of an energy audit and what benefits it can provide.

Presenter/Moderator: Terry Driscoll, Environmental Policy Analyst

Presenter: Subodh Shah, Vadodara (This is part one to a two part presentation, which continues on Thursday.)

Break 10:45

Managing Energy Efficient Water Services**11:00*****Session Summary:***

Too often the link between managing existing operating systems efficiently and the overall capital improvement plan for that and other services is not articulated or addressed during decision making sessions regarding budgets and future investments. This session addresses day-to-day management issues (operational) as well as long-term investment planning (capital) and the importance of the link between the two.

Capital Planning, Investment, and Expansion (Driscoll)

- Plan, Development, Rate Structure
- Strategic capital plans that impact other urban issues such as health, economic development, and environmental sustainability
- Linking capital plans for energy efficiency with other capital plans to ensure compatibility

Decision-Making Tools (Kimble)

- Budget
- Employee Issues (labor relations, training, cross training, certification)
- Service Regulations (construction, discharge, tap-in, capacity of system)

Presenters: Deborah Kimble, Local Government Management Specialist and
Terry Driscoll, Environmental Policy Analyst

Lunch**13:00****Plenary Session: Review of morning presentations****14:00****Learning Task –****14:30****Current Energy Efficiency Practices, Policies & Management in My City or Country**

Participants will work in groups to select one water service provider to analyze or address their country as a whole, then list the efficiencies and inefficiencies currently practiced. Current policy and management practices that support or inhibit better practices will be identified. Materials brought to the course will be used in preparing the initial analytical framework. Participants will be required to give special attention and to define the institutional changes that will be required to implement new practices. This exercise will apply and prioritize the critical issues identified on day one and on day four, participants will make recommendations to address inefficiencies and build on current good practices.

Moderator: Ann Bueche, Local Government Training Specialist

Country Reports on Current Energy Practices in the Water Sector

16:00

Presenter: Country Teams – Present Conclusions from Break-out Session
Moderator: Ann Bueche
Feedback: Terry Driscoll and Deborah Kimble

Wednesday - Site Visit – Current Energy Saving Practices in Water Sector

Departure 9am: Site visit to TERI office and Thorekadanahalli (BWSSB site)

Site visits will allow the participants to see how specific locales have addressed energy efficiency in water provision, while considering the problems addressed, action-steps implemented, and the concrete results of those efforts. Discussion and analysis will consider how the examples relate to the participants' home countries and communities.

Observing the Realities: Site Visit

A site visit to a location that has made significant improvements in energy efficiency in the water sector will take place to give participants an opportunity for a first hand look at what is happening in the field. Participants will be given worksheets and questions prior to the site visit so that they will have a targeted, practical experience.

Sharing Observations and Lessons Learned – How Does That Relate to My Situation?

Participants will have a debriefing of the lessons learned from their case studies and site visits, as well as the opportunity to discuss the responses to the worksheet questions.

Moderator: Terry Driscoll, Environmental Policy Analyst

Thursday – Putting it All Together

Sessions will emphasize all of the options that participants can consider regarding energy efficiency in the water sector on both the supply and demand side and provide information regarding the costs (financial, human capital, etc.) and the benefits (cost savings, better quality, increased service area, etc.).

Opening Remarks and Overview of the Day

09:00

Session Objectives:

- Link the general information from site visit and prior days with the session of objectives of the day;
- Present specific tools that can be used for making more informed decisions; and
- Allow participants to identify ways in which they will begin to address the problems of their respective water systems and policies based utilizing the tools defined.

Moderator: Terry Driscoll

Case Study:

09:15

Putting into Action Energy Efficient Policy and Programs within a Utility

Session Summary:

This session will present an advanced implementation of energy efficiency actions, measures, and results based on the information collected during an energy audit. Specifically, this session will be the second part of the case study regarding the energy audit presented on the second day.

Presenter: Subodh Shah, Vadodara

Moderator: Terry Driscoll

Energy Efficiency Improvement Opportunities (Supply side and Demand side)

10:00

Session Summary:

Building on all of the discussions to this point, these sessions will review and summarize the various energy efficiency opportunities that exist and present ways to measure the use and benefits of energy audits and new management practices – referring to those that have been identified in the site visits, analysis of participants current situation, and adding those that may have been missed. A special emphasis will be placed on the role of the local government and what financing options exist. This session will also highlight technology options as well as the role of Energy Services Companies (ESCOs).

Part one: Benchmarking for Performance Measurement: Building Institutional Capacity to Measure the Impact of Energy Efficiency Improvements

Those wishing to implement energy efficiencies must have the capacity to understand operating conditions, develop baseline measures, and have an ability and willingness to continually measure and improve practices. This session will outline the key steps.

Presenter: Deborah Kimble, Local Government Management Specialist

Break

10:45

Continue Session

11:00

Part two: Consumption Modeling

How do you determine rates of use and plan for the future in order to meet community needs?

Presenter: Terry Driscoll, Environmental Policy Analysts

Part three: Public Information and Communications

How do you engage the public to collaborate in efforts to save energy and conserve water? What is the role of the government in this effort? What can be expected of citizens?

Presenter: Deborah Kimble, Local Government Management Specialist

Part four: Financing Options

What are the financing options for the development, operation, and maintenance of water systems? Which option is best for my local government?

Terry Driscoll, Environmental Policy Analysts

Lunch

13:00

Strategy Development Guidance to Implement Energy Efficiency Programs within Sustainable, Comprehensive Water Services

14:00

Session Objectives:

- Explain the connection between measurement tools and the achievement of policies, goals and objectives;
- Define tools that allow participants to measure results; and
- Articulate how to establish and maintain an efficiency team.

Session Summary:

This session will provide guidance to participants to help them to formulate a strategy for their own community and country. Working in country teams with all of the information presented, participants will address issues in their own countries by outlining strategies to increase energy conservation that considers both macro and micro approaches, short and long-term visions, and supply and demand options. Because several actors have to be involved to put efficient procedures into practice, including the municipality, the utility manager, financial institutions, etc., who takes the lead in forming and maintaining the efficiency team will vary in each country.

Presenters: Deborah Kimble, Local Government Management Specialist
Terry Driscoll, Environmental Policy Analyst

Learning Exercise – Strategy Preparation

15:30

Session Summary:

What are the next steps that must be taken to facilitate a broader adaptation of energy efficiency in the water sector in each country? What approaches, tools, strategies, changes will have to be applied? What assistance is required to move from Point A (current situation) to Point B (greater efficiency)? Discussions may include strategies for “quick-fix” options vs. long-term challenges. In what areas would the municipalities take the lead on implementing changes vs. the areas where they would require outside assistance? Following the guidelines presented and working from handouts, participants from each country will work together to outline the various actions to be taken, including supply and demand side and the available resources. Actions might include information campaigns by the associations, specific types of efficiency actions to improve supply or demand, training for certain groups, etc.

Moderator: Ann Bueche, Local Government Training Specialist
Expert Commentary: Deborah Kimble and Terry Driscoll

Friday – Presentation of Country Strategies, Closing, and Evaluation

Each country team (or city team if there are multiple cities from the same country) will present its country strategy based on the analysis of the current situation and the options presented throughout the course. Course trainers will comment from an energy efficiency and local government perspective. Participants will be asked to evaluate the course in order to make improvements to future courses and to the workbook that will be prepared.

Presentation of Country Strategies

09:00

Session Summary:

This session will entail country team presentations of their strategies, which will include recommendations directed at decision makers. There would be opportunity for comments and suggestions from other teams as well as from the trainers.

Presenters: Course Participants

Comments/Feedback: Deborah Kimble and Terry Driscoll

Moderator: Ann Bueche, Local Government Training Specialist

Next Steps for Promoting Energy Efficiency in Water Utilities

11:45

Presenter: USAID (TBD), ICMA – India, and Deborah Kimble, Local Government Management Specialist

This session will focus on the next steps for implementing the country plans and areas for potential collaboration with local government associations, other USAID programs, and other resources in each country.

Evaluation

12:15

Moderator: Ann Bueche, Local Government Training Specialist

Closing

12:45

Presenters: Deborah Kimble, Local Government Management Specialist
Ann Bueche, Local Government Training Specialist

APPENDIX B
PARTICIPANT LIST – ASIA

Participant List – Asia

Name	Country	Title	Employer	Contact Info
Mr. E.M. Piyasena	Sri Lanka	Manager - Technical Services	Ceylon Petroleum Corporation	empiyasena@sltnet.lk
Mr. D.D. Ananda Namal	Sri Lanka	Head/Energy Management Center	National Engineering Research and Development Center	tilla@sltnet.lk
Dr R A Attalage	Sri Lanka	Head/ Department of Mechanical Engineering	University of Moratuwa	dinu@mech.mrt.ac.lk
P P Subasinhe	Sri Lanka	Consultant	Sri Lanka Energy Managers Association	palitha_p@mail.ewisl.net
H K Illeperuma	Sri Lanka	Engineer - High Tension maintenance	Ceylon Electricity Board	cebc@sltnet.lk
Miss H R P Wanniarachchi	Sri Lanka	Electrical Engineer	Distribution Planning Branch, Ceylon Electricity Board	gis@ceb.lk
Mr. Bethmaga Sudath Sirinama Wijayarathne	Sri Lanka			
Marito Angara Amatorio	Philippines		City of Iloilo	
Le Jayme Jalbuena	Philippines	General Manager Iloilo water District	City of Iloilo	miwd2002@yahoo.com
Mrs. N. S. Prema	India	Commissioner	Theni Municipality, Tamil Nadu	prema01@rediffmail.com
Mr. R.N. Bhatti	India	Dy. Engg Electrical Works	Rajkot Municipal Corporation	
Mr. V.C. Pathak	India	Dy. City Engg Water Works	Rajkot Municipal Corporation	
Mr. N. Komuraiah	India	Executive Engineer	Karimnagar Municipality, Andhra Pradesh	phone: 011-91-878-2243438
Mr. Piyush Rout	India	Coordinator	CMA Orissa	piyushbbsr@yahoo.com
Mr. Aurobindo Ogra	India	Coordinator	CMA Uttaranchal	mailogra@yahoo.com
Ms. Urvi Mankad	India	Coordinator	CMA Madhya Pradesh	cmamp@sify.com
Mr. Krishna Gopal	India	Coordinator	CMA TamilNadu	krish_sasi65@hotmail.com
Ms. Renu Bhagwat	India	Coordinator	CMA Rajasthan	cmr@datainfosys.net, reubhagwat23@yahoo.com
Ms. Anshu Sachdeva	India	Coordinator	CMA Maharashtra	anshusachdeva@hotmail.com
Ms. Deepti Nanawati	India	Coordinator	CMA Karnataka	cmak@vsnl.net
Mr. H.G. Nandish	India	Joint Coordinator	CMA Karnataka	cmak@vsnl.net
Ms. Sumathy Rangrajan	India	Research Associate	CMA Karnataka	cmak@vsnl.net
Mr. S. Srikumar	India	Coordinator	CMA Andhra Pradesh	srixx@rediffmail.com
Mr. Yashesh Anantani	India	Executive Director	CMA Gujarat	cmag@cmag-india.org

Name	Country	Title	Employer	Contact Info
Mr. Subodh Shah	India		Vadodara	
Mr. Emani Kumar	India	Director, CCP South Asia	ICLEI	ebv.kumar@iclei.org
Other Attendees				
Sudha Setty	India		Alliance to Save Energy	SSetty@ase.org
Leena Pische Thomas	India		Alliance to Save Energy	lthomas@ase.org
Pradeep Kumar	India	Technical Specialist	Alliance to Save Energy	pkumar@ase.org
Dr. Archana Walia	India	Env., Energy & Enterprise Office	USAID/India	awalia@usaid.gov
Anita Gursahani	India	Env., Energy & Enterprise Office	USAID/India	agursahani@usaid.gov
Renu Sehgal	India		USAID/India	rsehgal@usaid.gov
Meghna Malhotra	India	Program Manager	ICMA/India	mmalhotra@icma.org
Manvita Baradi	India	Director, Association Programs	ICMA/India	mbaradi@icma.org

APPENDIX C

PARTICIPANT EVALUATIONS – ASIA

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): Anatani, Yash

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? 7

Briefly, why did you give this rating?

At least two sessions were totally irrelevant – led to overstretching the time; this could have been a 3.5 day program at best (with ?? (unclear) break

For you, which topic covered was the most important? Why?

Energy cost savings in water utilities came closest to the objectives.

How will this course be helpful to you in your work?

??? (unclear – three words) training program for engineers next week has been strengthened considerably by the handouts, the last group assignment and ?? (unclear two words)

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Vadodara case study for ?? session

BWSSB visit/on-site experiences that supported so well Terry's subsequent presentation

Were the small group discussions useful? How will you use the product of these discussions?

Yes – the ?? to be ?? in on p... training ??

Would you recommend this course to your colleagues? Why or why not?

Yes, certainly. For a training manager it builds confidence and knowledge enough to continue/organize audits/training/awareness etc.

Please provide any additional comments you have. Thank you.

Unintended overkill could be the basis of a great program!

Thank you!!

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____ **Bhatti R.N.** _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **8**

Briefly, why did you give this rating?

For you, which topic covered was the most important? Why?

Topic: How energy efficiency can save you and your constituents money; it is helpful to increase overall efficiency of the whole institution

How will this course be helpful to you in your work?

To prepare/put-up/ and get sections (?) of energy saving proposals

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Vadodara case study because Vadodara and my institutes are under commend BPMC act/by-laws/power company so similar problems can be easily attended

Were the small group discussions useful? How will you use the product of these discussions?

Yes

Would you recommend this course to your colleagues? Why or why not?

No. Because I think for 1. engineers (project implementation) 2. engineers (operations and management) 3. management 4. auditor (internal auditor) 5. finances and account person this type of course should be different for each of their subjects precisely.

Please provide any additional comments you have. Thank you.

No.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): **C. Krishna Gopal**

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

If it had been little bit presented a typical walk through energy audit in a small unit like it would have helped me more.

For you, which topic covered was the most important? Why?

Facilities planning/group work on policy formulation

How will this course be helpful to you in your work?

To emphasize / make a headstart with local bodies to initiate EA in water operations.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Vadodara case study (a good and bold attempt)

T.K. Hallic – KWSSB pumping station and Ondeo-??? WTP (in terms of energy saving aspects/in terms of its most modernized operations)

Were the small group discussions useful? How will you use the product of these discussions?

Very useful. By initiating ??(word not clear) discussion in local bodies assemblies (c...?).

Would you recommend this course to your colleagues? Why or why not?

Yes, to initiate energy audit.

Please provide any additional comments you have. Thank you.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): Deepti Nanawati

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)?**10**

Briefly, why did you give this rating?

It is a good way to send the course content into everybody's head! It did make us think and how it can be applied to our organizations and cities!

For you, which topic covered was the most important? Why?

About taking it to our own "systems" i.e. applicability.

How will this course be helpful to you in your work?

It tells me what goes into "energy audit," its benefits, what decision makers (who are the ones who are responsible to adopt projects) would look for when presenting our case.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

The Vadodara case study and the site visit are both useful.

Were the small group discussions useful? How will you use the product of these discussions?

Yes, it gets us to apply what we learn and understand the fact that communication makes projects accepted or rejected and with large teams in actual practice we have to get the exact ideas across.

Would you recommend this course to your colleagues? Why or why not?

I would recommend this course to engineers from all municipalities (though English is a problem for the smaller towns/cities other than Bangalore) and also the Commissioners.

Please provide any additional comments you have. Thank you.

We really enjoyed learning about energy, projects, decision making aspect!

Cities Matter: Energy Efficiency in the Water Sector
November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): S. Srikumar

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

Overall the entire course was very neatly and clearly designed/formed and executed. The concepts and principles discussed/presented were great. But the thing that I would like to comment on was that about the case studies. If some more case studies of India, Sri Lanka and Philippines that would have helped better.

For you, which topic covered was the most important? Why?

The energy audit work and its implementation. Because it is the most critical and important aspect which needs to be undertaken to achieve optimum energy efficiency in the water sector.

How will this course be helpful to you in your work?

I being a coordinator of a city managers' association it was a nice opportunity to learn a lot of things. Certainly it will help in developing professional development.

Which of the actual examples (case studies or site visit) was the most useful for you? Why? **The case study presented by the Vadodara Municipal Corporation of energy efficiency. It was clear and the results shown.**

Were the small group discussions useful? How will you use the product of these discussions?

Very helpful and useful.

Would you recommend this course to your colleagues? Why or why not? **Definitely yes.**

Please provide any additional comments you have. Thank you.

The course was very helpful and got to know about some very new and interesting things.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): E.M. Piyasena

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **8**

Briefly, why did you give this rating?

Fair amount of non-technical decision making matters were included which I could learn, but the technical matters included were not sufficient.

For you, which topic covered was the most important? Why?

Decision making in project execution.

How will this course be helpful to you in your work?

I can make use of the technique learned in the program in my workplan to improve of the energy efficiency in water pumping and distribution.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Project execution procedures. Tendering, evaluation, awarding, procurement, and installation. This is an areas that I wanted to get exposed.

Were the small group discussions useful? How will you use the product of these discussions?

Yes. Try to apply this system in my day to day activities on decision making.

Would you recommend this course to your colleagues? Why or why not?

Yes. This is a new area that needs attention by city managers and politicians for better services for the community.

Please provide any additional comments you have. Thank you.

Try to include some more detail technical expertise in the course so that one can go into analysis of the problem ?? (two unclear words).

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): Lalit Kumar Adlakha

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)?**10**

Briefly, why did you give this rating?

The training program was in so depth, so you can't mistake in water management or energy efficiency.

For you, which topic covered was the most important? Why?

Energy efficiency. This is of top most demand of our country because we are still short in production and our major production sources are thermal power that creates an environmental problem.

How will this course be helpful to you in your work?

I e....? my energy audit and try to do the n...?

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

SCADA system at the Bangalore Treatment Plant because automization of water supply production and distribution plant saves energy as well as maintenance and pumping ??(three words unclear).

Were the small group discussions useful? How will you use the product of these discussions?

Group discussion is the best procedure for the best outcome when the members are from different fields.

Would you recommend this course to your colleagues? Why or why not?

In spite we know the things ...-refresher course are welcome to update with the overall developments.

Please provide any additional comments you have. Thank you.

More program but in the field to see the actual result.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **6**

Briefly, why did you give this rating?

It should have been more region specific pertaining to the systems that exist here, or say the place of origin of the participants.

For you, which topic covered was the most important? Why?

The basic technical details, as it is a starter for all the subsequent work to be done.

How will this course be helpful to you in your work?

This issue is sensitized in my frame of things. Now I can equip myself with more subsequent details needed and start with some concrete set of things to get the desired outcome.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

The examples presented were good. But there should have been more such examples from this part of the region.

Were the small group discussions useful? How will you use the product of these discussions?

Yes, it was. It put into limelight all the important issues some of which were missing in the individual agenda. The discussions into more broad way.

Would you recommend this course to your colleagues? Why or why not?

Yes, I would. But there should be more case studies involving more and more aspects from this part of the region in the further workshop. That would cover more aspects and more credibility to the measures asked to be taken.

Please provide any additional comments you have. Thank you.

The financial aspect, like the funding part or the venture capital aspect if it can be brought into should have been discussed in detail. Finally, for anything to be implement, "finance" is very, very important so more emphasis on the financial aspect.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **6**

Briefly, why did you give this rating?

Based on information and experience shared.

For you, which topic covered was the most important? Why?

Tender evaluation topic. New exposure and experience could be useful in my future professional activities.

How will this course be helpful to you in your work?

Complementary information on energy efficiency in future work in this area.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Case study on Vadodara

Were the small group discussions useful? How will you use the product of these discussions?

Yes, possible applications in future professional work.

Would you recommend this course to your colleagues? Why or why not?

Yes, but probably with more concrete focus on case studies with management aspects showing the benefits on project implementation.

Please provide any additional comments you have. Thank you.

Could have been compressed into four days.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **8**

Briefly, why did you give this rating?

It was a good course to come across so many new technical as well as managerial issues in water supply-energy sector. However, it would have been great if you would have gone little more in detail about what's happening actually in the three countries (Sri Lanka, Philippines, India) with case study presentations.

For you, which topic covered was the most important? Why?

With India moving towards Private Sector Participation, it was great to learn so much about the various envelopes in tendering procedures.

How will this course be helpful to you in your work?

It was to a great extent helpful in making me understand the whole idea – the energy efficiency in the water sector. I can disseminate the learnings from this workshop to my state officials who are the ultimate beneficiaries of this.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

The site visit to the water treatment plant that we visited was important, as it is the best in the country. At present that acts as a benchmark for cities in my state. I can go back and try and make site visits for city officials of my state to this project and learn a lot from it.

Were the small group discussions useful? How will you use the product of these discussions?

Yes, they were useful as it helped us to crack our brains and do actual thinking work. This also acted as homework after we attended so many presentations. It acted as learning <-> planning <-> implementation technique.

Would you recommend this course to your colleagues? Why or why not?

Yes, definitely. I shall recommend this course to majority the city officials of my state. As they are directly into the system, it will be a good learning from them to know what's happening in other countries/cities.

Please provide any additional comments you have. Thank you.

GREAT – It was also very good platform to interact with so many other professionals working in similar profile like us.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

???(three word unclear) It is difficult to give full details of all aspects. Overall picture with general framework will ???.

For you, which topic covered was the most important? Why?

Policy issues in implementing energy efficiency measures. ? why is that is where the implementation lies.

How will this course be helpful to you in your work?

Most of the practical aspects discussed would help tackle problems in real implementation.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Procurement procedures. It showed the diversity and the risk in the subject.

Were the small group discussions useful? How will you use the product of these discussions?

Somewhat.

Would you recommend this course to your colleagues? Why or why not?

Yes. It gives an insight to the overall aspect of the subject.

Please provide any additional comments you have. Thank you.

Include more policy issues & reduce technical matters.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____ **L. G. Dhoke** _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent;1 = poor)? **10**

Briefly, why did you give this rating?

Actually the theme Energy Audit is very new to the state. Very few ULBs & govt. knew about the scope of savings through energy audit and conservation, so each type of training opens the avenue for reforms in water supply system (water audit).

For you, which topic covered was the most important? Why?

I think the scope of work in Energy Audit. Because on that we can assess the discrepancies in energy system and plan the rehabilitation program and make some savings in the cost of O&M.

How will this course be helpful to you in your work?

As the policy frames at the state level, it can give lot of ideas to prepare a certain plan for a state for conducting energy audit and conservation. For specifying the thing (?) the kind of knowledge of scope of work, steps to Energy Audit, prequalification criteria, tender framing and cost assessment all these things can be considered (?) for framing policy for a whole state.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Actually the visit to the Bangalore Water Supply System is a great opportunity to see the best W.S. plant in India. The observation on that can be applied in some system in other states. Can have a new project in another city.

Were the small group discussions useful? How will you use the product of these discussions?

Yes, it can be useful for preparing any project for water supply system. Also tendering, prerequisites criteria, steps of Energy Audit will be actually used in the job.

Would you recommend this course to your colleagues? Why or why not?

Yes, actually these types of training should be organized regularly for those who work at the water systems where such training can be beneficial to bring in efficiency in the project.

Please provide any additional comments you have. Thank you.

More stress should be given on the specialized subject in that training is organized. Should have more case studies from the same country.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **5**

Briefly, why did you give this rating?

- 1. Time management for the different sessions was not considered.**
- 2. Lodging was not satisfactory.**
- 3. Initial preparation for the (?? two words unclear) also not satisfactory.**

For you, which topic covered was the most important? Why?

Procurement procedures – one envelope and two envelopes.

I have not done a comparison of evaluation of tenders using both methods.

How will this course be helpful to you in your work?

Future procurement processes and the decision-making process. I could in this knowledge.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Case studies were useful to get the different objectives and methodology to solve the same problem.

Site visit was useful to get to know the process of water pumping station and to have methodology.

Were the small group discussions useful? How will you use the product of these discussions?

Yes. In the decision making-process and evaluating the project proposals.

Would you recommend this course to your colleagues? Why or why not?

Not encouraged but also not discouraged. The knowledge gained for a week is not sufficient.

Please provide any additional comments you have. Thank you.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____ **D.D.A. Namal** _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

Program enabled us to share experiences; program conduct is very good.

For you, which topic covered was the most important? Why?

Tendering (project evaluation and decision making)

How will this course be helpful to you in your work?

This course helped me to understand municipal procedures and their experiences. This will help me to convince MC authorities to look into EE matters.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

The contents of case study presented were already familiar to me.

Were the small group discussions useful? How will you use the product of these discussions?

Yes, of course.

Would you recommend this course to your colleagues? Why or why not?

Yes, municipal people in our country and those who render service to MCs. This (??) opportunity to share other experiences.

Please provide any additional comments you have. Thank you.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): Leena Pische Thomas

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **8**

Briefly, why did you give this rating?

-Good platform for disseminating Alliance's work to CMAs & ULBs

-Good networking opportunity

-Learning ground for activities of other organizations and ULGs, especially through case studies

Analyzing the gaps in developing a municipal energy efficiency program

For you, which topic covered was the most important? Why?

-Case Studies presented by Vadodara MC. Good real life example.

-Creation of a Revolving Fund, (??? one word) funding is a big issue for such projects.

How will this course be helpful to you in your work?

-I was able to fill in some gaps and start thinking about other issues.

-Networked with participants to disseminate Watergy concepts.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

-Vadodara Municipal Corporation presentation on street lighting. I liked the new concept on procuring street lighting bulbs based on lux requirement.

Were the small group discussions useful? How will you use the product of these discussions?

Very useful. Many new issues came up to get a thinking process started on how to successfully develop and implement EE projects.

Would you recommend this course to your colleagues? Why or why not?

The course is a good starting point for municipal commissioners and engineers. I would recommend it to ULBs.

Please provide any additional comments you have. Thank you.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)?**9**

Briefly, why did you give this rating?

Information dissemination was relevant to the aspirations of the participants and the object of participation was satisfactorily fulfilled.

For you, which topic covered was the most important? Why?

The tendering (procurement) procedures. I was not familiar with the 2 envelope method.

How will this course be helpful to you in your work?

Expect to use the information gathered from the resource persons and participants in the future work planned for dissemination at the provincial municipalities in S.L.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

The vacuum (siphon) system at the filtration system was a novel idea as I had not seen this system in my country.

Were the small group discussions useful? How will you use the product of these discussions?

Yes. Exchange of nature of work under different backgrounds.

Would you recommend this course to your colleagues? Why or why not?

Yes indeed! There appears to be a lack of awareness in this area especially among colleagues in local govt. authorities.

Please provide any additional comments you have. Thank you.

Keep up the good work and thanks!

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

AS I was quite aware of certain practices that were insisted upon in the training.

For you, which topic covered was the most important? Why?

Coverage of energy auditing process and evaluation of the results was most important for me as I am on to the application side.

How will this course be helpful to you in your work?

Very useful, as the energy efficiency methods suggested in the course would be adopted in the preliminary level and feasibility reports. To make the scheme as a whole more efficient and cost effective.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Site visit was most interested and the steps taken by BWSSB to conserve energy and achieve energy efficiency was interesting.

Were the small group discussions useful? How will you use the product of these discussions?

Yes. I learnt about the spectrum of ideas that came out of GDs. This shall help in understanding the views of others better.

Would you recommend this course to your colleagues? Why or why not?

Yes and No. I am able to disseminate whatever I have learnt. I would say no. If management wants to set up a team for energy audit, I would say yes.

Please provide any additional comments you have. Thank you.

More practical experiences. Some more technical details.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

Too lengthy; Participation from other stake holders not fully representative; Engineers, planning, administrators should have been involved.

For you, which topic covered was the most important? Why?

Case studies; Issues related to EE

How will this course be helpful to you in your work?

-Understanding of Energy Efficiency issues in water sector will help me to deliver effectively and identify the issues related to ULBs and other authorities not involved in.

-There has not much work been done in this sector and thus increases the scope of new research area after (?? one word) the course and issues.

-This will help me in handling new areas of urban management and future advanced works.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

-I found the field visit very useful and case study on Vadodara.

-Visit to the water supply plant was very useful to understand about the institutions and innovations.

-Vadodara case study re...? the parameters involved in the energy efficiency.

Were the small group discussions useful? How will you use the product of these discussions?

-Discussions were very useful.

-The content of the discussions should e emailed or circulated to the participants.

Would you recommend this course to your colleagues? Why or why not?

Yes. They will contribute to the concept and will try to initiate the energy efficiency measures at their level in ULBs, etc.

Please provide any additional comments you have. Thank you.

-Too lengthy – should have conducted and (? one word unclear) to finish within three days.

-R... and too less, should have targeted engineers, planners, policy decision makers of various dept. connected to energy efficiency.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **8**

Briefly, why did you give this rating?

Gives more additional know-how to this workshop.

For you, which topic covered was the most important? Why?

The energy savings gives more additional extra funding.

How will this course be helpful to you in your work?

The workshop will give helpful method as an engineer in my present work.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

The case studies should most be useful to me is the street lighting case study but not well talk clearly.

Were the small group discussions useful? How will you use the product of these discussions?

Small group discussions is more useful than the bigger one cause less contradictions.

Would you recommend this course to your colleagues? Why or why not?

Yes, it could be recommended since it is profitable.

Please provide any additional comments you have. Thank you.

We appreciate the way you conduct the workshop. Thank you also for this good experience.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

- 1. Contents are relevant.**
- 2. Well planned.**
- 3. Accommodations are good, meals are o.k.**
- 4. Field trip is o.k. we learned a lot.**
- 5. Group works are excellent.**

For you, which topic covered was the most important? Why?

As I am working as the Chief Municipal Engineer, Energy Audit in street lighting is very important.

How will this course be helpful to you in your work?

Being the Chief Municipal Engineer in the Capital City this program is very useful in my future work as this will reduce the cost of the most of the works in the municipality.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Energy Auditing in street lighting very useful.

Were the small group discussions useful? How will you use the product of these discussions?

Yes. It is very useful. We could share our views with each other and gain a lot of sharing experience.

Would you recommend this course to your colleagues? Why or why not?

Yes, energy efficient methods (is useful) in every sector.

Please provide any additional comments you have. Thank you.

If you could have delivered energy efficient methods in other sectors such as electricity, etc. it would be more beneficial.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____ **Sudha Setty** _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

Concept was not new but I was able to piece a lot of things together.

For you, which topic covered was the most important? Why?

Understanding the bid process. This will help me in guiding the municipalities to devise the right technical solicitations and make realistic financial plans.

How will this course be helpful to you in your work?

Great networking opportunity – will help in disseminating the concept to a larger audience.

Which of the actual examples (case studies or site visit) was the most useful for you? Why? ---

Were the small group discussions useful? How will you use the product of these discussions?

A lot of ideas are generated since people are from different background. Good for brainstorming.

Would you recommend this course to your colleagues? Why or why not?

I would recommend this to municipal officials to (learn?) about energy efficiency.

Please provide any additional comments you have. Thank you.

Short duration recommended for conducting such a course and a smaller audience.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

The training program covered very important topics and it's very timely for us. Though, I feel that there should have been a brief session explaining the technical terms before we go through the presentations.

For you, which topic covered was the most important? Why?

Exercise on tendering, procurement and the bidding format of energy audit would be very useful.

How will this course be helpful to you in your work?

To talk to city government with the technical backing and the required information on energy audit formats and procedure.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

T. K. Halli treatment plant.

Were the small group discussions useful? How will you use the product of these discussions?

Very useful.

Would you recommend this course to your colleagues? Why or why not?

Yes, our cities are facing acute energy crisis and have a huge amount of pending electricity bills.

Please provide any additional comments you have. Thank you.

It was very well organized. Thanks. I would like to attend other such programs, which are coupled with practical on the field exercises.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **8**

Briefly, why did you give this rating?

Almost all topics in management were discussed.

For you, which topic covered was the most important? Why?

Energy Audit, gives you a birds' eye view on how to conduct the Energy Audit.

How will this course be helpful to you in your work?

Topics would be applied to the present situation or work involving managerial decisions.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

(Corporation?) of Power Consumption.

Were the small group discussions useful? How will you use the product of these discussions?

Yes. Analysis could be (was?) broader.

Would you recommend this course to your colleagues? Why or why not?

Yes. Course would enlighten their perspective view.

Please provide any additional comments you have. Thank you.

More topics in evaluation.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **8**

Briefly, why did you give this rating?

It's very informative, interesting, but too much technical.

For you, which topic covered was the most important? Why?

Tendering and energy auditing, I just heard about them and got to know the details.

How will this course be helpful to you in your work?

I can be more helpful in giving information to my members regarding energy efficiency in my state.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Site visit to BWSSB. It's very interesting, before site visit I just heard of WTP, got to know the details.

Were the small group discussions useful? How will you use the product of these discussions?

Not actually, one person can dominate the group, if he has tech background and others not. One moderator in each group suggested.

Would you recommend this course to your colleagues? Why or why not?

Recommended to all technical or engineers working for energy efficiency.

Please provide any additional comments you have. Thank you.

It was great being here.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): **Piyush R. Rout**

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **6**

Briefly, why did you give this rating?

Needs improvement in methodology of program.

For you, which topic covered was the most important? Why?

The practical work part.

How will this course be helpful to you in your work?

Very useful.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Example of Vadodara (? word)

BWSSB project

Were the small group discussions useful? How will you use the product of these discussions?

This is very interesting and need more (?three words) the methodology needs to be improved in further.

Would you recommend this course to your colleagues? Why or why not?

Yes.

Please provide any additional comments you have. Thank you.

More practical workshop.

Group (? word?)

Visual presentation

Experience sharing.

Cities Matter: Energy Efficiency in the Water Sector

November 2003

Course Evaluation

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinion with us. Thank you.

Name (optional): _____ **Emani B. V. Kumar** _____

Overall, how would you rate this course on a scale of 1-10 (10 = excellent; 1 = poor)? **7**

Briefly, why did you give this rating?

Well organized and more focused on general energy efficiency in municipal services.

For you, which topic covered was the most important? Why?

Site visit to BWSSB. Presentation by commissioner on Bangalore Municipal Corporation.

How will this course be helpful to you in your work?

To compare with other energy efficiency work, ICLES doing in India.

Which of the actual examples (case studies or site visit) was the most useful for you? Why?

Site visit, understood the BWSSB audit process and implementation of activities.

Were the small group discussions useful? How will you use the product of these discussions?

Very useful.

Would you recommend this course to your colleagues? Why or why not?

I will recommend this course to Municipal Engineers of all Indian cities.

Please provide any additional comments you have. Thank you.

- 1. Training program could have focused more on technical aspects of audit process.**
- 2. Site visit could have been to a nearer pumping station. Nearly wasted 6 hours in the journey.**
- 3. More discussions on energy efficiency aspects.**

APPENDIX D

COURSE AGENDA – LAC

**Las ciudades son importantes:
Eficiencia energética en el sector del suministro de agua**

Curso latinoamericano, del 3 al 7 de noviembre de 2003,
en ciudad de México

2 de noviembre – Cena de Bienvenida

(6:30 p.m.) **Terminología y conceptos**
Salón Diana. Piso 1.

Se examinará el glosario del curso para asegurarse de que los participantes de diversos países estén de acuerdo en cuanto a la definición básica de los términos más importantes, a fin de aumentar el nivel de comprensión y el intercambio de información concreta.

Participantes: Bryan Montgomery, Especialista en Gestión Gubernamental Local, y
Cledan Mandri-Perrott, Analista de Políticas Ambientales

(7:30 p.m.) **Recepción de bienvenida**
Lounge Presidencial. Piso 11.

Los participantes están invitados a la recepción de apertura para departir y conocer informalmente a los demás participantes y a los instructores.

Lunes, 3 de noviembre –

Salón Emperatriz I - Área de Conferencias

Establecimiento del marco conceptual

Un sistema energéticamente eficiente de servicios urbanos aprovecha las tecnologías y las prácticas administrativas que sean eficaces en función del costo, a fin de asegurarse de que el costo por unidad de un producto de alta calidad, tal como el agua, sea el más bajo posible para el cliente y refleje la aplicación de medidas de conservación en los lados tanto de la oferta como de la demanda del suministro de servicios. El primer día se centrará en el establecimiento del marco al nivel local y nacional dentro del cual se adoptan decisiones que afectan a la eficiencia energética, especialmente en el sector del suministro de agua.

Discurso de bienvenida y apertura

09:00

Resumen de la sesión:

En esta sesión se sientan las pautas que seguirá el curso y se explica por qué la eficiencia energética reviste importancia dentro del contexto de los programas y metas de la USAID.

Presentador: Representante de la Misión de USAID en México.

Introducción a los objetivos del curso

09:15

Objetivos del curso:

- Fomentar la comprensión de la función que desempeñan la energía y la eficiencia energética dentro del contexto del gobierno local y la administración municipal.
- Crear una mayor conciencia de la aplicación de técnicas eficientes en el uso de la energía entre los directivos municipales y otros especialistas en el ámbito local, aumentando además su nivel de competencia.
- Establecer un foro para el examen y la diseminación de los instrumentos apropiados y las mejores prácticas. Establecer nuevas redes de especialistas locales basadas en su participación en asociaciones locales en el país en cuestión, a fin de fomentar más aún diseminación e intercambio de información, así como la institucionalización de instrumentos, materiales, etc.
- Poner de relieve el potencial que existe para la colaboración con otros programas de EGAT/ENV/EET, identificando tanto personas idóneas interesadas dentro de las asociaciones municipales como posibles ciudades en las que se pueda llevar a cabo aplicaciones piloto de instrumentos apropiados y mejores prácticas.

Resumen de la sesión:

Esta sesión tiene por objeto establecer un contexto de investigación, análisis y evaluación en lo que respecta a la competitividad de las ciudades en relación con un servicio público—el suministro de agua. Algunos predicen que el agua será el oro y el petróleo del siglo XXI. La disponibilidad y/o la escasez de agua es a la vez fenómeno natural y obra del hombre. Es importante determinar cómo evaluar y manejar la situación real del suministro de agua en el país de un participante, sin importar la causa.

Moderador: Bryan Montgomery, Especialista en Gestión Gubernamental Local

Ejercicio relativo a las metas de aprendizaje

09:30

Resumen de la sesión:

Los participantes tienen la oportunidad de expresar sus expectativas en cuanto al curso y presentarse a sí mismos a fin de facilitar el diálogo y la interacción durante el curso. Se prevé que los participantes desempeñen un papel activo durante los cinco días. Se exponen las expectativas de los instructores y las metas de aprendizaje.

Moderador: Octavio Chávez, Experto en Capacitación en materia de Gobierno Local

Los servicios urbanos ambientales: las bases del complejo proceso de toma de decisiones

10:15

*Se tendrá un receso de 11:15 a 11:30

Objetivos de la sesión:

- Ilustrar la complejidad de la política referente al suministro de agua;
- Presentar una lista de factores y resultados que los participantes deberán considerar al tomar una decisión relativa al suministro del servicio de agua, a fin de lograr una política declarada;
- y
- Articular principios que los participantes puedan considerar y trabajar con ellos en lo que queda del curso.

Resumen de la sesión:

Comprender los aspectos geográficos, políticos y financieros que imponen limitaciones al servicio de suministro de agua, así como la manera en que éste se relaciona con otros servicios y proveedores, es un paso importante para poder determinar cómo lograr la eficiencia energética. Las políticas, las leyes, el uso de la tierra y los planes de inversión de capital son instrumentos que pueden tener efectos en tanto en el método de suministro de agua como en la calidad del agua. El examen del suministro de agua desde distintos ángulos demostrará la complejidad del problema y servirá como marco del curso

Esta sesión consta de tres segmentos.

La **Primera parte** consistirá en una apreciación amplia de los múltiples factores que influyen en la política relativa al suministro de agua, y se describirán someramente procedimientos para la formulación de políticas generales y la elaboración de programas..

La **Segunda parte** limitará el enfoque de la sesión al examen de un estudio de caso regional más detallado, el cual mostrará cómo una ciudad determinada mejoró sus servicios de suministro de agua, y los administra con mayor eficiencia energética, detallando los ahorros en los costos, el aumento del servicio, la administración mejorada, etc., como uno de los componentes del mejor establecimiento y administración globales de la infraestructura y los servicios. Se dará énfasis a los componentes de una mejor administración.

La **Tercera parte** permitirá a los participantes iniciar el proceso de elaboración del marco analítico que les servirá de base para formular sus propias políticas en materia de suministro de agua. Los participantes analizarán el estudio de caso presentado, a fin de identificar los aspectos fundamentales que hicieron posible que la situación tuviera éxito, y señalar aquellos que pudieran no haberse tenido en cuenta y que, en su opinión, son importantes para una mayor eficiencia energética en el sector del suministro de agua.

Primera parte: Apreciación de los factores

Presentador: Bryan Montgomery

Segunda parte: Limitando el enfoque

Estudio de caso

Presentador: Ing. Rommel Uribe Capetillo, Ex Funcionario Público del Municipio de Mérida, Estado de Yucatán

Tercera parte: Aspectos críticos del Estudio de caso

Moderadores: Bryan Montgomery y Octavio Chávez

Maneras en que la eficiencia energética puede ahorrar Gobierno y a los ciudadanos 13:00

*La hora para el almuerzo será de las 14:00 a las 15:00 horas

Objetivos de la sesión

- Establecer los vínculos entre los objetivos de la política y dos instrumentos: la planificación y la administración – como medios para aumentar la competitividad de una región y sustentar la disponibilidad del agua;
- Identificar los elementos fundamentales que conducen al tratamiento y distribución ineficientes del agua, y el costo resultante; y
- Subrayar algunas de las ventajas financieras que representa optar por el uso eficiente de la energía como medio para lograr los objetivos de la localidad en su conjunto

Resumen de la sesión:

¿Cómo se relaciona la administración del suministro de agua con la eficiencia energética? ¿Qué volumen de energía se utiliza para producir agua potable o tratar las aguas residuales en los distintos países y regiones del mundo? ¿A cuánto asciende el costo actual del consumo de energía en su localidad (o país)? En esta sesión se hace una exposición general, desde los puntos de vista tanto de la oferta como de la demanda, de las distintas maneras en que lo referente a la eficiencia energética puede ser tratado en el sector del suministro de agua, y se establecen, asimismo, los posibles ahorros que pueden traducirse en un suministro de servicios más eficiente la ampliación de los servicios para atender a la población local cada vez mayor, y la introducción de maneras más adecuadas de suministrar servicios a los residentes. En la **primera parte**, el presentador expondrá algunos de los aspectos más importantes de la planificación de un sistema más eficiente y, en la **segunda parte**, se hará una presentación complementaria acerca de los aspectos administrativos de la eficiencia del suministro de agua.

Primera Parte: La planificación de una mayor eficiencia

Presentador: Cledan Mandri-Perrott, Analista de Políticas Ambientales

Segunda parte: Administración y operaciones del suministro de agua

Presentador: Arturo Pedraza de la *Alliance to Save Energy*

Objetivos de las políticas relativas a la eficiencia energética en el sector del suministro de agua

16:00

Resumen de la sesión

Basándose en la información presentada hasta ahora, los participantes comenzarán a analizar las condiciones existentes en sus propias localidades o países. Trabajando con sus colegas del mismo país, los participantes determinarán el objetivo u objetivos de su política en cuanto al aumento de la eficiencia energética en el sector del suministro de agua. ¿Qué es lo que desearían lograr para sus localidades? ¿Esperan incrementar el acceso, el servicio, etc.? Para emprender el esfuerzo que supone aumentar la eficiencia en el sector del suministro de agua, deberá haber un propósito de mayor alcance, un resultado previsto, a fin de que quede clara la razón que hace necesario esos mayores esfuerzos.

Moderadores: Bryan Montgomery y Octavio Chávez

Martes 4

Salón Emperatriz I

La eficiencia energética en el sector del suministro de agua – Prácticas vigentes y opciones

Estas sesiones tratarán de las opciones que existen para aumentar la eficiencia energética en el sector del suministro de agua, así como la manera en que los gobiernos locales (u otros niveles gubernamentales) encargados del manejo de los servicios de suministro de agua pueden tomar las medidas necesarias para asegurarse de que sus prácticas administrativas estén debidamente orientadas para sacar el mayor provecho de los gastos operacionales y de capital.

Discurso de apertura y descripción del programa del día

09:00

Objetivos de la sesión:

- Vincular la información general del primer día con la sesión relativa a los objetivos del día;
- Presentar los instrumentos específicos que pueden emplearse para la adopción de decisiones más fundamentadas; y
- Permitir que los participantes determinen las maneras en que pueden comenzar a encarar los problemas de sus respectivos sistemas de suministro de agua y las políticas del caso, basándose en el empleo de los instrumentos o medios definidos.

Moderador: Bryan Montgomery

Exposición de las conclusiones del primer día

09:15

Resumen de la sesión:

Los participantes tendrán la oportunidad de presentar en sesión plenaria las cuestiones fundamentales que identificaron el día anterior. Ello permitirá que los oradores y los participantes comiencen a hacer un enfoque más concreto y a ilustrar las maneras específicas en que los instrumentos descritos pueden responder al interés de los participantes.

Moderador: Octavio Chávez

Estudio de caso: ¿En qué consiste una auditoría energética?

10:00

Resumen de la sesión:

Con frecuencia, el primer paso tendiente a aumentar la eficiencia energética en el sector del abastecimiento de agua es el resultado de una auditoría energética. En esta sesión se examinarán más a fondo tanto el proceso como los resultados previstos, mediante la presentación del estudio de caso práctico de una ciudad que llevó a cabo una auditoría energética, seguida de un resumen

de los componentes esenciales de una auditoria de este tipo y los beneficios que ésta podría representar.

Presentador/Moderador: Cledan Mandri-Perrott, Analista de Políticas Ambientales

Presentador: Renato Rolim, CACEGE.

El manejo de servicios de suministro de agua que usan eficientemente la energía 10:45

*Se hará una pausa de las 11:30a las 11:45 horas.

Resumen de la sesión:

Con mucha frecuencia, durante las sesiones directivas referentes a presupuestos e inversiones futuras, se pasa por alto lo concerniente al vínculo que existe entre el manejo eficiente de los sistemas de operación vigentes y el plan global para mejoras de capital para ese y otros servicios. En esta sesión se tratará de las cuestiones del manejo diario (operacionales), así como de la planificación de la inversión a largo plazo (capital), y la importancia de dicho vínculo entre ambas.

Planificación del capital, inversión y ampliación (Mandri-Perrott)

- Plan, perfeccionamiento, estructura tarifaria
- Planes estratégicos de capital que se reflejen en otros sectores urbanos, tales como la salud, el desarrollo económico y la sustentabilidad del medio ambiente
- La vinculación de los planes de capital para la eficiencia energética con otros planes de capital, a fin de cerciorarse de que existe compatibilidad

Administración financiera y operacional/Operaciones (Montgomery)

- Presupuesto, gestión y organización
- Asuntos laborales (relaciones laborales, capacitación, capacitación múltiple, certificación)
- Operaciones y mantenimiento (instalaciones, equipo, sistemas, cobros, servicio e información para el cliente, interrupción del servicio)
- Licencias y reglamentos (construcción, descarga, derivación, capacidad del sistema)
- Adquisiciones

Presentadores: Bryan Montgomery, Especialista en Gestión Gubernamental Local, y

Cledan Mandri-Perrott, Analista de Políticas Ambientales

Almuerzo 14:00

Tarea de aprendizaje 15:00

Prácticas actuales en cuanto a la eficiencia energética, políticas y administración en mi ciudad o país

Los participantes trabajarán en grupos para seleccionar un proveedor de servicios de abastecimiento de agua, a fin de analizar o examinar la situación de su país en su conjunto, y

luego enumerarán los procedimientos eficientes e ineficientes que se siguen en la actualidad. Se identificarán las políticas y las prácticas administrativas vigentes que permiten o impiden la introducción de mejores prácticas. Los materiales que trajeron al curso se utilizarán para la preparación del marco analítico inicial. Se pedirá a los participantes que presten especial atención a los cambios institucionales que requerirá la implantación de nuevas prácticas, y que los definan. En este ejercicio se aplicarán las cuestiones críticas identificadas el primero y el cuarto días y se establecerá la prioridad de las mismas, y los participantes formularán las recomendaciones necesarias para eliminar las ineficiencias y usar como base las buenas prácticas que estén en vigencia.

Moderador: Octavio Chávez, Experto en Capacitación en materia de Gobierno Local

**Informes de los países sobre las prácticas actuales en materia de energía
en el sector del suministro de agua**

16:15

Presentador: Grupos de País – Presentan las conclusiones de la sesión

Moderador: Octavio Chávez

Reacciones: Cledan Mandri-Perrott y Bryan Montgomery

Miércoles 5

Salida del autobús a las 10:00 horas al Municipio de Tlalnepantla, Estado de México.

Visita a sitios – Prácticas actuales para ahorrar energía en el sector del suministro de agua

Esta visita permitirá que los participantes observen cómo estos organismos locales específicos han aumentado su eficiencia energética para el abastecimiento de agua, considerando al mismo tiempo los problemas enfrentados, las medidas puestas en práctica, y los resultados concretos de dichos esfuerzos. En la discusión y el análisis del caso se considerará la manera en que los ejemplos se relacionan con los de los países y localidades de los participantes.

Exposición a la realidad: Visita a un sitio

Se hará una visita a un sitio que ha logrado aumentos significativos en la eficiencia energética del abastecimiento de agua, de modo que los participantes tengan la oportunidad de apreciar directamente lo que está sucediendo en el campo. Antes de la visita, se distribuirán a los participantes hojas de trabajo con preguntas, de modo que esta experiencia práctica tenga un objetivo establecido.

Intercambio de observaciones y lecciones aprendidas – ¿Qué relación existe con mi situación?

Los participantes rendirán su informe sobre las lecciones aprendidas de sus estudios de caso y las visitas realizadas, y tendrán la oportunidad de hablar sobre sus respuestas a las preguntas formuladas en la hoja de trabajo.

Moderador: Cledan Mandri-Perrott, Analista de Políticas Ambientales

Jueves 6

Salón Emperador I

Examen de conjunto

En las sesiones se dará énfasis a todas las opciones que los participantes pueden considerar en cuanto a la eficiencia energética en el sector del abastecimiento de agua, tanto del lado de la oferta como del de la demanda, y se proporcionará información acerca de los costos (financieros, de capital humano, etc.) y los beneficios (ahorro en los costos, mejor calidad, extensión del área de servicio, etc.).

Discurso de apertura y descripción del programa del día

09:00

Objetivos de la sesión:

- Establecer la relación que guarda la información general obtenida en la visita al sitio y los días anteriores con los objetivos del día;
- Presentar instrumentos específicos que puedan servir para adoptar decisiones mejor fundamentadas, y
- Permitir que los participantes determinen las maneras en que comenzarán a enfrentar los problemas de sus respectivos sistemas de abastecimiento de agua y las políticas pertinentes utilizando para ello los instrumentos definidos.

Moderador: Cledan Mandri-Perrott

Estudio de caso

09:15

Cómo poner en práctica políticas y programas dirigidos a la eficiencia energética dentro de una empresa de servicios públicos.

Resumen de la sesión:

En esta sesión se presentará la implantación adelantada de las acciones, medidas y resultados basados en la información recopilada durante una auditoría energética. Específicamente, esta sesión será la segunda parte del estudio de caso relativo a la auditoría energética que fue presentada el segundo día.

Presentador: Renato Rolim

Moderador: Cledan Mandri-Perrott

Oportunidades para aumentar la eficiencia energética (por el lado de la oferta y el de la demanda)

10:00

Resumen de la sesión:

Partiendo de todo lo tratado hasta ahora, en estas sesiones se examinarán y resumirán las diversas oportunidades que existen para obtener la eficiencia energética, y se presentarán maneras de medir el empleo y los beneficios de las auditorías energéticas y nuevas prácticas administrativas – haciendo referencia a aquellas que se identificaron en las visitas de sitios, el análisis de la situación actual hecho por los participantes, y añadiendo aquellos aspectos o componentes que pudieran haber sido omitidos. Se dará importancia especial a la función del gobierno local y a las opciones de que se dispone en cuanto a financiamiento. También, en esta sesión, se dará especial atención a las opciones en materia tecnológica, así como al papel que desempeñan las compañías de servicios de energía eléctrica.

Primera parte: Establecer un punto de referencia para medir el rendimiento: Cómo aumentar la capacidad institucional para medir el efecto de las mejoras en la eficiencia energética

Quienes deseen poner en práctica medidas de eficiencia energética deben poder entender comprender las condiciones operacionales, formular medidas básicas de referencia, y poseer la capacidad y la disposición para efectuar mediciones y mejorar las prácticas de manera continua. En esta sesión se describirán los pasos fundamentales.

Presentador: Bryan Montgomery, Especialista en Gestión Gubernamental Local

Segunda parte: Elaboración del modelo de consumo

¿Cómo determina usted la tasa de consumo y formula planes futuros para poder atender las necesidades de la localidad?

Presentador: Cledan Mandri-Perrott, Analista de Políticas Ambientales

Pausa

Se reanuda la sesión

11:00

11:15

Tercera parte: Información pública y comunicaciones

¿Cómo atrae usted el interés del público en colaborar en los esfuerzos por ahorrar energía y conservar agua? ¿Cuál es la función que desempeña el gobierno con este fin? ¿Qué puede esperarse de los ciudadanos?

Presentador: Bryan Montgomery, Especialista en Gestión Gubernamental Local

Cuarta parte: Opciones en materia de financiamiento

¿Cuáles son las opciones de financiamiento con que se cuenta para el perfeccionamiento, operación y mantenimiento de sistemas de abastecimiento de agua? ¿Cuál es la mejor opción para mi gobierno local?

Cledan Mandri-Perrott, Analista de Políticas Ambientales

Guía para formular estrategias para la ejecución de programas de eficiencia energética en servicios de abastecimiento de agua sustentables y completos **13:00**

Objetivos de la sesión:

- Explicar la conexión que existe entre los instrumentos de medición y el logro de políticas, metas y objetivos;
- Definir los instrumentos que permitirán que los participantes puedan medir resultados; y
- Describir cómo establecer y mantener un grupo encargado de la eficiencia

Resumen de la sesión:

En esta sesión se proporcionará orientación a los participantes para ayudarlos a formular una estrategia dirigida a sus propias localidades y países. Trabajando en grupos de país con toda la información presentada, los participantes tratarán los problemas en sus propios países describiendo estrategias para aumentar la conservación de energía en grande y pequeña escala, perspectivas a corto y a largo plazo, así como opciones en materia de oferta y demanda. Dado que la puesta en práctica de procedimientos eficientes requiere la intervención de varios actores, incluida la municipalidad, el gerente del servicio público, instituciones financieras, etc., la entidad o persona encargada de crear y mantener el grupo de eficiencia será distinta en cada país.

Presentadores: Bryan Montgomery, Especialista en Gestión Gubernamental Local
Cledan Mandri-Perrott, Analista de Políticas Ambientales

Almuerzo **14:30**

Ejercicio de aprendizaje – Elaboración de estrategias **15:30**

Resumen de la sesión:

¿Qué pasos deben tomarse a continuación para facilitar una adaptación más amplia de la eficiencia energética en el sector del suministro de agua en cada país? ¿Qué procedimientos, instrumentos, estrategias y cambios deberán introducirse? ¿Qué asistencia se requiere para pasar del Punto A (situación actual) al Punto B (mayor eficiencia)? Las discusiones podrían abarcar estrategias para opciones expeditivas en comparación con planes a más largo plazo. ¿En qué campos podrían las municipalidades hacerse cargo de la introducción de cambios en

comparación con las actividades para las cuales necesitarían ayuda externa? Siguiendo los lineamientos presentados y trabajando con los folletos informativos, los participantes de cada país trabajarán juntos para esbozar las diferentes medidas que habrá de tomarse, teniendo en cuenta la oferta y la demanda, así como los recursos disponibles. Esas medidas podrían incluir campañas informativas emprendidas por las asociaciones, tipos específicos de acciones eficientes para aumentar la oferta y la demanda, la capacitación de ciertos grupos, etc.

Moderador: Octavio Chávez, Experto en Capacitación en materia de Gobierno Local
Comentarios de Expertos: Bryan Montgomery y Cleddan Mandri-Perrott

Viernes 7

Salón Emperador I

Presentación de las Estrategias por país. Evaluación y clausura.

Cada grupo de país (o de ciudad, si hubiesen representantes de varias ciudades de un mismo país) presentará la estrategia que propone para su respectivo país, basada en el análisis de la situación actual y de las opciones presentadas durante el curso. Los instructores del curso formularán comentarios desde los puntos de vista de la eficiencia energética y del gobierno local. Se pedirá a los participantes que evalúen el curso, a fin de introducir mejoras en cursos futuros, así como al cuaderno de ejercicios que se elaborará.

Presentación de las Estrategias de país**09:00*****Resumen de la sesión:***

En esta sesión los grupos de país presentarán sus estrategias, las cuales incluirán recomendaciones dirigidas a las autoridades pertinentes. Tanto los demás grupos como los instructores tendrán oportunidad de hacer comentarios y sugerencias.

Presentadores: Los participantes en el Curso

Comentarios/Reacciones: Bryan Montgomery y Cledan Mandri-Perrott

Moderador: Octavio Chávez, Experto en Capacitación en materia de Gobierno Local

Pasos siguientes para promover la eficiencia energética en las empresas de servicios públicos de abastecimiento de agua**11:45**

Presentador: USAID (TBD), ICMA Mexico, y Bryan Montgomery, Especialista en Gestión Gubernamental Local

Esta sesión se centrará en los pasos que deberán seguirse para la ejecución de los planes de país y en los aspectos en los que potencialmente se podría trabajar en colaboración con las asociaciones de gobiernos locales, otros programas de la USAID, y otros recursos en cada país.

Evaluación**12:15**

Moderador: Octavio Chávez, Experto en Capacitación en materia de Gobierno Local

Clausura**12:45**

Presentadores: Bryan Montgomery, Especialista en Gestión Gubernamental Local
Octavio Chávez, Experto en Capacitación en materia de Gobierno Local

APPENDIX E

PARTICIPANT LIST – LAC

Participant List – LAC

Name	Country	Title	Employer	Contact Info
Antonio Comunello Accorsi	Brazil	Manager	CORSAN Energy Efficiency Program	antonio.accorsi@corsan.com.br
Klaus Dieter Neder	Brazil	Head	Sewage Expansion Department, CAESB	kneder@wom.com.br
Ing Juan Carlos Elvir	Honduras	Mayor and Vice President	Santa Rosa de Copan and AHMON	Fax: (504)662-0011
Ing. José Rubén Henríquez	Honduras	Mayor	Juticalpa	Fax (504) 885-1236
Sr. Jose Felipe Borjas	Honduras	Mayor	Villanueva	munivillanueva@yahoo.com Fax: (504) 670-4404
Alejandro Bravo	Nicaragua	Executive Director	AMUNIC, Nicaraguan Association of Municipalities	abravo@amunic.org
Denis Perez	Nicaragua	Mayor	Leon	
Sadrach Zeledón	Nicaragua	Mayor	Matagalpa	cc above
Mario Fleitas	Paraguay	Head, Water Department	Municipalidad de San Ignacio Misiones	pedrogmedinac@hotmail.com
Cirilo Agüero	Paraguay	Secretario General	Asociación de Juntas de Saneamiento del Dpto Central	js_itaugua@yahoo.com.ar
Ing. Freddy Lara	Dominican Republic	Tecnico	Gerencia de Energias Renovables y Uso Racional de Energia, Comision Nacional de Energia	freddylara@codetel.net.do flara@cne.gov.do
Luis Gregorio Espaillat Garrido	Dominican Republic	Engineer Responsible for Energy	Corporacion de Acueductos de Agua Potable de Santo Domingo, CAASD	luis.gregorio@codetel.net.do
Arturo Cruz	Mexico			phone: 951-5162256 fax- 951-5144649
Victor Porras	Mexico			vporras@ingenieros.com.mx
Lourdes Carmina	Mexico	Director of Ecology, Municipality of San Pedro Sula	Coordinator, Environment Programs, Benito Juarez Autonomous University and Rep. Productive Water Use, Technical Committee Groundwater, Central Valleys of Oaxaca	carminaricardi@latinmail.com
Alberto Plauchu	Mexico	Director	Plauchu Consultores in Morelia, Michoacan	
Juan Ochoa Bunsow	Mexico	President	JMAS-Delicias	juan8ab@msn.com

Name	Country	Title	Employer	Contact Info
Ing. Miguel Casavantes Alarcón	Mexico		Ciudad Delicias	Sandra Ramos; (639) 474 6290
C.P. Wilfredo Acosta Salazar	Mexico	Gerente	Junta de Agua Potable y Alumbrado de Culiacán	fax: 667-758-6061; (667) 758 6002
Lic. Mario Coral	Mexico		Presidente de CIVAC Habitacional A.C.	
Ing. Roberto A. Salgado	Mexico		AALMAC	(228) 818 3641
Edgar Villaseñor	Mexico		AMMAC	5687 3898
Ing. Raúl Millán	Mexico		Comisión de Agua del Estado del EdoMex	leninzenteno@hotmail.com ; 5358 6868
Other Attendees				
Arturo Pedraza	Mexico		Alliance to Save Energy	
Jorge Landa	Mexico		USAID	
Jaime Villasana	Mexico		ICMA MEXICO	

APPENDIX F

PARTICIPANT EVALUATIONS – LAC

Cities Matter: Energy Efficiency in the Water Sector - November 2003 COURSE EVALUATION

In order to improve future programs that we offer, it is important to us to receive your comments about the course. Please take a few minutes to share your opinions with us. Thank you.
(Participants completed the evaluations in Spanish; ICMA has provided the translated information below.)

Name	Briefly, why did you give this rating?	For you, which of the topics covered was the most important? Why?	How will this course be useful to you in your work?	Which of the actual examples (case studies, site visit) was most useful for you? Why?	Were the small group discussions useful?	How will you use the results of these discussions?	Would you recommend this course to your colleagues?	Why or why not?	Please provide any additional comments
Juan Ochoa Bunsow	I only participated on Thursday and Friday and am not qualified to grade it.								
	Expectations were met, the organization and the dynamics.	Administration of human resources and having indicators that permit to make more efficient the operating organisms for the water.	The experiences and concepts for strategic planning in our municipalities in the water systems and treatment plants thru talks for the more than 30 municipal presidents.	They will all be useful, and the example from Brazil is one to follow.	Definitely	Thru the consolidation of our plans and programs.	Definitely	Because you obtain a great integrated vision and administrative technique and of energy evaluation.	Thanks to Bryan, Octavio, Cleidan, the sponsors, and everyone who participated in this event.
Edgar Villaseñor Franco	The interaction was excellent and the trainers too. Very positive mixing of human experience and technique, in the beginning much confusion in activities, especially referring to concepts. Everything was well structured.	Administration of human resources and having indicators that permit to make more efficient the operating organisms for the water.	The ideas and solutions, financial mechanisms, agreement outlines, delivering to municipalities with the same problems.	Tlanepantla, they healed a company administratively and economically with financial sustenance to make investments, the substitution of equipment to those who save energy (which they are not implementing at the moment.)	Yes	Basic difference between the workshop and course permitted us to unify criteria to have clear & concrete ideas. These results permitted us to communicate the ideas with municipalities with similar differences .	Yes	With a major definition of ideas and concrete solutions.	It will be interesting to publish the recommendations generated in the workshop and many more, in the supply area, as in energy efficiency. This manual with data adjusted to the country could be delivered to the municipalities in Mexico.
Mario Alfonso Coral Padron	The institutional effort from ICMA and USAID to group different companies and municipalities make the workshop different.	1. To make more efficient the administration of human resources. 2. The social participation as it corresponds to the administration of resources 3. Innovative financial mechanisms.	Creating a chain of operatives and administratives of the companies with innovative spirit to reach the development of sustainable hydraulic resources.	Absolutely all of them have great utility and applicability.	Effectively	To generate brainstorming of ideas and conceptual maps.	Yes		Only in the means of possibilities broaden your coverage and communication.

Name	Briefly, why did you give this rating?	For you, which of the topics covered was the most important? Why?	How will this course be useful to you in your work?	Which of the actual examples (case studies, site visit) was most useful for you? Why?	Were the small group discussions useful?	How will you use the results of these discussions?	Would you recommend this course to your colleagues?	Why or why not?	Please provide any additional comments
Victor Hugo Garcia Pacheco	Because of the matters dealt with, the knowledge of the instructors and participants permitted good feedback.	The impact of the reduction of loss of water and the consumption of electrical energy.	The implementation of acts that will greatly impact the reduction of loss and low cost.	The case presented by Engineer Renato from Brazil and the administration in the organ in Tlalnepantla.		Transmitting and using the particular cases in my work, the ethics code among others.	Yes	Especially in those systems that have to do with pumping systems.	
Lourdes Carmina Ricardi De La Cruz	In my opinion, we need to speak more about cost and benefits from an ecological point of view.	There needs to be a more integrated focus to deal with the problems of water and electrical energy.	When realizing the municipal plan of development for my community, I will have a broader vision to put in practice a plan of action of costs of which I am committee member.	Nacaulpan with an integrated plan of development, spanning administrative, social, ecological and financial issues.	Yes	We all have the same problems in many countries and must act systematically, with common sense, to resolve the problems without changing the velocity, but only the direction.	Yes	Because other peoples' experiences and perspectives are of great utility in the making of decisions .	Thank you for this valuable opportunity of participating in this workshop.
	Because of lack of microphones, the speeches were not as audible as I would wish.	In practice all important, but the Brazilian team was the most complete.	Immediate utility and its application.	The operating organism which initiated the financial outline of water bonds in the republic, action that will soon be reflected in the economy of the organism of Tlalnepantla.	Yes	To incentivize the application of renewable systems of energy for populations with little or almost no accessibility in the country.	Undoubtedly	I am going to proceed to take the necessary copies to have my colleagues participate.	Congratulations to Drs. Octavio Chavez, Cledan Mandri-Perrott, and Bryan Montgomery for their advice and deep insightfulness.
Gregorio Espaila T	The matters were managed adequately, time was short to delve into the subjects.	Specific experiences and actions overall and the experience in Brazil.	The acquired knowledge has given us the tools and facilities to convince the high management to achieve the approval of energy saving programs.	The example presented by the representative of Cagece because we have similar problems and their experiences can help us solve them.	Definitely	Because the experiences are applicable to our reality.	Yes	To see other points of view in order to face the common problems in our country.	Thanks for the opportunity and I assume the commitment of this entity to multiply the knowledge acquired.

Name	Briefly, why did you give this rating?	For you, which of the topics covered was the most important? Why?	How will this course be useful to you in your work?	Which of the actual examples (case studies, site visit) was most useful for you? Why?	Were the small group discussions useful?	How will you use the results of these discussions?	Would you recommend this course to your colleagues?	Why or why not?	Please provide any additional comments
Cirilo Agüero	Because of dictation terms between the moderator and the participant,	Leaks, losses—the great quantity of water fluency, we haven't stopped to analyze the loss, to repair the wrong use we are giving it.	It plants the option to force a reengineering to our system - administrative operative.	The matter of leaks and correct usage of electrical energy, selection of electro pumps, implementation of capacitors etc.		I was permitted to exchange experiences and knowledge to take and implement.		Acquire knowledge because of the great quality of matters dealt with.	In next events, I suggest that organizers support and accompany participants because we are foreigners.
Luis	Workshop planning, order of matters, disorder of folder, lack of communication.	Energy systems (engineer Renato Rolim), electrical energy program by the engineer Antonio Coorsi.	Enrichment of energy plan of the CNA	None, they showed what they wanted, we couldn't make measures, much experience is needed.	Yes	Apply and enrich the articles realized.	Yes	Adding more depth to the subject.	Congratulations when is the next reunion? Recommendation to make and publish a report.
Victor Hug Garcia Reyes	The reality was shown, not just in our country but in others. I would have liked to have a partner or someone from the electrical energy companies.	Energy savings, the advantages were shown speaking economically and the necessities in energy savings.	Allow the opinion and discuss positively the election of pumping and systems.	Tlanepantla. I could see at first sight the method used to heal finance and apply the observation in my municipality.	Of course	Because I could capture ideas and recommendations that are applicable in our organization.	Yes	I would because it is of great utility to receive recommendations on how to administer and direct your municipality.	Ask for an advance invitation to the next workshops.
Manuel H. Casavantes Alarcon	Because of the alternatives given to have better management and administration of energy.	Those related to the operation of the water systems; that is my area.	To revise and correct all of those actions that are not making the organism efficient in the use of energy.	The form of seeing and interacting in the short term with the idea of incrementing efficiency in all aspects of water operations.		Learn new forms and manners of realizing similar things and other alternatives of solution to common problems.	Yes	The tools are increased and can be used for a better administrative and energetic development in the organization related to water.	
Wilfrido Acosta Salazar	The opportunity to acknowledge problems in other countries, the dynamics to identify with the problems.	The rationalization of use of energy and the fields of opportunity to save and better. This has much value for us since we have high tariffs charged by the CFE.	It permitted us to define specific actions for improvement and apply them immediately.	What Brazil does in energetic bettering for the aforementioned reasons of cost and awareness.	Definitely	Acknowledging we have common problems in many aspects, also solutions, actions to take in these cities are applicable to us.	Yes	The opportunity to recognize important aspects from other parts, to meet people, obtaining resources and mechanics.	Congratulations and thank you for the attention and friendship at your service in Culiacan-Sinaloa.

Name	Briefly, why did you give this rating?	For you, which of the topics covered was the most important? Why?	How will this course be useful to you in your work?	Which of the actual examples (case studies, site visit) was most useful for you? Why?	Were the small group discussions useful?	How will you use the results of these discussions?	Would you recommend this course to your colleagues?	Why or why not?	Please provide any additional comments
Klaus D. Nader	Matters presented too broad, resulting in general vision/superficial of the problems, if this was objective it would be very good.	The part of administration presented by Bryan to transmit the message to the new administrations.	The course has been a stimulation to implement actions in energy savings based on team work.	The example from Brazil, demonstrating application and efficiency techniques in practice, viability, and implementation. Visits interesting but not related to course.		Short discussions in the majority, almost not objective but resulting in an exchange of experience.	Yes	Good opportunity to encounter other experiences and evaluate own work, identifying points that can be improved.	The matters are broader than is suggested in the workshop title. A more adequate title results in better expectations.
Jose Ruben Hemingo	Due to the fact that some terms of the techniques are not understood.	Those dealt with by Bryan which explain our responsibility in the web.	The new responsibility we have as an operating organization and how we look for major efficiency in the supply and the administration of costs and supply.	Tlalnepantla, an example of modern administration and great importance.		Were of great utility with new experiences we used for the new planning.	Of course	Due to the improvement of the operating organizations in other municipalities.	Mr. Cledean managed broad concepts, but was not sustained clearly to every specific matter.
Jose Raul Millan Lopez	Lack of precision on technical aspects. Very superficial. Recommendable in the course of workshop a practical exercise realized, not too tiring and divulge specifications and manuals.	Planning and constructing of the IP, focus of how it was dealt with, the types of contracts, very illustrative commenting with the involved how to establish fair contracts.	The exchange of opinions and experiences was enlightening. This permitted us to modify and adapt various activities developed.	The experiences in Brazil, the manner in which efficiency gradually increased and the use of electrical energy. The modification of technology that resulted in energy savings.	Yes	Permits to use and visualize and solve the common problems in a different manner.	Yes	The exchange of experiences and the manner in which they were handled. Incorporation of administrative aspects and motivation.	Thanks for the invitation and to the collaborators of ICMA that participated in the organization and development of the course.
Antonio Accorsi	An opportunity to acknowledge the reality of the municipalities in relation to the water supply, and the use of electrical energy, solutions to problems, administrative solutions for correct management.	Loss control, energy administration, share realities with the municipalities that were visited, motivational techniques.	Administrative and technical information source, benchmarking priority points	Correction of the potency factor, administrative mechanisms for contracts and tenders, exercise of goals and objectives and plans of action.	Yes	In our new program of loss control and the contract of the project development of residual waters for municipalities in the state of Rio Grande, Brazil.	Yes	Motivation, administration of contracts and tenders.	For me it was an optimum professional experience, for our direction and basically the search of solutions to similar problems. Thank you.

Name	Briefly, why did you give this rating?	For you, which of the topics covered was the most important? Why?	How will this course be useful to you in your work?	Which of the actual examples (case studies, site visit) was most useful for you? Why?	Were the small group discussions useful?	How will you use the results of these discussions?	Would you recommend this course to your colleagues?	Why or why not?	Please provide any additional comments
Jose Felipe Borjas	Because I consider that in the course of the meeting, politicians and technicians were united to share experience showing knowledge of the subject.	Sharing experiences, and the commitment to achieve efficiency in the water sector.	It's useful since in our municipality we are decentralizing the water services in a municipal company.	Tlalnepantla because it is similar to our municipality in the pumping system.	Yes	Much utility for exchange of opinions and experiences.	Yes	Recommendation to colleagues that have similar problems, in their communities and ours.	I think that this type of seminar must have continuity to know if we have achieved results in the long term
Sdrach Zeledom	The timeliness and professionalism of content, planning and correct themes, good programming of time.	Energy efficiency in the water sector.	Insight of the experience and how it relates to my work in the municipality on the directive committee of the water company.	Acknowledging the experiences and practices of other companies.	Of course	Clear initiatives to introduce to the companies.	Definitely	For members of the companies and directives, immediate impact in the attitude and disposition of bettering our companies.	Thanks. I have strengthened my knowledge.
Mario Fleitas	The capacity and professionalism and quality of the trainers.	The use of water. Water is life. Without it there is no life on earth.	Visualize the problems, and possible solutions, for a regular and efficient service to the users.	Up close study, because thru the exposition of problems we learn possible solutions in water leaks.		Its always interesting to know and deal with the problems and solutions.	Of course	We clearly acknowledge where we are and where we have to go.	Because of the clarity of the workshop giving us the opportunity to participate.
Freddy Lara	The content was relevant , and everyone participated actively.	The process of participation in the private sector in the distribution of potable water.	To apply certain criteria to help companies identify and design projects to diminish energy costs to efficiency level.	The visit to the municipality of Tlaxtaca, the investment in capacitors to better the potential, an example of what not to do, over investment.	Yes	To identify the principal efficiency of the system in which we are working.	Yes	Permitting the common elements and functioning of each system, including my country.	Maintain contact thru email to exchange experiences.