Environmental Finance Center Network
EPA Region 6 - University of New Mexico
Annual Reports

THE UNIVERSITY OF NEW MEXICO ENVIRONMENTAL FINANCE CENTER
U.S. EPA REGION 6
1997 ANNUAL REPORT

TABLE OF CONTENTS

U.S. EPA REGION 6 - ENVIRONMENTAL FINANCE CENTER
THE UNIVERSITY OF NEW MEXICO
AT
NEW MEXICO ENGINEERING RESEARCH INSTITUTE

1997 ANNUAL REPORT

Executive Overview

Established as the first EFC in 1992, The University of New Mexico Environmental Finance Center (UNM-EFC) serves USEPA Region 6 and is located at the New Mexico Engineering Research Institute. The UNM-EFC initially began with an emphasis on the application of public-private partnerships to owning and operating public water and wastewater utility systems. With the anticipation of NAFTA, the UNM-EFC provided technical assistance to border communities on ways to reduce costs for basic sanitary services. Additionally, the UNM-EFC researched financing alternatives for environmental infrastructure along the U.S.-Mexico border which later served as a guide to feasible choices for public policy decision making. The UNM-EFC field-tested a water and wastewater rate model with several New Mexico communities during 1995. Training in the use of the rate model is a mainstay of the EFC's financial outreach program, throughout Region 6 states. Assistance with the capacity development requirements of the Safe Drinking Water Act, specifically as they relate to federal, state, tribal, and local governments and public and private small water systems, has been the main focus of the UNM-EFC for the past two years. Identifying financing options and promoting low-cost, alternative, and appropriate technologies for system capacity development projects, at affordable and viable levels, is a particular commitment of the UNM-EFC. The EFC is using the World Wide Web to make information available through its home page at **http://nmeri.unm.edu/ta/efc.htm**

I. PROPOSALS

Wellhead Assessment of a US-Mexican Transboundary Watershed Using a Geographic Information System as a Decision Support Tool
Submitted to USEPA Water Quality Protection Division, Region 6
December 4, 1997

The purpose of this project is the identification of high risk areas for groundwater contamination in the Mimbres/Los Muertos watershed along the US-Mexico border around the Columbus, New Mexico and Palomas, Chihuahua area. It also proposes Best

Management Practices (BMPs) to mitigate continuation of contributing contamination factors, specifically through the establishment of a wellhead protection area (WHPA) program using a geographic information system (GIS). Public participation through community outreach would play an important role in the decision making process and management practices.

Restoring Ecological Balance in Native American Communities: Coupling Comprehensive Community Planning with Ecological Design
Submitted to USEPA American Indian Environmental Office
Collaborative project with the Environmental Finance Center - Region 5 as Lead
November 26, 1997

This proposal identifies how a network of university centers and an ecological design institute can work together in helping Native American communities restore ecological balance through the appropriate use of comprehensive community planning and ecological design techniques. The intent is to assist six Native American communities over the next three years to help them define methods to redesign and redevelop themselves in greater harmony with their surrounding ecosystems and habitats. These six communities would then be used as role models to inform other Native American communities about how to accomplish similar sustainable community development goals.

Financial Capacity Assistance Along the US-Mexico Border Region
Submitted to USEPA Office of International Activities
November 25, 1997

One of the greatest problems along the U.S. Mexico Border in terms of financing water and wastewater infrastructure is the ability to set sustainable and equitable rates and the unwillingness of people in the communities to pay the necessary rates. This problem is not unique to the border area, but is particularly common and pronounced in this area - along both sides of the border. Part of this problem relates to a lack of understanding of how to set rates and what elements should be included in a sustainable and equitable rate. Another part of this problem is a lack of understanding within the community regarding why they need to pay for the water or wastewater treatment.

This proposal is being submitted to provide a means to address some of these issues in border communities. To achieve this end, the UNM-EFC would partner with a Mexican partner and the EFC Network, as appropriate, to provide education in rate setting on both sides of the border. This proposal is intended to be complementary with the proposal submitted to the North American Development (NAD) Bank described below.

Environmental Finance Center Network with the Environmental Financial Advisory Board
North American Development Bank Assistance Work Plan

Submitted to North American Development Bank
November 25, 1997

The goal of this project is to provide the North American Development Bank assistance with community financial capacity as it relates to the issuance of NADBank or other loans for environmental infrastructure projects in the US-Mexico border region. This assistance will be coordinated and led by the University of New Mexico Environmental Finance Center. In addition to the UNM-EFC, assistance will be provided by the Environmental Financial Advisory Board and the Environmental Finance Center Network (additional EFCs in Regions 2, 3, 5, 9, and 10), as appropriate and applicable.

Strategic objectives include the following:

- help the NAD Bank in its efforts to fund environmental infrastructure projects along the U.S./Mexico border through assistance to the NAD Bank and directly to communities;
- improve the financial capacity of communities along the border region; and
- long-term educational process of ratepayers (at the customer level) on both sides of the border.

Utility Rate Assistance for Wastewater Systems within DoÃ±a Ana County
Submitted to DoÃ±a Ana County, Community Development Department

Collaborative project with the Environmental Finance Center - Region 10
October 08, 1997

The intent of this proposed project is to use the RateMod Proï¿½ utility rate model and apply its use to current county-related work for the DoÃ±a Ana Village wastewater system in DoÃ±a Ana County, New Mexico. The objective is to determine equitable and reasonable utility rates for DoÃ±a Ana Village, a designated colonia.

The rate model would be used to assist DoÃ±a Ana County with utility rate setting and structures in a variety of settings as follows:

- *Training Sessions for Utilities:* hold a day-long training session where ten water and/or wastewater utilities are given basic information on utility rate setting, background on Rate Mod Proï¿½, and hands-on instruction on the use of the model using their data. The communities leave the session with a copy of their rate structure and, if desired, may receive follow-up assistance from the EFC.

- *One-on-One Assistance with Water and Wastewater Utilities:* work directly with water and wastewater utilities in setting and evaluating rates.

II. CURRENT INITIATIVES

Small Water System Capacity Development

The UNM-EFC devotes a majority of its time to capacity development endeavors. At present, capacity development work is performed under three separate USEPA contracts:

- Increasing Drinking Water Viability In New Mexico

  Assistance Agreement #X-996578-02
  - Section A: New Mexico Capacity Development Strategy
  - Section B: Rate Model Workshops and Demonstrations
  - Section C: Meeting with Region 6 States

- Capacity Development for Native American Tribes and Pueblos
  Assistance Agreement #H-996822-01

- Capacity Development: Assistance to States and Native American Tribes

  Subcontract Agreement with EFC-10

The UNM-EFC has also completed work in capacity development under a contract from the Texas Natural Resources Conservation Commission which is described in the Projects Section of this report.

The EPA defines capacity, formerly called viability, as *the ability of a water system to consistently provide quality service at an affordable cost.* This encompasses the technical, financial, and managerial capability of a system to consistently comply with all state and federal regulations. Capacity can also be seen in a much broader context than merely regulating compliance; it can involve economic development, population growth, and the role of the government and private sector in providing public infrastructure.

Increasing system capacity is a two-step process. The first step is the assessment of overall system capacity, and the second step is the enhancement of system capacity through direct technical assistance. System capacity exists along a continuum and information about present and future needs of water systems must be incorporated in the process in order to get the entire picture.

Involvement with National Capacity Development Efforts

The EFC Director attended several meetings in Washington, D.C. related to SDWA and small water system capacity development. On March 17, the Director met with USEPA's Office of Water to discuss a pilot program initiative to fund a portion of six state capacity development efforts from USEPA Region 6, 8, and 10. On March 18, all of the EFC Directors met with Robert Blanco, Director of the Ground Water Protection Division from USEPA's Office of Groundwater and Drinking

Water in Washington, D.C. to discuss national priorities and initiatives in capacity development. On March 20, the EFC Director attended the National Drinking Water Advisory Council Capacity Development Task Force Meeting. In April, the EFC Director met with the EFC-10 Director in Salt Lake City, Utah to discuss capacity development. In October, the Director attended the Association of State Drinking Water Administrators conference in Savannah, Georgia.

New Mexico Capacity Development Strategy
Section A of the "Increasing Water Viability in New Mexico" Grant
August 1996 - Present

The UNM-EFC worked closely with the New Mexico Environment Department (NMED) in support of the changes that resulted from the 1996 Amendments to the Safe Drinking Water Act (SDWA). The EFC has supported the NMED through discussions, meetings, and informal outreach concerning the impact of the SDWA amendments. Throughout 1997, the EFC director and staff participated in the New Mexico Safe Drinking Water Advisory Group meetings. The EFC hosted a public meeting on July 23, 1997 for NMED on the New Mexico Safe Drinking Water Program and State Revolving Loan fund. The agenda included presentations on the Overview of the Safe Drinking Water Program in New Mexico, the Intended Use Plan, Funding for the Set-Asides, and the Priority List. Information was also presented on the State Revolving Loan Fund, how the New Mexico Finance Authority and the Environment Department will work together, the leveraging plan, application process, and the affordability criteria for Disadvantaged Communities. The EFC Director made a presentation to the Drinking Water Advisory Group, along with representatives from EPA Region 6 in August 1997. The EFC Director presented the process used to complete the Texas Natural Resource Conservation Commission (TNRCC) Capacity Development Strategy and the specifics of the strategy.

Capacity Development Assessment Tool

The EFC is developing a three-tier capacity assessment tool that may be used to determine systems in need of technical assistance and also may be used to determine if SRF applicants have adequate capacity. The first tool developed is for the smallest water systems in the state and defines the minimum level of capacity for this size category. The tool is divided into three modules: technical, financial, and managerial. The tool is designed to lead the user to a conclusion that either there is or is not sufficient capacity for each of the components (technical, financial, managerial). Directed technical assistance can then be provided to the water system, through the state SRF set-aside funds, to bring the system up to the level needed for SRF funding. The additional tiers of the capacity development assessment tool include additional items beyond those in the first tier for two other size categories. In theory, the tier approach recognizes the inherent differences between system capabilities and resources depending on the type of system (municipal vs. mobile home park) and size and recognizes that it may not be realistic to expect all systems to achieve identical levels of capacity. Larger systems would be held to a higher standard than very small systems; however, small systems would still have to meet the minimum requirements to ensure that the systems provide quality drinking water in compliance with the regulations.

Capacity Development: Arkansas, Louisiana, and Oklahoma
Section C of the "Increasing Water Viability in New Mexico" Grant
1997 - Present

Review of Capacity Development Initiatives in Other States and Region 6 Capacity Development Clearinghouse

The EFC reviewed existing and on-going capacity development efforts in other states. Contact with other states has been maintained regarding capacity development efforts throughout the nation. This has allowed the EFC to share information regarding those programs with Region 6 states and to present information regarding other successes and failures. The EFC is maintaining this capacity development information to serve as a Clearinghouse for Region 6 states. In addition, the EFC has attended meetings and conferences that are related to capacity development efforts of New Mexico, other states within EPA Region 6, other states outside of EPA Region 6, and national initiatives. This attendance has enhanced our ability to act as a resource for EPA Region 6 states and to EPA Region 6 itself.

Capacity Development Outreach to Additional Region 6 States

The EFC director worked with USEPA Region 6 representatives to develop a Capacity Development Assistance Program for Arkansas, Louisiana, and to discuss how the EFC can be utilized to meet those needs (the EFC is currently working with New Mexico on capacity development and has worked with Texas under a separate contract in creating a Capacity Development Strategy). Following the meetings with representatives from Arkansas, Louisiana, and Oklahoma, the EFC will be working with EPA to develop a series of modules to provide guidance and assistance to the states in completing their capacity development

strategies.

The EFC has met with agency representatives from Arkansas, Louisiana, and Oklahoma to present the capacity development efforts of New Mexico and Texas, to discuss what the EPA requirements are, what will be required to gain EPA Region 6 approval for the strategy, state flexibility in the strategy, and the potential for assistance from the EFC through this existing grant. Meetings were held for two days in each of the states. Discussions with individual states focused on their determinations and perceptions of the greatest need in the formulation of a Capacity Development Strategy.

Native American Capacity Development
EPA Region 6 Tribes and Pueblos
1997 - Present

The Reauthorization of the Safe Drinking Water Act in August of 1996 included the establishment of the Native American Revolving Fund for Native American Tribes, Pueblos, and Alaskan Native Villages. The Fund is administered by the EPA Regional Offices. It is similar to the state-administered revolving loan funds, established to provide resources in the form of monetary and technical assistance to small and medium community drinking water systems. But in the case of the Native American Revolving Fund, the funds are in the form of grants rather than loans. The UNM-EFC is focusing its initial Native American efforts on adapting the concept of capacity development to fit within the institutional framework of the Tribes and Pueblos in New Mexico.

One of the first goals of the UNM-EFC effort is the definition and documentation of problems that are unique to the different Pueblos because of attitudes towards natural resources, varying governmental structures, or the current state of their environmental programs. The EFC will visit as many of the Pueblos that operate water systems as possible. The three-fold purpose of these meetings is to:

- gain a better understanding of the problems they see as inherent in increasing water supply capacity in the community;
- introduce the concept of capacity development and what it means to the Tribe in terms of grant monies; and
- discuss and design the types of outreach and educational programs most beneficial to each particular Tribe.

As part of the above effort, the EFC staff met with New Mexico's All Indian Pueblo Council's Pueblo Office of Environmental Protection (PEOP) to:

- discuss methods of working with a number of Pueblos;
- describe what tools the EFC has available for assessing each Tribes' needs in capacity development; and
- determine which of the 19 New Mexico Pueblos are most likely to be receptive to the capacity development process, considering the current state of their environmental program.

In conjunction with the PEOP, the EFC has offered assistance to the Santo Domingo Tribe in the establishment and training of a Water Utility Authority and in the implementation of a water system capacity development program. Part of this activity would be the use of the RateMod Proï¿½ utility rate model to help the Utility Authority board members understand what elements are involved in equitable and sustainable rate determination. In addition, the UNM-EFC staff will attend a PEOP two-day summit meeting with Pueblo leaders, Pueblo environmental program staff, and state and federal agencies. Each of the Pueblos will have the opportunity to present their environmental programs and projects. The summit will provide information as to which Pueblos have committed environmental programs and are receptive to implementing a capacity development program.

The UNM-EFC is also in the process of establishing a Native American Drinking Water Task Force. Because of the importance of having stakeholder involvement in the process of developing and implementing a capacity development program, the Task Force will include people who represent a broad range of Tribal and Pueblo interests. It may be difficult to actually have Tribal members from a cross-section of Tribes attend meetings, therefore the EFC will conduct this Task Force in a "virtual" manner. Tribal input will be gathered through phone calls, faxes, e-mail, and personal visits. Periodic meetings will be held if enough members have the time to travel and attend.

Because Tribal governments generally have a rapid turnover, the most effective method of reaching a large segment of the Tribal population is through an educational and outreach program. This is necessary for the capacity development effort to be effective because it allows a "buy-in" from several members of the Tribal community. The EFC will develop a program strategy that trains tribal environmental program staff who can then go out into the community and train the Tribal administrative bodies and

other Tribal members. This type of approach would be particularly valuable for those traditional Tribes who conduct policy setting meetings in their native language.

In summary, the above strategies in working with the Native American Tribes will both define program needs and develop programs to:

- assess the existing capacity of each water supply system;
- develop and present solutions to enhance system capacity; and
- implement changes that will allow the system to sustain itself in a viable condition.

Capacity Development Strategies: Assistance to States and Native American Tribes
Collaborative project with the Environmental Finance Center - Region 10
1997 - Present

This collaborative project with the Boise State Environmental Finance Center for EPA Region 10 (EFC-10) is funded through a grant from the USEPA Office of Ground Water and Drinking Water. Although both Centers are doing equally proportionate work ,the EFC-10 is the designated grantee while the UNM-EFC is a subcontractor for the grant.

Collectively, the EFC-10 and the UNM-EFC are providing direct assistance to five states in Regions 6, 8, and 10, in addition to the Native American Tribes located in Region 6 to assist these entities in meeting capacity development strategy requirements of the 1996 SDWA Amendments. The states involved include New Mexico and Texas in Region 6; Utah in Region 8; and Alaska and Idaho in Region 10.

New Mexico: Expanding the Effectiveness of a Capacity Development Strategy

The UNM-EFC is performing a study of past recipients of water system funding to determine if there is significant difference between the capability of a system prior to and after funding based on the type of funding. This project is designed to assist the State in expanding the role and effectiveness of the overall capacity development strategy described in further detail later in this section.

The project study includes the following areas of examination:

- grant recipients (legislative, Community Development Block Grants (CDBG)); grant/loan recipients (Rural Development); and loan recipients (NMED's Rural Infrastructure Program);
- different types of systems, i.e., mutual domestics, municipalities, and sanitation districts, that cover the geographic area of the state; and
- projects that are essentially comparable types of activities, such as storage tank replacement or distribution line extensions (no anomalies).

Using the capacity assessment tool currently being developed by the UNM-EFC, the technical, financial, and managerial capacity of the system after funding will be analyzed. This capacity will be compared to the capacity before funding, to the extent that this is feasible given the limited information that is currently kept for systems. The systems will, therefore, be compared to themselves before and after funding to note any differences or improvements. In addition, similar size and type systems that completed similar projects will be compared to each other based on funding type (grant, grant/loan, loan) to examine whether any of the systems requested additional funding during the selected time period.

The study of past grant and loan recipients ties into Section 1420(c) (2) (B) of the Safe Drinking Water Act. A major impairment to capacity development in New Mexico is the wide availability of "free" money, i.e., grants, and other sources of loan funds. If the capacity development strategy ties only to the DWSRF and not to these other funding sources, it will be very difficult for the State to improve overall viability of drinking water systems throughout the state. In fact, systems may intentionally avoid the DWSRF if they know they have to follow viability criteria verses other moneys that do not require a capacity review. Therefore, this study will be a component in the State's efforts to link all of the funding sources under the "umbrella" of the capacity development program. This linkage would be a tremendous enhancement to overall development efforts within New Mexico.

Texas: Capacity Development Strategy Videotape

The UNM-EFC will develop a videotape intended for distribution to water systems across the state to describe the State of Texas

Capacity Development Strategy and the requirements related to DWSRF funding. Since Texas is large both in geographic size and population with numerous public water systems, it is difficult for state agencies such as TNRCC to reach this large audience through face-to-face contact alone. The videotape, which will be approximately 15-30 minutes long, is intended to assist the State in its education and outreach efforts related to SDWA and capacity development.

The videotape will be included as part of the implementation of the capacity development strategy. As such, the videotape will be distributed to community water systems across the state to:

- explain the state's implementation of the program,
- describe system requirements related to capacity development, and
- present the types of technical assistance available through the state or other sources.

Native American Tribes in Region 6: Capacity Development Assessment Tool

The UNM-EFC will develop a capacity development assessment tool for Native American Tribes within Region 6 for use in evaluating the capacity of tribal water systems. The tool will be specialized for tribal water systems and will be developed with input from tribal representatives. The tool may be rather simplistic since it may be administered as a self-assessment tool.

This assessment tool is directly related to Section 1420(c)(2)(A) of the Safe Drinking Water Act Amendments of 1996 that requires capacity development strategies to include a method of determining those systems that need to improve technical, financial, or managerial capacity. The assessment tool will be used to assess the existing technical, financial, and managerial capacity of water systems and to determine those systems in need of improvement and the possible technical assistance that may be provided.

Capacity Development Strategy Implementation
Texas Natural Resources Conservation Commission
1997 - Present

As a follow-up to the Capacity Development Strategy that was completed in August of 1997, the EFC has been assisting the State of Texas with the implementation of the strategy. There are numerous steps and phases of the implementation process and full implementation may take up to three years due to the need for a revised computer database program and a revised sanitary survey deficiency score process.

The initial implementation activities with which the EFC has been involved include the following:

- the Invitation-to-Bid for on-site contractor assistance;
- development of the management process for the on-site assistance contract;
- provide examples of Business Plans for the new system strategy;
- SRF capacity assessment review process;
- capacity assessment questionnaire screening tool for existing systems;
- capacity assessment tool for use with the on-site contractor assistance program; and
- initial prioritization process for on-site assistance.

As these activities are completed, the EFC may be involved in additional implementation activities.

New Mexico Finance Authority Request for Proposal Preparation
1997 - Present

The EFC is currently providing services related to the preparation of a request for proposal (RFP) for environmental reviews, engineering services, and construction services for the SDWA SRF loan program to the New Mexico Finance Authority (NMFA). The has not typically needed these types of services in the past and does not wish to hire individuals to provide these services on a full-time basis. Rather, the NMFA prefers to contract out for these services, at least initially.

The RFP preparation services include:

- develop text for RFP for contractual services;
- combine RFP text (above) with standard language required for all NMFA RFPs to produce final RFP;
- prepare list of newspaper advertising locations;
- locate mailing list(s) for mailing RFP to targeted groups and provide to NMFA;
- assist NMFA in developing matrix to rank/rate responses to RFP;
- review responses to RFP and assist NMFA in evaluating responses;
- assist in interviewing potential candidates; and
- assist in final selection of candidates.

Potential Work: Education & Training

The EFC has submitted a proposal to the New Mexico Finance Authority to provide additional services related to training and education for the NMFA staff. This portion of the work would include the following.

- review federal and state requirements for the SDWA SRF Loan Program;
- provide a written manual describing those requirements; and
- present requirements to NMFA personnel in a training session.

DoÃ±a Ana County Water & Wastewater Utility Authority Assistance
1997 - Present

Background

DoÃ±a Ana Mutual Domestic Water Consumers Association (Association) is constructing a pipeline from their residences to a connection point with the City of Las Cruces (CLC) sewer system. The Association had two options in terms of paying for the CLC treatment; one, have all residents treated as single customers, two, treat the discharge as a large single customer, with a master meter at the discharge point, and DoÃ±a Ana County being the customer. In the latter scenario, DoÃ±a Ana County will then pass on the costs of sewer service to the Association customers in proportion to their usage.

The first option was pursued and abandoned because the Association and CLC could not reach an acceptable agreement for service payment. Therefore, the County is now pursuing an agreement with CLC to be a single large customer. The concern for the County is determining whether or not the current proposal from CLC to the County is acceptable and appropriate.

Given this background, the UNM-EFC is assisting DoÃ±a Ana County in:

- obtaining information from CLC;
- reviewing the current proposal from CLC; and
- understanding the proposed rate.

III. PROJECTS

Capacity Development

The Region 6 Environmental Finance Center at the University of New Mexico has been involved in several projects in the last several years relating to assessing and increasing the capacity of small drinking water systems. The UNM-EFC staff serves as staff to the New Mexico Drinking Water Advisory Group.

Facilitation of the Capacity Development Strategy

Texas Natural Resource Conservation Commission
May - August 1997

Background

In 1994, the Texas Natural Resources Conservation Commission (TNRCC) initiated the development of a statewide strategy to address the capacity, formerly referred to as viability, of small community water systems. TNRCC carried this effort far enough to recognize that substantial challenges, complexities, and difficulties exist in developing and implementing state policies and programs in this area. As a result of these difficulties and the need to concentrate on other TNRCC and state priorities, this effort was temporarily halted 1995.

The Safe Drinking Water Act, as amended in August 1996, requires states to devise comprehensive strategies to assure small system capacity. States must address both new and existing systems and must incorporate the required strategies into their loan approval process for state drinking water revolving loan funds. Given these new obligations, it is imperative to renew Texas' efforts towards the development of a capacity development program and to carry the project forward to an implementation strategy.

Project Approach

The UNM EFC subcontracted with Apogee Research, Inc. and Scott Rubin, a public utility consultant, to assist TNRCC with its capacity development strategy. The main goals of this project were to:

- involve stakeholders in the development of the Capacity Development Strategy;
- include new system elements, SRF applicant elements, and existing system elements in a combined Capacity Development Strategy;
- solicit as much input as possible from TNRCC regarding goals and objectives;
- complete the strategy by August 31, 1997, the end of the Texas fiscal year;
- include a communication plan and an implementation plan in the strategy; and
- coordinate the Capacity Development Plan with the preparation of an Invitation-to-Bid for technical assistance services.

The EFC began this project with an initial meeting with TNRCC representatives to outline the needs, goals, past activities in viability, and general approaches desired. The EFC then examined all of the programs currently conducted by TNRCC that relate to capacity development in some way. This information was used to provide a starting point for the strategy development.

Stakeholder Involvement in the Strategy Process

Stakeholder involvement is important for several reasons. Participation in the strategy development process, by groups and individuals who have a "stake" in owning, managing, operating or financing water systems can improve the quality of the strategy and the decision-making by providing additional information and diverse perspectives, as well as sensitivities to key issues. As a group, the stakeholders can assist in identifying common goals and developing strategies and actions to meet those goals. It is also important in the implementation process for all of the stakeholders to have bought into the strategy in order for it to work over a long period of time. A strategy that is developed with a consensual approach can also help to avoid or mitigate problems.

A stakeholder group can also help to improve communication and networks between different groups and within the constituencies of the various groups. Much of the work of the Capacity Development Strategy will be educating water system management, operators and consumers. A stakeholder group that has access to these people through their membership newsletters and other ways can enhance the success of the strategy by providing information and educating their constituents. It is also important to have a continuing dialogue between the stakeholders and the regulatory and funding agencies as the capacity development strategy is implemented in order to understand what elements are working and what elements are not working. A stakeholder group can work collaboratively to meet the common goal of increasing the capacity of water systems to provide safe drinking water for all Texas residents.

The EFC held an initial stakeholder meeting in June 1996 to discuss, through small group discussions, four main topics:

- *Small System Problem Characterization*

Participants were asked to identify and discuss the problems facing small water systems in Texas. The goal of the session was to have the group reach a consensus on the main problems facing small water systems.

- *TNRCC Capacity Development Activities and "Holes"*
  Participants were given a presentation regarding current TNRCC activities and were asked to consider what activities TNRCC should do that they currently do not; where to strengthen interagency ties; and what activities should be revised or changed. The goal was to gain input on what TNRCC should revise, change, omit, and/or include in its overall strategy.

- *Objectives for the Capacity Development Strategy*

  Participants were asked to think about accomplishments five years after implementation of the strategy. The goal of this session was to reach a consensus on the three main objectives to be accomplished in five years, and to list the key issues which ought to be included in the strategy. In this brainstorming session, the participants were told to not consider regulatory/legal constraints.

- *Priorities for the Capacity Development Strategy*

  Participants were asked to consider the most important aspects of a strategy and where TNRCC should begin. The goal was to reach some consensus on the most important aspects for TNRCC to include in the strategy and initial implementation.

This first Stakeholder Input Session was facilitated by the EFC and Scott Rubin, Esq., Consultant to Apogee Research, Inc. During the session, the participants were randomly divided into seven groups of six people for each topic. Following each topic session, the group was redistributed, to make sure there was as much interaction as possible among the participants. Each small group discussion was preceded by a short talk to set the stage and then the groups were given an overall topic to brainstorm. Following the brainstorming, the small groups were asked to prioritize the top three or four items that the group considered the highest priority. Then one member of each group was asked to report to the main group. These items were recorded on a flip-chart and displayed throughout the room. The primary goal of the small group discussions was to gain information and to build consensus on the topics within the diverse group of stakeholders. Throughout the reporting sessions it was clear that a high degree of consensus existed among the groups.

The EFC held another stakeholder input session in early August 1996 to discuss the preliminary draft strategy. Stakeholders were asked to comment on the following four issues:

- *Capacity Development for Existing Systems*

  Participants were asked to review a draft questionnaire to be used as a screening level tool to solicit management and financial capacity information from water systems. They were asked to consider what questions should be added or removed and then to prioritize those suggestions. Following the discussion on the questionnaire, participants were given options for delivering the questionnaire to systems and asked to come to a consensus within the group as to the best option.

- *Capacity Development for SRF Applicants*

  Based on a discussion of additional tools that could be used to evaluate the capacity of SRF applicants, participants were asked to evaluate the tools and come to a consensus within the small groups as to which tools should be included in the strategy. The groups were also asked to include other tools that were not listed on the handout.

- *Factors that Impair Capacity*
  Participants were given a list of the different types of impairments to capacity including: legal/regulatory, structural, and economic/demographic impairments and asked to identify additional impairments in each category. They were then asked to choose the one or two impairments which they consider most serious and asked to brainstorm actions needed to address these impairments.

- *Capacity Development for New Systems*

  Based on a discussion of TNRCC's current regulatory authority to prevent the creation of new systems with out adequate capacity, participants were asked about additional authority that TNRCC might need.

Comments were incorporated into the draft strategy to create the final *Capacity Development Strategy Report* on August 31, 1997. This report will serve as the basis for the implementation of the Texas strategy and is outlined by section contents below.

Section 1: Compliance with SDWA Requirements;
Section 2: Strategy Elements for New Systems;
Section 3: Strategy Elements for Systems Seeking SRF Assistance;
Section 4: Capacity Development Strategy Elements for Existing Systems;
Section 5: Stakeholder Involvement in the Development of the Strategy;
Section 6: Factors that Encourage or Impair Capacity Development;
Section 7: Implementation Plan; and
Section 8: Communication Strategy.

Water/Wastewater Utility Rate Model

The UNM-EFC held training sessions in the use of *RateMod Proï¿½* to demonstrate the utility of the model as a rate setting and financial planning tool. The model is useful for both water and wastewater utility operators, managers, owners, and for regulatory and funding agencies. Utility managers can use it to perform a cost-of-service analysis, develop demand-based and equitable user rates, prepare a six-year budget, schedule capital improvements, and evaluate financing alternatives. Regulatory and funding agencies can use the model to improve project underwriting, determine necessary and appropriate financial assistance, and assess repayment capacity of individual systems. *RateMod Proï¿½* can also be used as an educational tool for understanding rates. All of the above rate and financial forecast information can be developed on a desktop personal computer.

Water Utility Rate Model Presentations
EPA Region 6: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas
1997

Background

The model was developed in cooperation with the U.S. Environmental Protection Agency and the Environmental Finance Center Network to enhance the financial and managerial capacity of small to medium-size water and wastewater systems. The model incorporates EPA user fee guidelines and methods recommended by the American Water Works Association and the Water Environment Federation. The model is designed to be flexible and easy to use while applying accepted rate setting guidelines and methodologies. It is capable of being customized for each utility system's unique design, customer, and financial characteristics, and accommodates a broad range of common accounting and budgeting practices. Small users may enter very limited data, select the model's defaults and obtain results with minimum effort. Alternatively, larger systems, and those requiring more advanced rate setting techniques, may input very detailed information in order to take advantage of all the model's features.

Model Use

The model is both a rate-setting and a financial planning tool which can:

- perform a cost-of-service analysis;
- develop demand-based user rates; and
- prepare a six-year budget, rate, and financial forecast on a desktop personal computer.

The model is useful on two levels. The UNM-EFC demonstrated the utility of the model for both of the following levels:

- water and wastewater utility operators, managers, and owners; and
- regulatory and funding agencies to:
  - ï¿½ improve project underwriting;
  - ï¿½ determine necessary and appropriate amount of financial assistance;
  - ï¿½ assess repayment capacity of individual systems;
  - ï¿½ schedule capital improvements; and
  - ï¿½ evaluate financing alternatives.

Potential Use

There are many potential options for the use of the model including:

- further training with state agencies to train their staff to provide technical support for utilities that use the model; and/or
- further training with state or local government for internal use.

The actual long-term usage of the model would depend on the agencies' needs and their assessment of the model's ability to meet their custom needs.

Scope of Work

The UNM- EFC demonstrated the utility of RateMod Proï¿½ at a pilot workshop in Dallas, Texas. This pilot project involved a one-day training session at the EPA Region 6 offices to demonstrate the model to state and federal agencies. The day consisted of strategic planning and an in-depth discussion with EPA, TNRCC, and TRWA officials as to how the model could be used to meet the needs of the state regulatory and funding agencies.

The Texas training session served as a pilot demonstration for the introduction of *RateMod Proï¿½* to Region 6. The EFC has since held a two-day training and demonstration workshop in New Mexico. Given sufficient interest and state funding, the EFC plans to conduct additional two-day workshops in the other Region 6 states.

Water Utility Rate Model
Demonstration and Training for Texas Agencies
EPA Region 6 Dallas, Texas
May 19, 1997

The UNM-EFC demonstrated the utility of *RateMod Proï¿½* through a day-long training session in Texas with the Texas Natural Resource Conservation Commission (TNRCC) and the Texas Rural Water Association (TRWA). Strategic planning and an in-depth discussion with TNRCC and TRWA officials as to how the model can be used to meet the needs of the state regulatory and funding agencies was also part of the day's agenda.

The EFC director presented ways in which the EFC could assist Texas agencies with the water utilities rate setting software. Mike Siegel, the model developer, demonstrated the utility of the model on two levels: for water and wastewater utility operators, managers, and owners; and, for regulatory funding agencies to:

- determine necessary and appropriate amount of financial assistance;
- assess repayment capacity of individual systems;
- schedule capital improvements;
- evaluate financing alternatives; and
- improve project underwriting.

RateMod Training/Demonstration Attendees

Name	Agency	Phone
Mike Siegel - Trainer	RateMod Associates	202-237-2455
Dave Reazin - Host	EPA Region 6	214-665-7501
T. Jay Ray	EPA Region 6	214-665-3176
Blake Atkins	EPA Region 6	214-665-2297
Freda Wash	EPA Region 6	214-665-8342
Carol Limaye	TNRCC	512-239-6120
Mary Jane Ford	TNRCC	512-239-6958
Sasha Earl	TNRCC	512-239-6957
Doug Holcomb	TNRCC	512-239-6960
George Freitag	TNRCC	512-239-6123

Robert Stewart	TRWA	512-472-8591
Tom Duck	TRWA	512-472-8591
Craig W. Sherwood	TRWA	512-472-8591
Harold G. Wells	Community Resource Group	512-454-1033
Heather Himmelberger	UNM - Environmental Finance Center	505-272-7357
Lorri Skeie-Campbell	UNM - Environmental Finance Center	505-272-7351

Water Utility Rate Model
Training for the University of New Mexico Environmental Finance Center Staff
New Mexico Engineering Research Institute Albuquerque, New Mexico
October 2, 1997

The UNM-EFC staff benefitted from a two-day training/demonstration session conducted by Mr. Bill Jarocki, Director of the Environmental Finance Center - Region 10 at Boise State University. The purpose of the first day's training was to "train-the-trainer" held exclusively for the EFC-6 staff. The second day was open to state and federal agencies.

The day-long training session included three areas of discussion:

- explanation of general training processes and approaches;
- description of what types of input each water or wastewater manager/operator is required to provide in order to effectively run the model; and
- outline of the models' hardware and software requirements, outputs, and limitations.

Water Utility Rate Model
Demonstration for New Mexico Agencies
New Mexico Engineering Research Institute Albuquerque, New Mexico
October 3, 1997

On the second day of the two-day training/demonstration session, the EFC staff was joined by a representative of a federal agency and a non-profit, technical assistance agency. Mr. Bill Jarocki presented the second day's training demonstration from a "train-the trainer" approach. Since many of the small systems in New Mexico requiring assistance in rate setting also lack computer expertise, the second day of the workshop focused on technical assistance and how other agencies can best work with small systems in areas of rate structuring.

RateMod Training/Demonstration Attendees

Name	Agency	Phone
Bill Jarocki - Trainer	Boise State - Environmental Finance Center	208-385-4293
Blanca Surgeon	Rural Community Assistance Corporation	505-471-4297
Dennis Morrison	New Mexico Engineering Research Institute	505-272-7235
Martha Torres	USDA - Rural Utilities Services	505-761-4954
Susan Butler	UNM - Environmental Finance Center	505-272-7356
Heather Himmelberger	UNM - Environmental Finance Center	505-272-7357
Margie Krebs-Jespersen	UNM - Environmental Finance Center	505-272-7365
Lorri Skeie-Campbell	UNM - Environmental Finance Center	505-272-7351

The following State agencies were also invited to the demonstration but were unable to attend:

- New Mexico Finance Authority;
- New Mexico Environment Department, Construction Programs Bureau; and
- New Mexico Department of Finance and Administration, Local Government Division.

U.S.-Mexico Border Work

Report on Considerations for a County Regional Utility Authority
Submitted to DoÃ±a Ana County, New Mexico
November 1997

The UNM-EFC continued its technical assistance to DoÃ±a Ana County, New Mexico in 1997. The county is one of the fastest growing counties in New Mexico, as well as one of the poorest (fifth and ninth respectively). Special considerations include its 35 colonias and unique infrastructure problems directly related to its international border. The county has frequently encountered contamination of public water supplies due to over-burdened and antiquated distribution systems and equipment. Many systems are operating under an inadequate rate structure and are unable to maintain the system at a viable level. Some residents are without access to a drinking water supply system or a wastewater collection system.

Due to the rapidly changing population densities and the proliferation of colonias, the Board of County Commissioners recognized the need to ensure both a safe supply of drinking water and adequate wastewater service for all residents in the unincorporated areas of the county. The UNM-EFC reviewed the requirements of several other county-run community drinking water systems and wastewater systems nationwide. The results of this study are documented in the UNM-EFC's *Report on Considerations for a County Regional Utility Authority*. The report outlines the organizational structure of different county-managed utility systems and provides DoÃ±a Ana County with information on program considerations and requirements.

Regional solutions can offer local governments a way of sharing the financial burden of providing water and wastewater infrastructure to communities such as colonias. Integrated funding sources and an expanded consumer base are very effective toward the success of a project or the capacity of a system.

The precedent for counties owning and operating water utilities has been set in New Mexico. New Mexico legislation acknowledged the authority of Santa Fe County to own and operate a water supply utility and exempted the it from the Public Utility Commission regulation. Although DoÃ±a Ana County may also need to apply for the authority, Santa Fe County's successful application has already set a precedent.

The EFC report provides information on issues such as legal and administrative responsibilities, financial structures and plans, technical considerations, public-private partnership structures, and operations and maintenance contracts. The UNM-EFC also researched several areas of concern, such as impact fees, assistance to low-income homeowners, management structure, customer charges, and growth management, that will be facing DoÃ±a Ana County in the process of creating a Regional Utility Authority.

Impact fees must be logically developed and documented in order to be effective and legally valid. Even if these fees are directly related to the service provided, a common problem is the inability of the customer to pay which may prevent customers from hooking up to the system. Without an adequate customer base, the system may be over-designed and costly to operate and maintain; and adequate revenues may not be available. In addition, the environmental and health problems that led to construction of the system may not have been resolved. Low-income programs may be necessary to ensure that all customers can afford to hook up to the new system. Counties that have undertaken to provide utility services have several options including low-income homeowner assistance programs funded by an environmental tax.

The operation and maintenance of the utility system should be financed by revenues from costumer rates. This requires that rates be analyzed and structured to cover known and anticipated costs. An additional concern is that system growth needs to be managed. In New Mexico the issue of whether there are sufficient water rights to supply the system as it grows can be a significant problem. Another situation that could develop in DoÃ±a Ana County is a community that has access to a water system without a wastewater collection system. The potential for health hazards or groundwater contamination are then a concern. The UNM-EFC's *Report on Considerations for a County Regional Utility Authority* provides DoÃ±a Ana County administrators with information on the type of issues discussed above and examples of solutions from other counties nationwide.

Ecological Baseline Model for the U.S.-Mexico Border
Funded from USEPAs Office of International Activities
November 1997

The UNM-EFC, in collaboration with the Community and Regional Planning Program at the University of New Mexico, received a grant under the US Environmental Protection Agencys Office of International Activities "Border 2000" Planning

Grants Program to develop a natural resources inventory in the bioregion along the U.S.-Mexico border. The study area was defined as the area surrounding Columbus, New Mexico, United States and Puerto Palomas, Chihuahua, Mexico.

Because there had been no methodical, scientific study of the natural resources in the area surrounding Columbus and Puerto Palomas, projecting the likely impacts of proposed development had been extremely difficult. The area continues to grow faster than most other parts of their respective states. New residents and businesses place increasingly severe demands upon already taxed infrastructure. Soils, vegetation, and traditional land uses are all consequently affected. One of the difficulties facing rational land use decision-making processes is the lack of baseline data common to both sides of the international boundary.

Working in cooperation with Chihuahua state planning officials, local ranchers, farmers, and village residents, a twelve member field research team constructed a geographic information system (GIS) to examine the location of soil types, vegetation complexes, water source points, and wildlife groups. The results will inform local residents further about their surroundings, enable university and government officials on both sides of the border to model the impact of proposed developments, and provide local governments with more information with which to make planning decisions.

The data acquisition and analysis process consisted of several steps, including assembling and training the field team, reviewing satellite data, field verification, analysis of field survey results, construction of the geographic information system, and public reviews.

UNM-EFC Hosts International Meeting: Rio Grande Alliance Coordinating Council
New Mexico Engineering Research Institute Albuquerque, New Mexico
April 15 & 16, 1997

The UNM-EFC assisted in the planning and hosting of a meeting for the Rio Grande Alliance (RGA) Coordinating Council on April 15-16, 1997 facilitated by the Rio Grande Alliance of the Texas Natural Resource Conservation Commission. The RGA exists as an international forum to support collaboration among the diverse groups of the Rio Grande Basin concerned with the protection, improvement, and conservation of natural resources and human health. The goals of the Alliance include:

- developing mechanisms for cooperative activities;
- fostering community-based decision making to address local needs;
- promoting action oriented efforts focused on sustainable development;
- developing interdisciplinary approaches to environmental problems;
- creating opportunities for basin-wide exchange of information and technologies; and
- developing projects that specifically address human health issues.

The Coordinating Council is composed of basin-wide stakeholders with a direct focus on RGA activities. This first meeting of the Council was hosted by the UNM-EFC who provided a facilitator for the general sessions and bi-lingual scribes with knowledge of technical-environmental terminology. The EFC has hosted several other high-level international meetings between the United States and Mexico during the past several years.

Cost-Effective Environmental Management

Public-Private Partnership Studies for the Environmental Financial Advisory Board
Cost-Effective Environmental Management Case Study Compendium

The EFC Director served as vice-chair of the Cost-Effective Environmental Management Workgroup of the Environmental Financial Advisory Board. The Environmental Financial Advisory Board (EFAB) is a federal chartered advisory committee that consists of independent experts from all levels of government, including: elected officials; the finance, banking, and legal communities; business and industry; and national organizations who advise EPA on environmental finance issues.

When the EFAB met in August of 1996, it developed a strategic action agenda for the next year that included the formation of several working groups, one being the Cost-Effective Environmental Management Workgroup. During previous strategic action agendas, this working group concentrated primarily on public-private partnerships. However, for the 1996-1997 strategic agenda, this working group expanded its focus beyond just considering public-private partnerships. Specifically, the workgroup added to its evaluation, models that focus on internally optimizing environmental services. To achieve its objectives, this workgroup outlined two major work projects: a compendium of case studies on effective service delivery and a "how to" handbook for local governmental officials interested in looking at the preliminary steps of implementation. The first work product was completed in October of 1997 and was titled "Cost-Effective Environmental Management Case Studies."

The case study compendium discusses ten cost-effective environmental management efforts in municipalities throughout the

U.S. The case studies cover everything from internal optimization strategies, such as competitivization, through full privatization. In addition, the document describes the types of environmental management options, lessons learned from the case studies, the institutional setting, i.e., applicable laws and regulations, and reference documents for more information.

This first phase of the overall EFAB agenda, is the case study compendium discussed above. This document will provide background information and reference material. Phase II will be started in February of 1998 and will be a "how to" book for governmental personnel who may be considering some form of cost-effective environmental management. The guidebook will lead the user through a series of questions designed to determine if the user has the need to change management structure and how much control the user has to make the changes. The answers will lead the individual to a matrix that will show what type of cost-effective management structure is most appropriate.

IV. COLLABORATIVE EFFORTS

Reports

A Guidebook of Financial Tools: Paying for Sustainable Environmental Systems

Prepared jointly by the:
Environmental Financial Advisory Board and
Environmental Finance Center Network

Public-Private Partnership Studies: Cost-Effective Environmental Management Case Study Compendium

The University of New Mexico EFC-6 working with:
The Environmental Financial Advisory Board

Projects

Capacity Development Strategies: Assistance to States and Native American Tribes

The University of New Mexico EFC-6 working with:
The Environmental Finance Center at Boise State University (EFC-10)

Water/Wastewater Utility Rate Model Demonstration for USEPA Region 6 Agencies

The University of New Mexico EFC-6 working with:
The Environmental Finance Center at Boise State University (EFC-10)

Proposals

Utility Rate Assistance for Wastewater Systems within DoÃ±a Ana County

The University of New Mexico EFC-6 working with:
The Environmental Finance Center at Boise State University (EFC-10)

Financial Capacity Assistance Along the US-Mexico Border Region

The University of New Mexico EFC-6 working with:
The Environmental Finance Center Network where applicable

Joint EFC/EFAB NADBank Assistance Work Plan

The University of New Mexico EFC-6 working with:
The Environmental Finance Center Network (USEPA Regions 2, 3, 5, 9, and 10)
The Environmental Financial Advisory Board

Restoring Ecological Balance in Native American Communities: Coupling Comprehensive Community Planning with Ecological Design

The University of New Mexico EFC-6 working with:

The Great Lakes EFC-5 at Cleveland State University as lead
EFC-10 at Boise State University
The Ecosa Institute, Prescott, AZ

Meetings - Conferences

ASDWA Conference in Savannah, GA October 1997

The University of New Mexico EFC-6 representing the EFC Network working with:
EFC-10 at Boise State University

The Association of State Drinking Water Administrators 1997 conference was held in Savannah, Georgia. The EFCs from Regions 6 and 10 joined together to get an exhibit booth at the conference to showcase the activities of the EFC Network. The EFCs collected names of people interested in receiving EFC publications and mailed out numerous publications as a result of the conference. During one of the sessions, personnel from the Texas Natural Resource Conservation Commission (TNRCC) discussed the Capacity Development Strategy that the EFC-6 prepared.

Native American Capacity Development meeting in Chicago, IL October 1997

The University of New Mexico EFC-6 working with:
The Great Lakes EFC-5

A meeting was held at the Chicago offices of EPA Region 5 on October 1, 1997 that included EPA representatives from Chicago, Tribal liaisons from EPA Region 5, an EFAB representative, and the Directors of the EFCs for EPA Regions 6 and 5. The purpose of the meeting was to determine tribal needs in EPA region 5 and to see if the EFC Network could be used to meet some of these needs.

Capacity Development meeting in Salt Lake City, UT April 1997

The University of New Mexico EFC-6 working with:
EFC-10 at Boise State University, Boise, ID

The EFC Director for the NM EFC met with the EFC Director for EPA Region 10 (Boise State University) to discuss capacity development as it relates to state requirements and to meet with representatives from Utah's Department of Environmental Quality. In particular, Utah representatives were shown a utility rate model and a discussion was held regarding tribal issues within state capacity development.

V. TECHNICAL PRESENTATIONS - CONFERENCES - MEETINGS

MESA (Math, Engineering, and Science Achievement)
Talk on environmental engineering to Polk Middle School students
Guest Speaker Albuquerque, NM 01/28/97

Water Conservation Projects for the Rio Grande Basin
Texas Natural Resource Conservation Commission, Rio Grande Alliance
Overview of the EFC Austin, TX 02/20/97

Texas Drinking Water Advisory Work Group
Overview of SDWA and capacity development Austin, TX 02/20/97

Tribal Non-Point Source Workshop
Overview of the EFC and capacity development Santa Fe, NM 02/25&26/97

Tools for Drinking Water Protection Teleconference
Attended conference Albuquerque, NM 03/19/97

Native American Water Association Conference
Attended conference
Overview of the EFC and capacity development Albuquerque, NM 03/25/97

Rio Grande Alliance Coordinating Council Meeting
Welcome and overview of the UNM EFC and Network

Hosted the 2-day international meeting Albuquerque, NM 04/15-16/97

Bernalillo County On-lot Ordinance Meeting
Attended meeting Albuquerque, NM 04/22/97

The University of New Mexico-Los Alamos Videoconferencing Demonstration
Overview of capacity development through an interactive demonstration session on UNM main campus Albuquerque, NM 04/24/97

New Mexico Water Conservation Alliance Meeting
Attended meeting Albuquerque, NM 04/30/97

New Mexico Intergovernmental Infrastructure Meeting
Attended meeting Albuquerque, NM 05/02/97

New Mexico Environment Department Public Meetings on SDWA
Hosted a one-day informational meeting Albuquerque, NM 07/23/97

Middle Rio Grande Water Planning Assembly
Participated in the planning assembly process Albuquerque, NM 08/08-09/97

New Mexico Drinking Water Advisory Group
Overview of the EFC Network and UNM-EFC
Overview of SDWA and capacity development Santa Fe, NM 08/20/97

Jemez Pueblo Environmental Conference
Attended conference
Exhibit table
Overview of EFC and capacity development Jemez Pueblo, NM 08/20-22/97

New Mexico Drinking Water Advisory Group
Hosted meeting Albuquerque, NM 10/07/97

Association of Safe Drinking Water Administrators
Attended conference
Exhibit table with Region 10 representing EFC Network
RateMod demonstration
Presentation on capacity development work Savannah, GA 10/20-23/97

New Mexico Infrastructure Finance Conference
Attended conference
Exhibit table
Presentation on capacity development work Albuquerque, NM 10/27-29/97

The University of New Mexico Civil Engineering Graduate Seminar Series
Presentation on the role of engineers with capacity development work
Guest Speaker Albuquerque, NM 11/06/97

Bernalillo County On-lot Ordinance Meeting
Attended meeting Albuquerque, NM 11/06/97

Middle Rio Grande Water Planning Assembly
Participated in the planning assembly process Albuquerque, NM 11/08/97

VI. AVAILABLE PUBLICATIONS

Report on Issues in the Development of a County Utility Department: Draft Report to DoÃ±a Ana County, New Mexico
November 1997

Cost-Effective Environmental Management Case Studies
October 1997

Ecological Baseline Model for the U.S.-Mexico Border
September 1997

Capacity Development Strategy Report for Texas Natural Resource Conservation Commission
August 1997

Examples of Capacity Development Assessment Tools and Business Plans from Various States
July 1997

A Guidebook of Financial Tools, prepared by the EFAB and EFC Network
June 1997

Environmental Finance Center Network 1996 Annual Report
January 1997

Management and Financing Options for Small Community Water Systems on the U.S.-Mexico Border Region: Final Report to DoÃ±a Ana County, New Mexico
July 1996

A State Survey of Capacity Building Tools
November 1996

A State Viability Survey
August 1996

The Otero County Small Water System Restructuring Project
November 1995

North Valley Wastewater Options Study: Final Report for Bernalillo County, New Mexico and Village of Los Ranchos de Albuquerque
June 1995

Meeting Financial Responsibility Requirements on Tribal Lands
October 1994

Public-Private Partnerships for Environmental Facilities: The Management Challenge for Local Governments, A Training Program for Local Government Officials
October 1993

Water and Wastewater User Charge Guide for Small Municipalities
September 1991

VII. REQUESTS for PUBLICATIONS

(not included in web version)

VIII. ADDITIONAL WORK

The University of New Mexico Environmental Finance Center staff also performs contractual work under the Engineering and Environmental Finance Center Division of NMERI. Most of this work consists of research-based projects under contract with local government and other university departments and is described on the following pages.

LodeStar
1997 - Present

The LodeStar Project's Enchanted Skies Park and Observatory is a public access park dedicated principally to providing a balanced program of education, research, and public outreach. The observatory facilities will be located above the 7000-foot elevation level on Horace Mesa near Grants, New Mexico. Although the main visitors to the Enchanted Skies Park will be elementary through college level students, it is expected that the New Mexican public, Elder hostel groups, tourists, and

professional astronomers and scientists will also visit the Park regularly. In addition to educational programs on the use of telescopes, there will also be programs that educate visitors on traditional Native American interpretations of the universe, teacher's workshops where teachers can spend up to two weeks researching ideas in astronomy for their classrooms, and astronomy camps. Construction of the Park is scheduled to start in 1998.

NMERI is providing ongoing civil engineering support services to the LodeStar Project. *The Civil Engineering Options Assessment Report* (August, 1997) overviewed the factors that needed to be considered when making water source, wastewater treatment and disposal, and other infrastructure decisions at the Enchanted Skies Park. Water usage rates were estimated based on the facilities' information and a survey of similar parks and monuments where low flow systems and other conservation measures have been implemented. Several different wastewater treatment options were also considered and evaluated for engineering difficulties, construction costs, and maintenance costs. In addition to the information provided in the main report sections on geology, hydrology, water supply, and wastewater treatment options, other items that the report addresses include legal rights, permitting requirements, construction considerations, facilities and exhibits considerations, and safety and emergency considerations. These items, although not directly related to civil engineering infrastructure, may have an impact on the progress and long-term goals of the Enchanted Skies Park.

Bernalillo County Wastewater Demonstration Projects
1995 - Present

BIFAR Demonstration Project 1996-1997

The Bioflotation Demonstration Project was an effort to bring new wastewater treatment technology to Bernalillo County, New Mexico to evaluate its potential use in remote areas where sewer connections to a large wastewater treatment facility is not available. The Bioflotation Unit is manufactured by BIFAR, a Russian company, and was originally presented by representatives of the United States Industry Coalition (USIC) to Bernalillo County Public Works Department as a low cost, low maintenance, high efficiency wastewater treatment system.

In theory, the Bioflotation unit combines the processes of biological treatment, solids settling, and sludge thickening in one unit. The results of the performance testing showed occasional satisfactory results, although the unit did not meet the requirements of the contract. Additionally, the unit did not appear to have the hydraulic capacity specified in the contract. BIFAR USA has acknowledged that the unit was unable to meet the requirements of the contract. NMERI served as a sub-contractor of Bernalillo County.

On-lot Constructed Wetland

The Bernalillo County Environmental Health Department (BCEHD)receives numerous requests for alternative on-site wastewater treatment systems, such as wetlands. However, there is only very limited data regarding the effectiveness of these systems in Bernalillo County. NMERI was contracted by Bernalillo County to investigate the effectiveness of a constructed wetland treatment system with an evaporation pond discharge. The system served a family of 6 and was used in an area that was unsuitable for a traditional septic tank/leach field type disposal system.

NMERI installed flow meters at several points in the wetland, creating the first wetland system in the state to be flow monitored for both influent and effluent flow. NMERI also installed a weather station to collect actual weather data at the site, including temperature (both air temperature and the water temperature of the wetland), wind speed, evaporation, and rainfall. The intent of the study was to gather treatment efficiency data, but the initial flow monitoring and weather data revealed a substantial leak in each wetland cell. Although the presence of theses leaks prevented the collection of meaningful data, much information was gathered regarding the design process, the construction process, and the County inspection process

that was valuable to BCEHD in revising its liquid waste ordinance. NMERI is currently in the process of completing the final report on this project, with a projected completion date of January 1998.

Compost Toilet - Greywater Evaporation System

There are areas in Bernalillo County, New Mexico that are completely inadequate for on-site wastewater treatment. A possible system for these areas is a composting toilet with a greywater evaporation system. Because no other systems of this type were installed within the county, the BCEHD contracted with NMERI to evaluate the effectiveness of this system, including costs, operation and maintenance considerations, homeowner impressions, problems with the system, and potential applications for the system. The expected completion date of this project is Spring 1998.

Pecos Remediation

1994 - 1997

NMERI just completed four years serving as the Technical Assistance Contractor for the village of Pecos, New Mexico for the hazardous waste clean up effort of the Torrero site. We provided technical expertise to the Village in the form of document reviews, comments to state agencies and contractors on work efforts, acting as Village liaison at meetings, arranging for expert subconsultants as needed, and participating in the Technical Working Group. The working group consisted of individuals from all of the stakeholder groups, including state agencies, contractors, principally responsible parties, the Village (NMERI staff on behalf of the Village), the County, and interested citizens. The group discussed all of the important documents related to the clean-up and determined directions of the studies, including the feasibility study, remedial investigation, decision document, health risk assessment, and an ecological risk assessment.

New Mexico Resource Geographic Information Service
On-going

The New Mexico Resource Geographic Information System (RGIS) Program is a cooperative program between the University of New Mexico and the State of New Mexico General Services Department. Representatives from three UNM public service and research units comprise the RGIS Team including the EFC director representing the New Mexico Engineering Research Institute, Earth Data Analysis Center, and the Bureau of Business and Economic research. Program components include the RGIS Clearinghouse -a publicly accessible resource, database development, technical support, training, geographic information coordination, and project support for state agencies and local government.

RGIS is dedicated to advancing applications of geographic information system technology within New Mexico's State agencies, local government, and private industry. GIS technology is an important tool for managing business and government. The Program provides access to data, training, and technical support for users desiring to incorporate geographic information into their decision making processes. Outreach programs to county and local governments encourage effective and efficient management through coordinated development of geographic information. The RGIS Program is a focal point and clearinghouse for spatial geographic information and related technologies in New Mexico. For more information refer to the RGIS web page at http://rgis.unm.edu:8080.

TABLE OF CONTENTS

1996 ANNUAL REPORT

REGION 6
UNIVERSITY OF NEW MEXICO
ENVIRONMENTAL FINANCE CENTER

Ecological Baseline Model for the U.S.-Mexico Border, November 1996

IV. BROWNFIELDS INITIATIVES

General

Brownfields 96: A New Environmental Frontier, Conference in Pittsburgh, September 1996

Brownfields and Greenfields: Opportunities and Challenges for Metropolitan Development, Cleveland, Ohio, March 1996

Assistance to the City of Albuquerque, New Mexico on Preparation of Proposal for Demonstration Pilot Project on EPA Brownfields Economic Redevelopment Initiative, March 1996

V. TECHNICAL PRESENTATIONS, TRAINING, AND MATERIALS

Council of Infrastructure Financing Authorities, November 17 - 19, 1996

Summary of Paper Presented to the 1996 Council of Infrastructure Financing Authorities Conference

New Mexico Infrastructure Financing Conference, October 1996

Summary of Paper Presented to the 1996 Council of Infrastructure Financing Authorities Conference

New Mexico Conference on the Environment, March 1996.Page 26

Summary of Paper Submitted for the New Mexico Conference on the Environment March 1996

Summary of Paper Submitted for the New Mexico Conference on the Environment March 1996

Training for Water Professionals from El Salvador with the University of New Mexico Office of International Technical Cooperation, September 1996

Meetings with USEPA Region 6, September 1996

Computer Rate Model Demonstration, November 1996

1996 State/EPA Region 6 Conference, December 1996

USEPA REGION 6
THE UNIVERSITY OF NEW MEXICO ENVIRONMENTAL FINANCE CENTER
at the
New Mexico Engineering Research Institute

Established as the first EFC in 1992, The University of New Mexico Environmental Finance Center (UNM-EFC) serves USEPA Region 6 and is located at the New Mexico Engineering Research Institute. The UNM-EFC initially began with an emphasis on the application of public-private partnerships to owning and operating public water and wastewater utility systems. With the anticipation of NAFTA, the UNM-EFC provided technical assistance to border communities on ways to reduce costs for basic sanitary services. Additionally, the UNM-EFC researched financing alternatives for environmental infrastructure along the U.S.-Mexico border which later served as a guide to feasible choices for public policy decision making. The UNM-EFC field-tested a water and wastewater rate model with several New Mexico communities last year, and is currently working with the Texas Natural Resources Conservation Commission on actual use of the model, with anticipated implementation in Spring 1997. Training in the use of the model, is intended as a mainstay of the EFC's financial outreach program, and will occur throughout the Region 6 states, depending on interest. Technical assistance to federal, state, and local governments and public and private small water systems is the current focus of the UNM-EFC to assist states in complying with the Safe Drinking Water Act Amendments of 1996. Identifying financing options and promoting low-cost, alternative, and appropriate technologies for system capacity development projects, at affordable and viable levels, is a particular commitment of the UNM-EFC.

I. CURRENT INITIATIVES

Proposal for a Demonstration Project Using RateMod Pro (TM) to Set Rates for Water and Wastewater Utilities
December 1996

The University of New Mexico Environmental Finance Center (UNM-EFC) proposes to demonstrate the utility of*RateMod Pro* (TM) through a two day training session in Texas, in conjunction with the Texas Natural Resource and Conservation Commission (TNRCC) and the Texas Water Development Board (TWDB). The model is a rate-setting and financial planning tool which can perform a cost-of-service analysis, develop demand-based user rates, and prepare a six-year budget, rate and financial forecast on a desktop personal computer. The model is useful on two levels: 1) water and wastewater utility operators, managers, and owners; and 2) regulatory and funding agencies to:

- improve project underwriting;
- determine necessary and appropriate amount of financial assistance;
- assess repayment capacity of individual systems;
- schedule capital improvements;
- evaluate financing alternatives.

The UNM-EFC proposes to demonstrate the utility of the model for both of these levels.

Background

The model was developed in cooperation with the U.S. Environmental Protection Agency (EPA) and the Environmental Finance Center Network to enhance the financial and managerial capacity of small to medium-size water and wastewater systems. The model incorporates EPA user fee guidelines and methods recommended by the American Water Works Association and the Water Environment Federation. The model is designed to be flexible and easy to use while applying accepted rate setting guidelines and methodologies. It is capable of being customized for each utility system's unique design, customer, and financial characteristics, and accommodates a broad range of common accounting and budgeting practices. Small users may enter very limited data, select the model's defaults (The deafults used are "smart defaults" meaning they are selected by the model based on the user's input values) and obtain results with a minimum of effort. Alternatively, larger systems, and those requiring more advanced rate setting techniques, may wish to invest more time and effort and input very detailed information in order to take advantage of all the model's features.

The model has been in development for over two years and has been beta-tested in New York and New Mexico by the respective Environmental Finance Centers. It has subsequently been applied by five utility system managers for systems ranging in size from 140 connections up to 27,000 connections. The model has been recently showcased at the International City/County Managers Association (ICMA) Conference in Washington, D.C. and, most recently, at the November 1996 Council of Infrastructure Financing Authorities (CIFA) Conference in Albuquerque, NM. There were numerous expressions of interest by state and local officials in the use of the model as a result of these conferences.

Scope of Work

The UNM- EFC intends to demonstrate the utility of the rate model at a pilot demonstration workshop in Austin, Texas. This pilot project would involve a two-day training session in Austin to demonstrate the model to water and wastewater systems and to state agencies. The first day of the conference would be attended by one or two representatives from eight to ten water or wastewater systems, along with observers from TNRCC and TWDB. The systems would be selected by TNRCC and/or the TWDB based on selection criteria (e.g., system must have meters, acceptable number of connections) and to reflect a cross-selection of communities and characteristics.

The second day would consist of strategic planning and an in-depth discussion with TNRCC and TWDB officials as to how the model could be used to meet the needs of the state regulatory and funding agencies. EPA Region 6 staff would also be invited to participate.

There are many potential options for the use of the model, including: further training with TNRCC and/or TWDB to train their staff to provide technical support for utilities that use the model; further training with TNRCC and/or TWDB for internal agency usage; long-term technical assistance provided by the UNM-EFC, in conjunction with or separately from Mr. Siegel, the model developer; or the UNM-EFC and/or Mr. Siegel could work with TNRCC and/or TWDB electronically via e-mail or travel to Texas to work with data sets or particular rate study cases on an "as-needed" basis. The options presented above are preliminary "brainstorming" ideas, the actual long-term usage of the model would depend on the agencies' needs and their assessment of the model's ability to meet their custom needs.

Additional Training Seminars

The Texas training session would serve as a pilot project to demonstrate this training approach and the introduction of *RateMod Pro*(TM) . The UNM-EFC will demonstrate the model to EPA Region 6 and the other Region 6 states. Depending on interest and budgetary constraints, the UNM-EFC would conduct additional two-day workshops in other states.

Proposed Scope of Work
Facilitation of Capacity Development Strategy
for Texas Natural Resources Conservation Commission
Draft as of December 1996

Background

In 1994, the Texas Natural Resources Conservation Commission (TNRCC) initiated the development of a statewide strategy to address the viability of small community water systems. TNRCC carried this effort far enough to recognize that substantial challenges, complexities, and difficulties exist in developing and implementing state policies and programs in this area. As a result of these difficulties and the need to concentrate on other TNRCC and state priorities, this effort was temporarily halted 1995.

The Safe Drinking Water Act, as amended in August 1996, requires states to devise comprehensive strategies to assure small system capacity. States must address both new and existing systems and must incorporate the required strategies into their loan approval process for state drinking water revolving loan funds. Given these new obligations, it is imperative to renew Texas' efforts towards the development of a capacity development program and to carry the project forward to an implementation strategy.

Proposed Project Approach and Objectives

Experience in several states has shown that a facilitated stakeholder consensus process has substantial value in the development of state capacity strategies. This approach recognizes that the resolution of small system capacity problems requires the powers and resources of the state, regional, and local governments, as well as the private sector, and that ultimately, the implementation of a capacity development strategy will require a broad base of support built on a shared understanding of the mission and objectives.

The UNM-EFC, in conjunction with the firm of Apogee Research, Inc., proposes to use the stakeholder consensus process to obtain a comprehensive capacity development program for Texas and a strategy for its implementation. The stakeholder process will result in three major outputs, which are identified below. It is intended that implementation of these outputs will create a capacity development strategy that will equal or exceed EPA's requirements under the 1996 SDWA Amendments.

There are three essential outputs of the proposed stakeholder process:

- ***A Task Force or Committee Report of Findings:*** A summarization document describing the stakeholder deliberations and key findings. This is not intended to be a transcript or detailed minutes of meetings. The document will include:
  - an understanding and documentation of the small water system problems that the capacity strategy is trying to address, summarized in a form useful for education of other audiences and support of implementation;
  - the consensus of opinion regarding the broad objectives and approaches to guide development and implementation of the state strategy; and
  - specific recommendations for action.
- ***A Communications Strategy:*** A comprehensive plan to educate and inform audiences throughout the state regarding the results of capacity development stakeholder process and implementation strategies.
- ***An Action Plan:*** A strategic plan for implementation of the recommended initiatives, which includes the steps to be taken by all parties (state, regional, local and private sector entities.)

II. WATER VIABILITY

The Region 6 Environmental Finance Center at the University of New Mexico has been involved in several projects in the last

several years relating to assessing and increasing the capacity of small drinking water systems.

Increasing Water Viability in the New Mexico
Funded through an Assistance Agreement with USEPA Region 6
August 1996 - present

Background

The EPA defines viability as *the ability of a water system to consistently provide quality service at an affordable cost*. This encompasses the technical, financial, and managerial capacity of a system to consistently comply with performance requirements and requirements under the Safe Drinking Water Act as amended. Viability can also be seen in a much broader context than compliance with the Safe Drinking Water Act and performance requirements. It can involve economic development, population growth, and the role of the state in public infrastructure.

Increasing viability is a two-step process. The first step is to assess the viability of water systems, and the second step is to actively enhance viability through a technical assistance program. Viability exists along a continuum and information about present and future needs of water systems must be incorporated in the process in order to get the entire picture.

Goals of the Project

The goals of this project are:

- to develop an assessment tool and methodology to review the viability of small, rural drinking water systems in New Mexico; and
- to provide assistance to State agencies in developing and implementing a state-wide water viability program and enhance resources available for technical assistance.

Thus far in the project, benchmark criteria have been developed for the assessment tool based on research; focus groups, meetings, and interviews have been held with technical assistance providers, representatives from funding agencies, and regulatory agencies. In addition, two surveys have been compiled and distributed: a survey of states to asses existing small water system viability efforts and determine viability strategies that may be applied to the State of New Mexico; and a survey of assessment tools and methodologies used by different states to evaluate and address financial, managerial, and technical capability.

Research

Prior to the reauthoriztion of the Safe Drinking Water Act, several states were already actively involved in developing capacity measurement tools for drinking water systems. The approaches vary, but all are directed towards building capacity of water systems. The focus in a few states is to develop a comprehensive tool which addresses financial, managerial and technical capability. In contrast, others have elected to concentrate in a particular area which influences overall system functioning. Business plans are surfacing as a means of structuring performance via annual reviews and new permits. Growth management concepts are woven into one of the measurements, ensuring that individual water system plans are consistent with regional and local growth plans. A few states have made significant progress in moving towards evaluation of system capacity. A few of the tools are already in the implementation stage and are backed by supportive legislation. Each offers a perspective on how to move systems to an optimal performance level.

The state of Connecticut has developed a water system assessment tool. The financial aspect of the test includes a cost estimate of individual system infrastructure needs and a process that explores how these costs might be absorbed, i.e. by increased rates, cash flow, borrowing etc. (Systems smaller than 50 customers were not included due to the lack of system capability to produce sufficient data.) In developing the technical component of the test, the requirements are divided into administrative and health standard categories. The primary purpose of this tool is to inform systems where they stand relative to their own level of performance.

Iowa recently completed a self-scoring assessment tool to measure the functioning of water systems in the state. Recognizing the limited staff/engineering hours available to implement a complex assessment tool, the Iowa Water Program contracted with a to design a tool which would be user-friendly and simple to carry out. It was a important that the tool would provide useful feedback to systems without requiring review from the Water Program staff. The tool addresses infrastructure issues, managerial capability and financial aspects of the system in a yes/no response format to 21 questions. There were insufficient funds to test the tool on a selection of communities, but the intent is to continue work on this project at a later date.

Ohio established a Financial Committee to develop affordability indicators which are used to perform a fiscal analysis on system rates. System rates are surveyed every two years. The affordability indicators are also used to determine system eligibility for below-market financing for public water supply projects. The State carried out a survey of 312 community water systems, selecting out systems which had raised rates within the last two years. The rate percentage of median household income (MHI) was calculated for each community. The 75th and 90th percentile quartiles of this group were selected as the low and high affordability benchmarks The rates of communities with incomes below the MHI were compared to the low benchmark percentage and those with incomes above the MHI were compared to the higher benchmark. If the annual cost per household is greater than the benchmark value, a detailed analysis is carried out in order to determine whether a substantial and widespread economic and social impact will result from the implementation of the project. If the annual cost per household is less than the benchmark value, the project is considered within the financial capability of the community.

Pennsylvania is a very active state in moving to remedy problems with small water system capacity. The state has initiated numerous programs which enhance the overall capability of small drinking water systems. As of October 1 1996, granting of a new system permit is contingent upon completion of a business plan which assesses the financial, managerial and technical aspects of a water system. To assist in the implementation of the business plan, the State contracted with a consultant who collected data in specific indicator categories from a random selection of systems. The indicators were selected based on the expectation that each would correlate with some aspect of system viability. A group of state officials familiar with the systems included in the sample, then ranked the sample of systems according to a set of criteria based on factors of performance. A statistical analysis was performed to determine the correlation of indicator variable results with the staff assessment rankings. Those indicators with the highest degree of correlation with the field rankings were included in the final selection. Benchmark range values, representing two levels of risk; labeled yellow flag (some risk) and red flag (high risk) zones, were developed to match the validated indicators. Equipped with a set of benchmarks, it is now possible for the State to compare specific system business plan data against a point at which similar systems have demonstrated adequate capability to operate in compliance with standards and regulations.

A Pennsylvania Small Water Systems Outreach Program offers an innovative approach to the provision of technical assistance to small water system communities. The program operates through a network of instructors comprised of community water system operators, managers, and other support personnel from the water supply industry. These team members, in cooperation with representatives from the Division of Drinking Water Management, provide education and an assessment of system design, process control and administrative conditions. This model provides a platform from which to formulate options and improve performance. At the time of initial contact with a system, a quantitative and qualitative evaluation is performed by Drinking Water Management staff to determine the technical and administrative capacity level of the system. The data collected in this evaluation visit is then presented to the systems to assist them in identifying goals and objectives in their planning process. The overall Outreach Program goal is to assist systems in achieving Best Practice performance, moving beyond regulatory requirements to a higher set of self-imposed standards.

In 1985, the State of Washington passed legislation requiring small water systems within certain categories to have a Water System Plan (WSP). The requirements of the WSP include: basic planning data (history, demographics, geography); an analysis of system equipment and future needs; a schedule of identified improvements, financial performance data, and synchronization with existing land use plans. The intent of this requirement was to improve the quality of water service in the State. In 1993, facing high numbers of SDWA violations, Washington initiated a Drinking Water 2000 Task Force to investigate policy issues impacting drinking water. A year later, the State developed a manual to evaluate the financial viability of new and expanding water systems to improve the standards of small drinking water systems. The four components of the financial test evaluate: 1) the ability of a system to cover normal expenses; 2) the capacity to meet unexpected O&M expenses; 3) the capability to plan for future equipment needs; and 4) the affordability of the established rate. Supported by state legislation, the Financial Viability Test is carried out in conjunction with the WSP, and as a package provides an effective and comprehensive set of system assessment tools.

New Mexico

- Failure to plan ahead is the major problem with small systems.
- Predicting future needs will lead to financial and managerial stability.
- Lack of capability (know-how) in record keeping, budgeting, and managing is at the core of viability problems with small systems.
- Lack of access to funds and/or the layers of bureaucracy required to obtain funds are major barriers to healthy small system functioning.

- Communities often lack understanding of the bottom-line issues: i.e. the true cost of supplying water.
- A capital improvement plan requirement for small systems would provide a means for systems to anticipate & prioritize future needs.
- Meters should be mandatory for all public drinking water systems.
- One idea is to create a regulatory requirement for a certified system manager to ensure stability and expertise with small systems.
- Bureaucratic requirements for performance and PUC regulatory control could increase costs.
- Developing assessment tools will be useless if funding is not allocated to carry-out implementation and assistance.
- A self-assessment tool may not be filled out by the very communities that need it the most. How do you get buy-in from a community in implementing an assessment tool?
- Due to limited funding available to small systems, it is almost impossible for small systems to become viable.
- Requirements for funding are often too stringent and the small size of a system may be a factor in disqualifying it for funding.
- Is viability the issue, or is health risk a more important factor, i.e. incidence of water-borne disease.
- All of the emphasis on compliance and performance is creating an affordability problem for small systems, particularly those in lower socio-economic areas.
- It is time to explore other options, which could reduce overall costs under the present system, i.e. eliminating expensive and unnecessary testing requirements.
- Alternative methods of managing risk need to be explored, i.e. less expensive methods which involve community education and responsibility for self-protection.
- A crucial piece of data, the measurement of water-borne disease, is the missing piece in the evaluation criteria for healthy systems.
- Rates are often not at a level to maintain systems in a viable condition.
- Communities miss opportunities for funding because they do not understand the timetable and the process. Also the availability of funds is not well publicized.
- Political differences among communities interfere in consolidation of systems here in New Mexico.
- New Mexico, with the Water Conservation Fee Fund, has set up a system that does not burden small systems in complying with testing requirements.

Management and Financing Options for Small Community Water Systems in the U.S./Mexico Border Region: Final Report to Dona Ana County, New Mexico Completed July 1996

The purpose of this project was to provide technical assistance to Dona Ana County, New Mexico by assessing the existing small community drinking water systems and recommending alternative organizational structures which would improve overall water system viability in the County. This project was funded through an Assistance Agreement from USEPA Region 6 and the final report was completed in July 1996. A presentation of these findings was made to the Dona Ana County Wastewater Technical Advisory Committee in Las Cruces, New Mexico on February 15, 1996. Representatives from the County Planning and Development Department and the Wastewater Advisory Committee were given a copy of the draft report for their review and comments. The EFC delivered a copy of the final report to the County which has been well received as shown by interest and the copies requested. A listing of individuals or organizations who received or requested copies can be found in Section VI.

Background

Dona Ana County is the fastest growing county in New Mexico, as well as the ninth poorest in the State. The County, with its 35

colonias, presents unique infrastructure problems directly related to its international border. The County has frequently encountered contamination of public water supplies due to overburdened and antiquated distribution systems and equipment. Many systems have been operating under an inadequate rate structure and have been unable to maintain the system at a viable level. Some residents are without access to any drinking water.

Three water systems, representative of systems within the county, were selected for case studies. Each of the water systems served at least one colonia. A series of interviews was carried out to assess the technical, financial, and managerial viability of these small systems. Rate structure analyses were performed to determine the financial health of each and possible remedies to existing financial dilemmas.

Conclusions

The final report included an evaluation of organizational structures appropriate for the County and a discussion of funding sources available under various institutional scenarios. In considering the existing conditions and future projections for growth in Dona Ana County, the UNM- EFC proposed four options for the County.

- *Development of a Water and Sanitation District or special district.* The area of the district can be relatively small, consolidating a group of systems in close proximity of one another, or it can encompass the entire County.
- *Development of a Regional Authority.* A regional utility authority is one method to consolidate a group of water systems within a regional area under a legal framework which offers certain economic and financial advantages to local governments.
- *The County owns and operates all new water systems.* Dona Ana County can develop, own, finance, and operate all new water supply systems.
- *The County owns and contracts out the management of all new water systems.* Dona Ana County can develop, finance, and own new water supply systems but contract the management and operations with a private or public entity.

Presentation to the Dona Ana County, New Mexico Commission
on Management and Financing Options
September 10, 1996

On September 10, 1996, the UNM-EFC director and a staff member presented options for management and financing of small water systems to the Doï¿½a Ana County Commission. Institutional and organizational structures currently available for the formation of a community water system under New Mexico statutes were presented, as well as information about the creation of a Regional Utility Authority.

Most of the existing small water system in the County will be non-viable in the long term. They have management and revenue generating problems and most systems rely on a combination of grants and legislative subsidization. However, rates are likely to increase under more viable conditions. Definitions of service areas are not always complete or accurate. In addition, most new growth is occurring outside of designated water supply service areas and there are many stakeholders competing for water resources. Current levels of income from customer rates are not sufficient to operate many of the community water systems. Information about rate structures and financing programs available in New Mexico was presented to the Commissioners.

Essential to gaining support for any involvement in providing water and wastewater services, the County needs to remember that education reduces resistance to new plans. Consumers need information on the true costs of providing quality water service. Allowing citizens to help identify problems and participate in creating solutions tends to encourage ownership and acceptance.

Meeting with Jane Schautz
Small Town Environmental Planning Program
June 14, 1996

On June 14, 1996, the EFC staff met with Jane Schautz of the Small Town Environmental Planning Program (STEP) located at the Rensselaeville Institute. STEP was established in 1973 to provide assistance to elected officials, community leaders, treatment system operators with self-help concepts and strategies designed to reduce construction and reconstruction costs of water and wastewater projects to affordable levels. The program addresses small rural communities whose problems are unfunded by outside sources. The average savings of a project is 35%. The strategy of STEP is to inform state agencies about the STEP approach and offer seminars to funding and regulatory agencies. A compact is then developed with the state which defines responsibilities and a work plan. State representatives identify a community or set of communities which might work with a

STEP program. A community needs to have the capacity and willingness to address their water and wastewater problems with self-help techniques for solutions. Currently STEP is involved in several projects along the U.S.-Mexico border.

Rural Community Assistance Corporation's
Small Water System Administration Manual: A Resource Guide New Mexico
September 1996 - present

An UNM-EFC staff person was temporarily hired by Rural Community Assistance Corporation to develop an administration manual for mutual domestic water associations in New Mexico. The manual contains nine sections, with four major sections: Agency Locator, Government Reports, Financial, and Viability. A matrix was developed which lists all pertinent and required government reports/forms including the form name and number, agency and department, purpose, and frequency and due dates. Various financial areas included in the manual are: a recommended bookkeeping system; monthly reports to the water board; meeting criteria, agendas, and reports; rate structure setting suggestions; and funding sources.

Please note: *Since the manual is still being reviewed at the regional level, it has not yet received final approval from RCAC's home office, and therefore, has not yet been published.*

III. U.S.-MEXICO BORDER WORK

Ecological Baseline Model for the U.S.-Mexico Border
Funded from USEPA s Office of International Activities
November 1996

The Project

The UNM-EFC in collaboration with the UNM Community and Regional Planning Program, received a "Border 2000" Planning Grant to develop a natural resources inventory in the bioregion along the U.S.-Mexico border. A bioregion has its own soils, land forms, watersheds, climates, native plants and animals. The diffuse and changing boundaries of bioregions have little to do with the artificial city, county, state, and national boundaries on maps. The study area was defined as the area surrounding Columbus, New Mexico, U.S. and Puerto Palomas, Chihuahua, Mexico.

Because there has been no study of the natural resources in the area surrounding Columbus and Puerto Palomas, projecting the likely impacts of proposed development has been extremely difficult. Yet the area continues to grow faster than most other parts of their respective states, bringing in people and businesses which place severe demands upon already taxed infrastructure and affect soils, vegetation and traditional land uses. The growth of Puerto Palomas alone since 1990 is locally estimated at 45%.

Working in cooperation with Chihuahua state planning officials, local ranchers, farmers, and village residents, a twelve member field research team constructed a Geographic Information System (GIS) to examine the location of soil types, vegetation complexes, water source points, and wildlife groups. The data acquisition and analysis process has consisted of several steps, including assembling and training the field team, reviewing satellite data, field verification, analysis of field survey results, construction of the geographic information system, and public reviews.

The goals of the project were to inform local residents about their surroundings, enable university and government officials on both sides of the border to model the impact of proposed developments, and provide local governments with more information with which to make planning decisions. The final step in the project was a series of public reviews in communities throughout the study region. Data files were provided to the federal, state, and local government agencies and universities interested in the project and maps were provided to the local communities which currently do not have GIS software.

Background

The main settlements in the study area are Columbus, New Mexico (1995 population approximately. 850) and Puerto Palomas, Chihuahua (1995 population approximately 10,000). Although Puerto Palomas is contiguous to the international boundary and Columbus is three miles north, they share a common aquifer. The population growth rate of the Columbus area is disproportionately high compared to overall growth for the US states. This growth is associated with the in migration of agricultural workers from the interior of Chihuahua and other Mexican states taking advantage of seasonal agricultural employment opportunities and the growing number of retired persons relocating to Columbus from other parts of the US.

The traditional forms of economic activity are farming and ranching, although small maquiladora operations (production and manufacturing facilities) and commercial establishments have grown up in Puerto Palomas in support of the increased flow of

goods between the two countries. However, the persistent drought in the region is taking its toll. The lack of water and feed corn has caused stockmen to sell off large numbers of cattle in recent years; while this means cheaper beef prices in the U.S., net farm income in New Mexico has dropped. Large Mexican cities such as Ciudad Juï¿½rez and Ciudad Chihuahua have experienced sporadic water outages and even the border maquiladoras face rationing.

The rapid growth in the area is placing strains on water and sanitation facilities, social services and employment. Chief among these are the public health issues revolving around the supply and quality of potable water, the treatment of wastewater, and the disposal of solid waste.

Public water and sanitation services are available for only 60% of the rapidly increasing population of Puerto Palomas. There are no storm drains in Puerto Palomas and the periodic grading of the dirt streets ignores the contours of the terrain. A municipal water supply system operates for all of Columbus, but disposal of effluent is dependent on individual septic tanks. A cattleyard, dipping and crossing facility which straddles the international boundary is located close to one of the municipal wells in Puerto Palomas, but there is no drainage facility to conduct the manure and slurry away from settled areas. Solid waste disposal is typically handled by landfills, but the landfill in Columbus was recently ordered closed by the New Mexico Environment Department; the landfill south of Puerto Palomas is inadequately managed. The Columbus Industrial Park, which abuts the international boundary, has a wastewater treatment that is currently non-operational; however the recent construction of moderate income housing in the Park and the slow expansion of its industrial activity will force its repair.

The seasonal increase in population also places strains on housing and education in the area. The influx of people to Puerto Palomas during the peak activity of the agricultural season is said to swell the population by 50%. The ultimate question posed by the effects of this growth is whether the resources of the area can continue to support so many people. As first steps toward determining the carrying capacity of the area, comprehensive planning and impact modeling are important

Jurisdictional Issues

In the Columbus-Palomas bioregion, there are five jurisdictional levels, where legislative, fiscal and regulatory authority resides. In addition, the US and Mexico have different administrative structure and responsibilities. The State of New Mexico regulates water rights, oversees wildlife habitats located on state-owned land, and regulates public utilities. The State of Chihuahua administers public education and sanitation. The federal government of the United States regulates use of federal property, including subsurface mineral exploration. The federal government of Mexico regulates, water, land use, mineral extraction, public utilities, road construction, and health services.

These differences have made difficult the historical collection of parallel data in the U.S. and Mexico, as well as between jurisdictional entities within each country. It has also resulted in restrictions on research in this project: although data about water sources have been officially collected by Mexican authorities, and have been analyzed by the research team, they cannot be published without formal approvals by both the Comitï¿½ Internacional de Limï¿½tes y Agua (the Mexican section counterpart to the International Boundary and Water Commission) and the Comision Nacional de Agua.

IV. BROWNFIELDS INITIATIVES

The UNM-EFC is participating in brownfields economic redevelopment through various activities. They have been involved in conducting research on brownfields, and have participated in conferences dealing with innovative brownfields redevelopment financing. Through their strong ties to the EFC network, they are able to access the expertise of the Region 5 EFC, whose major focus is on brownfield site redevelopment. This involves the financial issues affecting the availability of credit and financial tools and incentives to spur investment in abandoned commercial and industrial sites. Specific brownfield activities include the following:

- **EPA Region 6 Brownfields Redevelopment Initiative**
  The UNM-EFC developed a 2,500+ name database of regional brownfields stakeholders. They are preparing a regionally-oriented resource mainly that focuses on financing strategies. They also assisted with preliminary conference planning and preparation.

- **Charrettes On Brownfields Redevelopment**
  The concept of a charrette is to bring together various community groups, agencies, and technical advisors for an intensive workshop where information is exchanged and the participants work together to develop solutions to specific issues the community is facing. The EFC conducts these charrettes by first gathering background information and familiarizing the technical advisors with community concerns prior to the charrette, so that the charrette itself may focus on solution-oriented goals. The brownfield charrettes are beneficial in cities which have already begun the process of

brownfield redevelopment, but which are experiencing obstacles that inhibit redevelopment at the brownfield sites.

- **City of Albuquerque Brownfields Redevelopment**
  Albuquerque holds promising opportunities for brownfields redevelopment, and the EFC will work with the City under an assistance agreement with New Mexico Environment Department to assist the City in understanding Brownfields issues.

- **New Mexico Environment Department Technical Assistance**
  The New Mexico Environment Department submitted a pilot project grant application in January 1997. If a project is awarded, the UNM-EFC may work with NMED on this project. Potential work could include: community outreach regarding brownfields redevelopment, which may involve workshops or a statewide conference; and, developing an inventory of prospective sites using a GIS based computer system, taking into consideration baseline socio-economic indicators. This effort will be in support of the establishment of a model redevelopment process which will allow communities to identify sites, assess sites, and affect clean-up and redevelopment in an expedited manner.

Brownfields 96:
A New Environmental Frontier

What:	National Brownfields Conference
Where:	Pittsburgh, Pennsylvania
When:	September 20 & 21, 1996
Hosted by:	The City of Pittsburgh
Sponsored by:	U.S. Environmental Protection Agency (EPA), International City/County Managers Association (ICMA) American Bar Association (ABA) National Religious Partnership for the Environment Mortgage Bankers Association of America (MBA)
Topics:	Financing Property Reuse - Urban Revitalization Community Involvement Site Assessment Risk Assessment Cleanup Technologies Public-Private Partnerships
Seminars:	Money Talks: Tools for Financing Putting Brownfields Back to Work Having a Stake in the Outcome: Community Involvement Starting from the Ground Up: Brownfields Assessment & Cleanup Making a Case for Brownfields (case studies)
UNM-EFC Involvement:	Conference Attendee: Heather Himmelberger, EFC Director

Brownfields and Greenfields:
Opportunities and Challenges for Metropolitan Development

What:	National Brownfields Conference
Where:	Cleveland, Ohio
When:	March 28 & 29, 1996
Hosted by:	Lincoln Institute of Land Policy
Topics:	Perspectives on the Significance of Brownfields Reclamation to Metropolitan Land Use Issues, including Urban Encroachment on Greenfields Techniques for Analyzing Public Records on Real Estate Transactions

	Public Policy Initiatives: financing options, regulatory reform, and stakeholder collaboration
Seminars:	Brownfields and Metropolitan Development
	Using public records to Analyze Metropolitan Change
	Strategic Considerations in Recycling Urban Industrial Real Estate
	New Public Policy Initiatives
	Financing Brownfields Redevelopment
	Case Studies: Cleveland & Chicago
UNM-EFC Involvement:	
Conference Attendees:	Heather Himmelberger, EFC Director
	Susan Butler
	Joe Schrader

Assistance to the City of Albuquerque, New Mexico
on the Development of Proposal
for the USEPA Brownfields Economic Redevelopment Initiative
March 1996

The EFC assisted the City of Albuquerque, New Mexico in the development of an Albuquerque Brownfields Initiative pilot project submitted to USEPA. The Initiative focused on an abandoned railroad site, which was chosen as the centerpiece of the City's brownfield initiative because of its high potential for a successful cleanup and reuse. The site contains a federal Enterprise Community that is a diverse collection of neighborhoods. Environmental justice and economic development were important issue for the surrounding communities.

The EFC facilitated meetings of the cooperating partners which included the City Office of Economic Development, the Barelas Neighborhood Association, the San Jose Community Awareness Council, the New Mexico Environment Department, as well as a potential purchaser of the site. A joint proposal was developed, with the City of Albuquerque acting as the lead applicant. One of the goals of the project was to create an atmosphere of cooperation in which the land owner would voluntarily agree to clean up the site under a negotiated agreement. There were multiple parties interested in purchasing the site. One potential purchaser was extremely interested in redeveloping the site for manufacturing and creating jobs for the surrounding community. While the project was not funded under the USEPA Demonstration Pilot, the discussions between the cooperating partners has continued.

V. TECHNICAL PRESENTATIONS, TRAINING, AND MATERIALS

Council of Infrastructure Financing Authorities
1996 State Revolving Fund Workshop

What: National Conference for State Revolving Loan Fund Managers
Where: Albuquerque, New Mexico
When: November 17 - 19, 1996
Topics: State Implementation Strategies
Designing SRFs to Preserve Future Lending Capacity
Tracking Progress and Performance of the SRF Program
Drinking Water SRF Guidance
SRF Audit Policy

UNM-EFC Involvement: The UNM-EFC Director was invited to participate on a panel titled *Defining Capacity Development for Drinking Water Systems*, where she presented an overview of the development of a capacity building program in New Mexico. Panel members included:
Moderator: George Ames, EPA Branch Chief of Environmental Finance

Speakers: Peter Shanagan, Small Systems Coordinator for USEPA
Heather Himmelberger, Director of UNM-Environmental Finance Center
John Cromwell, Manager of Water Supply for Apogee Research, Inc.

The UNM-EFC had an exhibit table with information available on the Environmental Finance Center Network, individual Environmental Finance Centers and the Environmental Financial Advisory Board. Copies of reports from the various EFCs were available for review and individuals were able to request additional information. A list of individuals who requested copies or more information is available in Section V.

Conference Attendees: Heather Himmelberger
Susan Butler
Lorri Skeie-Campbell
Norine Meyer

Summary of Paper Presented to
1996 Council of Infrastructure Financing Authorities Conference

Small Water System Capacity Development: New Mexico Case Study

Presented by: Heather G. Himmelberger, P.E.
Director, Environmental Finance Center

November 19, 1996

Introduction: The UNM-EFC has been working with the State of New Mexico, under a grant from USEPA to develop a capacity assessment tool and assist the state in developing a capacity development program for small water systems. The project includes a review of NMED's data collection efforts, review of capacity development efforts in other states, meetings with various stakeholders in capacity development, developing a capacity assessment tool, and implementation. The work to date on the project in New Mexico will be discussed.

Discussion: New Mexico is an arid state with approximately 1,300 drinking water systems. Over 1,000 of these systems are described as small. Several factors influence the development of a capacity development strategy in New Mexico, compared to other states. Within New Mexico, water rights is a major concern- including securing rights, the availability of rights, and the prior appropriation doctrine. Water has cultural and political aspects. The Public Utility Commission does not regulate municipalities or mutual domestic water consumers associations (MDWCA). Geography and population density make it difficult to achieve physical connection of the systems.

Several categories of stakeholders were included in the discussions, including Regulatory Agencies, Funding Agencies, Technical Assistance Providers, Water System Operators, and Others. The involvement of stakeholders in this process is important for several reasons: 1) stakeholders have various perspectives depending on their vantage point, 2) implementation and, ultimately the success, of a state-wide program will involve all stakeholders, and 3) capacity development is multi-faceted (i.e., technical, managerial, financial, institutional) and expertise is needed on each subject.

For the next step following this data gathering stage, the EFC will be synthesizing the input of all the stakeholders, developing the assessment tool, and soliciting input from stakeholders.

1996 New Mexico Infrastructure Finance Conference
In-Depth Conference on Infrastructure Programs

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What:	State Environmental Finance Conference
Where:	Albuquerque, New Mexico
When:	October 28-29, 1996
Hosted By:	NM Dept. of Finance and Administration/Local Government Division
	NM State Highway and Transportation Dept.

	NM Environment Dept. and NM Economic Development Dept.
	NM Association of Counties and NM Municipal League
	NM Finance Authority
	NM Association of Regional Councils
	U.S. D.A. Rural Development Agency
	U.S. Department of Housing and Urban Development
Sponsored By:	Boatman's Trust Company
	Marron & Associates
	Holmes & Narver, Inc.
	Molzen-Corbin
	Southwest Securities
	UNM - Environmental Finance Center, RGIS, North
	American Consulting Engineer's Council of New Mexico
	Standard & Poors Public Finance Ratings
	Wilson & Co.
	International Consulting, Inc.
	Johnson Controls, Inc.
Topics:	Transportation
	Environment
	Community Development
	Emerging Trends & Issues in Infrastructure & Finance
UNM-EFC Involvement:	Exhibit Table & Sponsorship;
	Conference Speaker: Heather Himmelberger;
	Conference Attendees: H. Himmelberger, Norine Meyer, Lorri Campbell

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Summary of Paper Presented to
New Mexico Infrastructure Finance Conference
Technical Assistance and Other Available Resources
Presented by: Heather G. Himmelberger, P.E.
Director, Environmental Finance Center

October 28, 1996

Introduction: The Environmental Finance Center (EFC), located at the University of New Mexico Engineering Research Institute (NMERI) was created in 1992 as a pilot initiative of the USEPA's Environmental Finance Program to serve EPA Region 6. The UNM-EFC is part of a network of 6 University-based EFCs that serve EPA Regions 2, 3, 5, 6, 9, and 10. EPA's ultimate goal is to locate one center in each of the 10 EPA Regions. The activities of and various services offered by the UNM-EFC will be discussed.

Discussion: The overall mission of the EFC is to create sustainable environmental systems in the public and private sectors. Sustainable systems have the financial, technical, and institutional resources to operate indefinitely in compliance with federal and state environmental regulations. The goals of the EFC are to 1) provide state and local officials with education, training, advisory services, technical assistance, publications, and analyses on management and financing of environmental infrastructure; 2) promote innovative environmental financing techniques; 3) document and disseminate information about innovative financing techniques and decision makers; 4) develop hands-on financing strategies and build public-private partnerships; and 5) identify financing projects that are consistent with sustainable development goals, pollution prevention, and source reduction.

The major projects that the EFC has accomplished include: Building Capacity Development for small drinking water systems in the State of New Mexico, Management and Financing Options for Small Water Systems in Doï¿½a Ana County, NM, Public Private Partnership and Alternative Wastewater Collection and Treatment Workshops and Training, US/Mexico Border Projects (including: BECC/NAD Bank Roundtable, workshops and conference, Ecological Baseline Model for Columbus, NM/Las Palomas, Mexico, Report on Environmental Clean-up Along US/Mexico Border: Examination of Financing Alternatives),

Brownfields assistance to the City of Albuquerque, EFC/EFAB (Environmental Finance Advisory Board) Financial Toolbook.

The services that the EFC can provide include technical assistance to state and local governments and the private sector relating to the management and finance of new or existing environmental infrastructure. The EFC provides these services on a contract basis.

1996 New Mexico Conference on the Environment:
Setting New Mexico's Environmental Agenda for the Future

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What	State Environmental Conference
Where:	Albuquerque, New Mexico
When:	March 12 - 14, 1996
Hosted by:	New Mexico Environment Department
	Bernalillo County Environmental Health Department
	City of Albuquerque Environmental Health Department
	All Indian Pueblo Council
	New Mexico Hazardous Waste Management Society
Sponsored by	Intel
	Los Alamos National Laboratory
	U.S. Department of Energy
	Sandia National Laboratories
	Public Service Company of New Mexico
Topics:	Hazardous Waste
	Air Quality and Water Quality
	Radioactive / Mixed Waste
	Water Quality and Groundwater Protection
	Environmental Law
	Environmental Education
	Community Involvement - Environmental Justice
	Health and Safety
	Solid Waste
	Wastewater Treatment and Wastewater Reuse
	Pollution Prevention
	Riparian & Wetland Restoration
	Regulatory Reform
	Sustainable Development in the Border Region
	Native American Issues
UNM-EFC Involvement:	Conference Attendee and Speaker: Heather Himmelberger

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Summary of Paper Submitted for
New Mexico Conference on the Environment
Alternative On-Site Liquid Waste Disposal System Demonstration Project: COMPOSTING TOILET AND GREYWATER SYSTEM **Presented by: Heather G. Himmelberger, P.E. Director, Environmental Finance Center**

March 12, 1996

Introduction: The East Mountain area of Bernalillo County is characterized by fractured Bedrock and very shallow soils. Portions of the East Mountain have relatively high density development. The development type and the geologic factors of the area make it poorly suited to traditional septic tank/leach field type on-site liquid waste treatment. The major concern associated

with the use of septic tank/leach field systems in the East Mountains is the potential for groundwater contamination from inadequately treated wastewater. This system may provide homeowners with a viable, cost-effective alternative to septic tank/leach field disposal systems in locations that are unsuitable for this type of operation or where traditional systems would be expensive or environmentally undesirable

Demonstration Project Location and Background: The demonstration project includes two approximately 3/4 acre lots in the East Mountain Area of Bernalillo County, with limited access to community water supply lines and no access to a community sewer system. The lots are unsuited to traditional septic tank/leach fields. The lots have very shallow soils (bedrock as close as 6 inches from the surface) and have a fair amount of slope. Also, the lots are heavily wooded and the lot owner was concerned about maintaining the trees.

System Design: Both lots will use the same basic type of system - composting toilet with greywater evaporation. A composting toilet will be used to treat the toilet waste. The product of the composting toilet should be a compost suitable for landscaping uses. The water from the other areas in the household, such as showers, sinks, and washing machine, will flow to an evaporation pond. Neither lot will use a kitchen garbage disposer (the use of a kitchen garbage disposer changes the classification of the kitchen waste to blackwater). The greywater evaporation system is sampled for the basic parameters that define the quality of wastewater - Biochemical Oxygen Demand (BOD), total suspended solids (TSS), total dissolved solids (TDS), total Kjeldahl nitrogen (TKN), nitrate-nitrogen (NO3-N), ammonia nitrogen (NH3-N), phosphates (P), fecal coliforms, and total coliforms.

Summary of Paper Submitted for
New Mexico Conference on the Environment
New Treatment Process Testing in New Mexico
Co-authored by: Mathew O'Grady, Bernalillo County Public Works,
Clara Cates,
Bernalillo County Environmental Health, Heather G. Himmelberger, NM Engineering
Research Institute, Robert Paulette, Wilson & Co.

March 12, 1996

Introduction: Providing wastewater treatment for outlying developments within the urban county has traditionally posed a problem. There is a balance of comparative cost between a small-flow treatment system in comparison to the additional cost of extending sewer lines to serve outlying developments with the larger cost-efficient main treatment plant. In addition, the day-to-day upkeep of small development treatment systems can be a significant problem in providing quality operations and maintenance staff on a regular basis. Bernalillo County is evaluating a new wastewater treatment system that is reported to provide cost-efficient treatment along with easy operation. The treatment process is Bioflotation and is originally manufactured in Russia. The process is reported to attain effluent concentrations below 10 mg/L BOD and combines the aeration/clarification/sludge thickening processes into one tank.

Discussion: The Bioflotation process provides secondary treatment to domestic wastewater by dissolving oxygen in the liquid similar to a Dissolved Air Flotation (DAF) Thickener. A portion of the system effluent is pressurized in an air/water mixture, and the oxygen is driven into solution. When this flow is released into the reactor tank, the oxygen comes out of solution in the form of tiny bubbles. Oxygen transfer rate is reported to be very efficient, and the bubbles "float" the secondary sludge to a concentration much higher than traditional gravity clarifiers. Moving parts are kept to a minimum since operations rely on the pressuring pump for the aeration of the wastewater.

Based upon the reported advantages, Bernalillo County has constructed a demonstration project at the City of Albuquerque Southside Water Reclamation Plant. The project team, consisting of Bernalillo County, University of New Mexico, Wilson & Co., and BIFAR USA, has been evaluating the performance of the unit by treating the City's primary effluent. Bernalillo County hopes that this process can provide cost-efficient wastewater treatment for domestic flows outside the normal service limits of the larger treatment plants. In this way, government officials can minimize the number of septic tank systems installed than can potentially pollute the groundwater, a finite and precious commodity to all New Mexicans.

Training for Water Professionals from El Salvador
Held in conjunction with the University of New Mexico
Office of International Technical Cooperation
August 1996

The UNM-EFC held a workshop on alternative wastewater collection and treatment systems to nineteen Salvadorans who were here on US AID CLASP II scholarships to study civic participation in water management, sponsored through the Office of International Technical Cooperation at the University of New Mexico. The workshop presentation, which was given in Spanish, included topics on:

- alternative sewers
  - gravity
  - small diameter gravity
  - vacuum
  - pressure - grinder pump and septic tank effluent pump
- lagoons (stabilization ponds)
  - facultative
  - aerated
  - aerobic
  - anaerobic
- constructed wetlands
  - free-water surface
  - subsurface
  - nitrogen removal

The alternative wastewater treatment lecture covered the various types, components, treatment mechanisms, construction, operation and maintenance, and advantages and disadvantages of each topic listed above. Following the lecture, there was a comprehensive guided tour of the City of Albuquerque's Wastewater Treatment Plant, including a walk to the discharge point where the treated water is released into the Rio Grande.

The Salvadorans were in New Mexico six weeks for their intensive water management studies. While they were here, the group met with various water-related officials such as, water conservation officers, water treatment operators, wetlands experts, acequia majordomos, and small water system administrators. It was expressed to the EFC that all the Salvadorans were impressed by the commitment to stewardship of water and land, and the tradition of culture that they encountered.

Workshop participants

Heather Himmelberger . . . . . UNM-EFC
Lorri Skeie-Campbell . . . . . .UNM-EFC
Blanca Surgeon . . . . . Rural Community Assistance Corporation
Chris Nunn . . . . . Consultant, Academic Coordinator

*(for list of Salvadoran Attendees, please contact EFIN)

Meetings with USEPA Region 6
Dallas, Texas
September 1996

The Director and several staff members of the University of New Mexico Environmental Finance Center meet with representatives of USEPA Regions 6 Water Quality Protection Division in September of this year. The purpose of the meetings was to provide Region 6 with an update on the progress of the EFC and to discuss current initiatives and needs in the Region.

Mr. Michael Siegel, founder of RateMod Associates and developer of the RateMod(TM) water rate setting model, demonstrated the utility of the model to the UNM-EFC staff. Mr. Siegel explained the general training process and the "train-the-trainer" approach. The EFC staff was joined by Mr. Keith Hinds, a private consultant already familiar with the model, and Mr. Mike Henke, Director of PNM Water Services. Mr. Henke was impressed with the model's flexibility and capabilities. He expressed interest in using the model on the small systems which PNM manages. However, PNM Water Services is in a beginning stage and is still in the process of developing a client base. For more information on the rate model, please see page 1.

Computer Rate Model Demonstration
Albuquerque, New Mexico
November 1996

Participants included:	Mike Siegel	RateMod Associates
	Mike Henke	PNM Water Services
	Keith Hinds	Infrastructure Development Services
	Heather Himmelberger	UNM-EFC
	Susan Butler	UNM-EFC
	Lorri Skei-Campbell	UNM-EFC
	Norine Meyer	UNM-EFC

1996 State/EPA Region 6 Conference
Dallas, Texas
December 16 & 17, 1996

On December 16 and 17, the representatives from the various state regulatory agencies from EPA Region 6 met to discuss relevant issues, policy concerns, new regulations, implementation of existing regulations and requirements, and various other items of interest or concern. Heather Himmelberger attended the two day meeting, including the breakout session for Public Water Supply. One of the topics of major interest to the states was the reauthorization of the Safe Drinking Water Act and what these new requirements mean to the states. Ms. Himmelberger gave a presentation on the Environmental Finance Center, including a discussion of ways in which the EFC could assist the states in developing a capacity development strategy.

* FOR REQUESTS FOR PUBLICATIONS, please contact EFIN

1995 ANNUAL REPORT

Established in 1992, the Region 6 Environmental Finance Center at the University of New Mexico, New Mexico Engineering Research Institute is the oldest center on the EFC Network and has built a solid record of accomplishments. The EFC initially began with an emphasis in its training program on the application of public private partnerships to operating and owning public purpose environmental systems. From there the EFC anticipated the NAFTA environmental side agreements by beginning to provide technical assistance to border communities on ways of lowering costs for basic sanitary services.

Additionally, the EFC undertook an early study of financing alternatives for environmental infrastructure along the border that served as a guide to feasible choices for public policy decision making. Since then the EFC has worked closely with the leadership of the Border Environmental Cooperation Commission and the North American Development Bank. Of particular interest to financing institutions is the viability of communities to help pay for their environmental services and institutional means to create greater self sufficiency among users. In continuing its important border work, the EFC has recently field tested a water and wastewater rate model with several New Mexico communities. The model will be a mainstay of the EFC's financial outreach program.

The Dona Ana County Viability Assessment Project

February 1996

Project Description

The project has three objectives, (1) assess the viability of existing small public water systems in unincorporated "colonias" in Don Ana County, (2) analyze various types of legal organizational structures available for small water systems, and (3) make recommendations on appropriate legal structures and finance options. Many of these unincorporated communities, referred to as colonias, are not served by water systems, sewer treatment facilities, or electricity. Many times, the colonias lack potable well water as well as adequate wastewater treatment.

These colonias are frequently settled by Mexican immigrants who migrate to the United States in search of better paying jobs and cheaper land. Due to a loophole in the New Mexico Subdivision Act, these settlements were allowed to develop without sufficient infrastructure. Through a process of four-lot splits, lot owners could develop parcels without providing sewage collection and disposal, potable water, and paved roads. Many of these problems will be alleviated when the revised New Mexico Subdivision Act of 1995 goes into effect early in 1996, closing the loopholes, thus preventing further proliferation of colonias.

Community Profile

In Dona Ana County, there are 35 communities which have been designated as colonias with an estimated population of 40,000 inhabitants. A colonia is generally defined as an unincorporated community with the following conditions:

1) is located within 100 kilometers of the U.S./Mexico border,

2) was in existence before November, 1990 and designated as a colonia by the County or State in which it is located,

3) is determined to be a colonias on the basis of criteria such as: lacks adequate potable water, lack of adequate sewage systems, and lack of decent, safe and sanitary housing.

Dona Ana County is the fastest growing county in New Mexico, as well as the ninth poorest in the State. The County is located in the south central area of New Mexico and has a common border with both Texas and Mexico. The El-Paso Juarez metropolitan area lies just across the border. Agriculture and population centers are located along the Rio Grande, which traverses the county from the northwest to the southeast corner. In addition to agriculture, Dona Ana derives substantial economic benefit from federal expenditures associated with the White Sands Missile Range near Las Cruces and New Mexico State University. The 1991 population of 140,600 ranked 2nd in the state.

State Agencies Served - Dona Ana County

- *New Mexico Environmental Department (NMED), Drinking Water Bureau*. Collected data on each colonia water system, i.e., number of connections, system population, system classification, metered or non-metered, operator certification, etc., which provided the information necessary for a beginning data base.

Local Governments Served - Dona Ana County

Out of the twenty-two Colonias in the data base, three systems representing small, medium and large systems were chosen to serve as case studies. The three systems are as follows:

Berino Mutual Domestic Water Consumers Association (MDWCA)

Mesquite Mutual Domestic Water Consumers Association (MDWCA)

Dona Ana Mutual Domestic Water Consumers Association (MDWCA)

The EFC made site visits to the individual water systems, gathered local water system reports as available, and collected anecdotal stories. Through field research and direct community contact, a number of factors began to emerge. Although not all colonias are communities at risk for non-viability in their water supply systems, many of the colonia represent different levels of development, some with serious health risks. In many instances exposed cesspools are in close proximity to drinking water supplies, and in one case chemicals were observed being discharged from a local company into a ditch adjacent to a colonia resident's well.

Outcomes

The EFC identified various types of legal and organizational structures available for small water systems in unincorporated areas of Dona Ana County, as well as various options of ownership and management structures that may be appropriate for efficient and cost effective operations of existing or planned water supply systems among the colonias.

The EFC learned that one centralized county-wide entity is unlikely to be supported by many of the residents in Dona Ana County. On the positive side, the EFC discovered that the larger mutual domestic associations were willing to take on the role of being a mid-regional provider of water and wastewater to surrounding colonias and smaller non-viable systems. This was valuable information in formulating recommendations for the report.

Potential infrastructure financing sources for the colonias depend on the legal organizational structures adopted. Once organized into a legal entity or entities, the colonias will be eligible for more sources of funds. A possible next step could be for the EFC to assist in analyzing user fees to pay for the operation, maintenance and debt service for the system or systems selected.

This project will produce a report that will have practical applicability for the local residents as well as provide constructive evidence on how EPA can improve and strengthen its efforts to help small water systems remain viable.

Update - Dona Ana County Viability Assessment Project

On February 7, 1996, the EFC met with a group of experts to sort out the status of the Subdivision Act and its relationship to the Colonia dilemma. Through this process, the EFC brought forth a number of issues relevant to its Dona Ana Project work.

Options

- Colonias sprout up without any County knowledge that they are in the development phase. Thus the Subdivision Act, although it will eliminate the more formalized 4-lot loophole splits, will not prevent all new colonia development, including illegal water hook-ups.

  Options:

  - Create more user-friendly planning office, serving as a bridge, receptive to local problems.

- Colonias organize themselves around water issues which presents an added element that must be dealt with when considering consolidated options.

  Options:

  - Educate communities on the reasons for consolidating water systems and ensure a measure of local control is maintained.

- Colonia residents do not view themselves as living in inferior conditions, but more likely value the ownership of land above any discomforts they encounter with sewage and lack of water.

  Options:

  - Solicit the Colonias Development Council's (CDC) assistance to encourage grassroots discouragement of new colonia development.

  - Provide alternative housing at affordable prices to the potential colonia resident. Encourage more private non-profit grant money to organizations such as Tierra del Sol, the existing housing group that is providing low-cost housing to such residents.

- The Colonias Development Council (CDC) encourages colonias to organize and form their own Water and Sanitation Districts. CDC does not understand the issues of viability. CDC needs to fully understand that grant funds are diminishing and state legislative funds are reduced as well. Lack of enforcement capability within the County.

  Options:

  - Criminalize illegal developments and create a "strike force" for stricter enforcement at the local level. While not a popular option in New Mexico, it worked in Texas. Shame developers who are responsible.

- Regulatory Solutions:

  - Originally within the Subdivision Act there was a clause which would have allowed Colonias that were developed illegally to file suit in Santa Fe through the AG's office. This was deleted. Restore that clause to the Act.

  - Develop a moratorium on new developments throughout the County, until all of these remaining problems are addressed. (Unlikely solution for fast growing Dona Ana County. Experience tells that even during moratoriums, illegal development sprouts.)

  - Standardize procedures with the Councils of Governments (COGs) throughout the state. Some are proactive while others are passive in their efforts.

  - Reform the Capital Improvement Plan (CIP) process. The tendency is to present a "wish list" without a coordinated plan. Each department within the County should link their priorities to a coordinated County effort.

  - Financial security options: i.e., impact fees, bonds, etc., to support infrastructure replacement.

- Land Use Solutions:

  - Plan within a comprehensive framework. Coordinate a plan that synchronizes subdivision regulations, zoning,

performance standards, and density sizes. Decide where the County wants growth to go. Connect with the CIP plan since the cost of sprawl is high -- as evidenced by existing small widely-dispersed water systems.

- Safe Drinking Water Act (SDWA) viability and small water systems:
    - Create a County Oversight Authority which allows the small systems to maintain a degree of autonomy. County oversight would be responsible for ensuring that the small systems are developing in a manner that ensures viability and requires all consumers to be hooked up legally.

The Cloudcroft New Mexico Water System Restructuring Project

November 1995

Project Description:

Small water systems restructuring project for the Village of Cloudcroft in Otero County, NM.

The purpose of this drinking water project was to introduce the concept of regional cooperation to a mountain community of small water systems located in the vicinity of Cloudcroft, New Mexico. The goal was to link the water systems into a regional consortium which could benefit from economies of scale and improve the overall viability of water systems in the region. As a result of the project, the EFC has initiated discussions with the New Mexico Environment Department Drinking Water Bureau to develop a drinking water viability assessment ranking system. Such a system would inform NMED of small water systems at risk for becoming non-viable.

Community Profile

The Village of Cloudcroft, a small recreational town with a year-round population of 636, is located in the Sacramento Mountains of South Central New Mexico within the borders of Otero County, approximately 15 miles from Alamogordo, New Mexico. Cloudcroft's mountain location makes it a popular spot for second homes and summertime visitors. During the summer the population swells to over 2500 residents. Numerous small unincorporated communities lie within a 20-mile radius of Cloudcroft, each experiencing similar weekend and summer population bulges. While the Village of Cloudcroft has adequate water supply infrastructure, many of the small unincorporated communities have antiquated water supply systems with deteriorating wells and distribution lines, along with inadequate production and storage capacity.

The small drinking water systems restructuring study consisted of thirteen small systems, of which eight were non-profit cooperatives, two were mutual domestic, one a municipality, one a water and sanitation district, and one privately owned.

State Agencies Served - Cloudcroft Project

- *New Mexico Environment Department (NMED), Surface Water Quality Bureau, Certification Division:* linked local water system operators with resources to assist in New Mexico Drinking Water operator certification process.
- *Drinking Water Bureau, Compliance Section:* linked local water system operators with resources on Safe Drinking Water Act water quality testing requirements.
- Updated the *NMED* database information for Cloudcroft Area small water systems.

Local Governments Served - Cloudcroft Project

Assisted Village Administrator with organizing the water systems in the Cloudcroft area for the purpose of discussing small water system restructuring options. The Village recognizes that the small water systems in the Cloudcroft area are at risk for becoming non-viable. When systems encounter problems they frequently seek out the Village Administrator to assist in resolution of these problems. By offering the water system operators an array of options which can increase the viability of their systems, the EFC reduced the dependency these unincorporated small systems have on the incorporated Village.

Informed the small water unincorporated system operators of viability restructuring options. Sessions included information on rate structure analysis, budgeting, water quality compliance regulations, operator certification requirements, equitable billing through meter use, water conservation incentives, and federal and state funding sources.

- Provided a resource guide list of technical assistance providers, funding sources, and a list of small water system

publications.

- Established a meeting forum for small water system operators in which they could discuss issues impacting system viability.
- Connected system operators with technical and financial agency resources designed to enhance system viability.
- Coordinated the scheduling of a water operator certification training session in the Village of Cloudcroft to assist local operators in meeting the operator certification deadline.

Customer Feed-Back from EFC events/actions - Cloudcroft Project

A group of thirteen water systems had never gathered together to discuss common problems in water system operation. Initially, there was considerable mistrust from the outside intervention as well as uncomfortable feelings about sharing with one another. By the close of the project, the system operators had considerable trust in the project facilitators. They had recognized the value of gathering together to discuss both problems and solutions, and demonstrated interest in forming an association of their small water systems. The water system operators expressed appreciation for the efforts of the EFC.

The Village Administrator encouraged the EFC to pursue funding to implement a second phase of the Otero County Project. This phase would provide an infrastructure needs assessment of all of the small water systems in the Cloudcroft area and offer rate structure analyses on individual systems as well as a rate analysis under a regional cooperative arrangement.

Outcome

- Consultative/planning meetings were held with the agency personnel previously mentioned. These meetings served to stimulate new ideas on further viability projects in the state of New Mexico.
- EFC staff worked in cooperation with other NMERI program personnel, providing updated information for existing NMERI projects and planning for future projects, as well as incorporating NMERI Information Systems data into the Otero County Project.

As a result of the project, the EFC has initiated discussions with the New Mexico Environment Department Drinking Water Bureau to develop a drinking water viability assessment ranking system. Such a system would inform NMED of small water systems at risk for becoming non-viable.

FIELD TESTING
of
WATER AND WASTEWATER RATE MODEL

SEPTEMBER 22, 1995

On September 22, 1995 the New Mexico Environmental Finance Center, in cooperation with the Environmental Finance Center of Syracuse University, sponsored a field-testing of a Utility Rate Setting Model held in Las Cruces, New Mexico. Representatives from various water utilities were invited to attend to field test a computer model that was designed as a financial planning and rate setting tool. The invitees were asked to bring specific records pertaining to their utility which they input into the computer model. The representatives gained information about their specific rate structure and were able to leave with valuable information including a full rate and financial forecast for their systems.

The field testing activities were designed to ensure that the final product is capable of "off-the-shelf" use by typical small and medium-size public water and wastewater service providers. Individual computers were provided for each of the testers, and they were assisted by the developer of the model, Michael Siegel and representatives from New Mexico Environmental Finance Center. The testers represented public water systems serving populations ranging from less than 100 to a municipality with approximately 50,000 residents.

Other applications for the model include evaluation of alternative financing mechanisms and public-private partnerships, training Environmental Finance Centers and not-for-profit technical assistance providers in establishing full-cost recovery, fair and equitable financial management practices for small and medium public water and wastewater providers.

BORDER ENVIRONMENTAL FACILITIES FINANCE ROUNDTABLE

ON
FINANCING OF BI-NATIONAL ENVIRONMENTAL PROJECTS

SPONSORED BY THE
NEW MEXICO ENVIRONMENTAL FINANCE CENTER
at the
University of New Mexico

July 24, 1995

Roundtable Summary

Description

This Roundtable was called as a follow-up to the May 30, 1995 workshop with U.S. Senator Pete Domenici, which was sponsored by the University of New Mexico's Environmental Finance Center (EFC). The original intent of this meeting was to bring together the primary state and federal level financing institutions to discuss the feasibility of financing a bi-national environmental project.

Although the intent was not fully realized since several of the funding institutions were not able to attend the meeting, much of the discussion focused on the feasibility of funding a bi-national project from the perspectives of the financial institutions. Primarily, the discussion centered on the communities of Columbus, New Mexico and Las Palomas, Chihuahua in the hope that these communities might serve as a model of how to plan, design, and implement and environmental infrastructure project for the BECC-NADBank in the US-Mexico Border region.

The various agencies and institutions at the meeting discussed the feasibility of helping the communities of Columbus-Palomas initiate the BECC-NADBank proposal process. The outcome was different than envisioned, but all parties seemed very pleased with the direction that the meetings followed. It was agreed by all participants that the information discussed at the meeting would be relayed to the communities of Columbus-Palomas at a future meeting.

Background

Clearly, water is the primary issue for this region, which is experiencing encroaching desertification, water quality and quantity problems, and rapid growth rates. These important water issues are not unique to these communities, rather they are occurring on basin wide levels extending from Silver City, New Mexico to Nuevo Casas Grandes, Chihuahua. Although Columbus-Palomas is considered the focus of the potential project, the idea was presented that the whole region from Silver city to Nuevo Casas Grandes should be treated as a "corridor of opportunity" in which growth can be encouraged in a more sustainable and environmentally harmonious manner.

One of the primary differences between the two sides of the border is how a bi-national infrastructure project is developed and financed. Each country has different approaches to the planning and funding of liquid waste treatment projects. The group also discussed the financing mechanisms on both sides and the implementation of a user charge system to repay the debt for construction of the system and annual operation and maintenance. Mr. Victor Miramontes, Deputy Director of the North American Development Bank, thought that this issue could be resolved through discussions between the agencies and groups at this meeting and similar entities on the Mexican side of the border.

Presenters and Summary of their Presentations

Myles Culbertson, New Mexico Border Authority Executive Director, explained the role of the Border Authority, which includes being a vehicle for financing through revenue bonds, recruiting businesses to the region, and prioritizing and coordinating projects that the State of New Mexico wants accomplished along the border. Mr. Culbertson offered that the Border Authority has limited resources for major projects, but that they could easily serve as a "traffic cop" or "gatherer/disseminator" of information for any environmental infrastructure projects taking place along the New Mexico-Chihuahua border.

Culbertson related that the Border Authority had already been working with the Columbus/Palomas Communities Force on seeking funding for a bi-national infrastructure project. Although efforts to secure funding during the 1995 legislative session were unsuccessful, the completion of an infrastructure project is still very desirable. During the course of the meeting, it became clear that the Border authority is a key player in the New Mexico-Chihuahua region, especially in regard to Columbus and Palomas.

Mr. Culbertson briefed the group on the current status of the liquid waste treatment systems in the community. In Las Palomas, there is a centralized sewage collection and primary treatment system which empties into a large lagoon on the edge of town.

The main problems in Palomas are: 1) the number of illegal connections; 2) a lack of systemic integrity to ensure adequate sewage collection and transport; and 3) inadequate treatment at the treatment facility. In Columbus, there is no centralized sewage system; the individual homeowners have on-lot treatment systems. The high density in Columbus has created concern regarding the potential for groundwater contamination from so many septic systems in a small area. Both Villages are on a public/municipal water system.

Victor Miramontes, NADBank Deputy Director, described the purpose of this second meeting as an opportunity to take a serious look at whether a project in the Columbus-Palomas area is even feasible. If a project were to work, the agencies attending the meeting would have to give sufficient "intellectual capacity" to help determine the realistic possibilities. It is important to get beyond the politics. Leadership is needed from the finance and environmental communities. The BECC and NADBank cannot expect to succeed in their missions unless the participation of state, county, city and local organizations is actualized. The BECC and the NADBank cannot lead projects. Thus, the participation of the groups in the second meeting was and essential step if a Columbus-Palomas project is to be realized.

Miramontes stated that the NADBank is interested in implementing the least-cost solution for operation and maintenance. Communities cannot afford to operate treatment facilities with the high operation and maintenance costs. Engineers Inc. and New Mexico University's New Mexico Engineering Research Institute (New Mexico EFC) pointed out that a wetlands treatment system may be the most cost-effective solution for the community. The construction costs for a wetlands treatment system are somewhere between 33-50% of those for a conventional treatment system according to Engineers, Inc. There was agreement in the group that the community would have to determine the type of system they preferred should a project evolve, but from the BECC-NADBank perspective it appeared that the constructed wetlands could be feasible from a financial and operational standpoint.

Mr. Miramontes presented the idea of creating a mosaic of cooperation and action between the groups represented at the meeting. All the groups would participate together to support the creation of a project in Columbus-Palomas. There might be a few lead organizations, but the other groups would support and augment the lead organizations' efforts. The initial effort is preliminary to study the potential for an implementable, successful project. It was once again stated that this effort will not provide a guarantee of a project proposal to NADBank because there are many unresolved issues and the desire to complete a project must come from the communities themselves. Miramontes observed that much information could be gained from not going to completion with an infrastructure project and that not submitting a proposal to NADBank would not constitute a failure.

Elaine Hebard, with the New Mexico Department of Finance (also a graduate student in Community and Regional Planning at the University of New Mexico) and Francisco Jaimes Acuna, Plan Director, Direccion General De Desarrollo Urbano y Ecologia, gave a more detailed and closer view of the Columbus-Palomas communities. Their presentations helped the participants to visualize the natural and built surroundings as well as understand the emerging environmental problems that the communities are experiencing. The presenters did not intend to represent the communities, but intended only to provide information to the participants. The reality that these communities are integrally linked to its natural resource base was keenly reinforced by this presentation.

Richard Chavez, New Mexico Finance Authority Program Manager, observed that the Finance Authority has many advantages that other state entities do not have. First, the Finance Authority is able to be more flexible in providing monies and utilizing grant monies where available to help control costs. Second, they have the ability to work with diverse funding entities which other agencies do not have. Third, they can potentially finance bi-national infrastructure projects if they were to receive legislative approval and executive affirmation. the key in any type of effort on a bi-national project is that the executive branch of state government not only be informed, but included. Mr. Miramontes said he would like to see the NADBank mirror the role of the Finance Authority on the Mexican side since there currently is not a similar Mexican agency.

Roger Frauenfelder, BECC General Manager, expressed concern that the group might be moving toward a project before the community has had adequate input to the process. The BECC has the ability to offer funds for technical assistance so that communities with minimal resources can access the certification and funding process. Mr. Frauenfelder reemphasized the theme that the BECC is a "bottom-up organization" that serves the residents of the border region. Mr. Frauenfelder further stated that the BECC can allocate funds for a bi-national comprehensive plan covering Columbus-Palomas if the intent is to culminate in an environmental infrastructure project. The goal of BECC is construction of infrastructure projects.

Oscar Romo, BECC Commissioner-Colegio de la Frontera Norte, asserted that there needed to be more Mexican representation at the meeting even if the intent was to gather American funding institutions. Bi-national coordination requires Mexican participation so that plans do not develop in isolation of one another. Also, Romo said that the expertise necessary to plan a project and the technologies that are more cost-effective already exist along the border (i.e., the Ecoparque in Tijuana, Baja California). Finally, he added that the BECC Board of Directors are the primary source to review proposals because they represent the residents of the border. The BECC staff is the support mechanism for aiding the Board in their evaluation and

certification process.

Sustainability

A most vital issue of how a project in Columbus-Palomas will succeed is sustainability. Sustainability can serve as the up-front lens from which the focus can be set on the 30-40 year horizon. A project plan for the community must view the long-term effect and not a short-term, ten year window. It was pointed out that private sector financial support might serve as a quicker financial buoy than the public funding route. If the private sector is utilized in the effort to establish sustainability for the project, then they must be given a clear priority and role. The private sector is essential for the long-term success of an environmental infrastructure project and may be able to provide financial support to the community in a more expeditious way. Also, it was brought up that sustainability is primary, but that the growth of the community must be considered in the plan and design of the system. The 30-40 year horizon of the project must be sustainable as well as adaptable and able to expand adequately with growth of the community.

Proposed Action Steps

The group decided that it was important to have a similar meeting in Las Palomas with community state and Mexican agency representatives to report of the results of the July 24, 1995 meeting and to discover the interests of the communities. It is also important to locate potential sources of funding to present to the communities, should they be interested in submitting a proposal for a project.

Workshop

WORKSHOP SUMMARY

ALTERNATIVE WASTEWATER COLLECTION AND TREATMENT SYSTEMS AND PUBLIC/PRIVATE PARTNERSHIPS

JUNE 1995

In June of 1995, the Environmental Finance Center, in conjunction with the New Mexico Engineering Research Institute(NMERI) Infrastructure Development Assistance Program, presented three workshops titled "Alternative Wastewater Collection and Treatment Systems and Public/Private Partnerships." These workshops were developed as a direct result of the NMERI and EFC work in small communities and with the New Mexico Department of Finance Administration - Local Government Division. Through this work, the EFC and NMERI became aware of a lack of information on the part of local government officials regarding the availability and potential to employ alternative wastewater collection and treatment alternatives and alternative financing methods. This lack of knowledge may prevent communities from investigating lower cost alternative systems for their communities.

The purpose of the workshops was to:

- Provide technology transfer and education.
- Introduce general information regarding some of the collection and treatment
- alternatives so that community officials know they exist.
- Discuss information regarding the barriers to the use of alternatives.
- Discuss methods of including alternatives in the planning and design phase of a
- project.
- Provide an overview of public/private partnerships.

The workshops included an introduction describing the findings of a Government Accounting Office (GAO) report that investigated the need for alternatives and the barriers to their use. Following the introduction, wastewater collection alternatives were described, including: gravity sewer, small diameter gravity sewer, vacuum sewer, grinder pump pressure sewers, and septic tank effluent pump sewers. Wastewater treatment system options were presented next, including conventional activated sludge, lagoons, land treatment, and wetlands. After the discussion of options, the topics of barriers to the use of alternatives and how to incorporate alternatives evaluation into the planning and design of a project were discussed. The final topic was public/private partnerships. This discussion included types of public/private partnerships, opportunities and barriers to developing a partnership, public and private sector expectations, and the terms typically found in a contract or agreement between the public and private partners.

Border Environmental Facilities Finance Roundtable
"An Overview of the Collaboration of Environmental Facilities
Funding Programs for New Mexico Border Areas"

sponsored by
The New Mexico Environmental Finance Center (EFC)

University of New Mexico
Albuquerque, New Mexico
May 30, 1995

Workshop Summary

Description

On May 30, 1995, The University of New Mexico's Environmental Finance Center (EFC), at the request of U.S. Senator Pete Domenici, hosted a Border Environmental Facilities Finance Roundtable. The Roundtable was held to provide an overview of the collaboration of environmental facilities funding programs for the New Mexico border areas. Participants in the workshop included both state and federal funding agencies, as well as three bi-national organizations.

Background
The Environmental Finance Center opened the agenda with a brief discussion on the background and purpose of Environmental Finance Centers. As the Roundtable was designed to brief Senator Domenici on broader financing issues, each presenter discussed their programs background as well as current status of funding levels. Additionally, Lieutenant Governor Bill Bradley spoke to the importance of financing border environmental improvements through the use of public/private partnerships in order to supplement government financing.

Senator Domenici stressed that future congressional mandates must be based on common-sense initiatives, as well as scientific, peer-reviewed environmental standards. The Senator applauded efforts to improve the environmental condition in the Border area, and encouraged participants to continue to coordinate their efforts.

Proceedings
The Roundtable discussions centered on the development of reliable, user-fee based projects that must be established to provide security for the loans and repayment of debt. It was emphasized that the border project would require long-term planning efforts built on reasonable expectations and prudent financial management. However, it was noted that much of the financial, legal and socioeconomic reviews would be subcontracted out, as the North American Development Bank (NADBank), the International Boundary and Water Commission (IBWC) and Border Environment Cooperation Commission (BECC) staffs are, and will remain, limited.

Further discussions led to the solicitation of the Environmental Finance Center to provide analyses of the financial and demographic components of a model project, possibly the Columbus, New Mexico and Puerto Palomas, Chihuahua, as well as facilitate the creation of an organized, coordinated working group along the border. It was also recommended that the Environmental Finance Center host a second meeting in the near future to discuss specific roles and responsibilities of the various members of the working group. All of the participants agreed that it is important to focus and coordinate efforts along the border. The Environmental Finance Center agreed to facilitate these efforts.

BECC Environmental Finance Conference/Workshop
Hosted by the New Mexico EFC
Jointly Sponsored by U.S. Department of State and U.S. EPA
December 15-16, 1994
Albuquerque, New Mexico

SUMMARY

Description

The New Mexico Environmental Finance Center (EFC) hosted the BECC/NADBank Environmental Financing Conference/Workshop, jointly sponsored by U.S. Department of State and U.S. Environmental Protection Agency. The conference, held December 15-16, 1994 in Albuquerque, New Mexico, used the workshop format to acquaint BECC and NADBank officials with the latest approaches to financing and building cost effective environmental facilities in Mexico and the

United States.

Background

Over the last decade, transboundary environmental problems across the nearly 2,000 mile U.S./Mexican Border have grown in direct proportion to the border region's dramatic increase in population and industrial development. One supplemental agreement to the North American Free Trade Agreement (NAFTA) provides for the binational cooperation and action needed to address these transboundary environmental problems.

This supplemental agreement divides the responsibility for financing environmental infrastructure between two new binational agencies, the Border Environment Cooperation Commission (BECC) and the North American Development Bank (NADBank). The BECC will work with local communities to coordinate the planning and design of environmental facilities and then "certify" the projects for funding to various funding institution, including the NADBank. The stated purpose of the NADBank is to serve as a potential financing source for the BECC-approved projects. The NADBank will be capitalized over a four year period with $225 million of cash each from the U.S. and Mexico and with an additional $1,275 billion of callable capital from each country.

Proceedings

Presentations given at the conference had two basic themes in common: keep the technologies simple and appropriate, and keep the financing affordable.

In preparation for the conference, the EFC had a document prepared by the Government Finance Group entitled *"Environmental Clean-Up Along the Mexico-United States Border: An Examination of Financing Alternatives."*

Overall, the conference provided an excellent opportunity for the BECC and the NADBank officials to meet leading U.S. experts in the field of environmental finance. By utilizing successful approaches of existing financial programs and institutions, the BECC and the NADBank can develop financially sound lending practices that will address the burgeoning environmental needs in the border area.

List of Presenters and Brief Description of their Presentation

- **Michael Siegel** a private financial consultant, emphasized the planning and design of appropriate, less capital-intensive projects that offer simpler solutions. These projects include self-composting toilets and water reuse technologies. Mr. Siegel also recommended the centralization of facilities, for example, water standpipes that could be expanded and developed as needed in the future.

- **Steve Levine**, with Moody's Investor Services, explained the function of Moody's ratings services, and discussed the type of information credit ratings could provide to communities and investors. Mr. Levine also highlighted various leveraging structures implemented in EPA's State Revolving Fund program.

- **Dan Luecke**, with the Environmental Defense Fund, discussed the Tijuana International Wastewater Treatment Facility, a prototype facility that will allow the reuse of treated wastewater for irrigation purposes. When complete, the $383 million dollar project will reduce pollution of the Tijuana River and thus protect the National Estuarine Research Reserve and the Pacific coastline south of San Diego.

- **Albert Racelis**, with the Dona Ana County, New Mexico, Planning Department, discussed demographics of Dona Ana County and the effects that uncontrolled, unplanned growth has had on the county and the environment.

- **David Hanna**, with the New Mexico Department of Finance and Administration, discussed various environmental funding sources within New Mexico that are available for environmental infrastructure improvements.

- **James Gomez**, of Goldman, Sachs, presented information on alternative organizational and financial approaches for public-private participation in Mexico. Mr. Gomez used the Juarez wastewater treatment plant to illustrate the Build-Operate-Transfer (BOT) concession approach to public-private participation. Degremont, an international wastewater company, has been granted a 12-year concession by Junta Municipal de Agua y Saneamiento, JMAS, to finance, construct and operate two wastewater treatment plants in the northern border city of Juarez.

- **John Peterson**, with the Government Finance Group, Inc., presented an overview of alternative financing mechanisms that may be used to address environmental funding shortfalls. Several financing techniques were presented including privatization, pooled financings and multilateral funding strategies.

- **Thomas Cochran and John Sheaffer**, of the Resource Defense Foundation, stressed the message of affordable technologies and water reclamation and reuse. Mr. Sheaffer highlighted several benefits gained from a wastewater reclamation and reuse treatment system, including lower operational and maintenance costs, greatly reduced sludge disposal requirements, reduced odor problems, increased open space and wildlife sanctuaries, and groundwater recharge.

- **Michael Curley**, a member of the Environmental Financial Advisory Board (EFAB), discussed the common characteristics of well managed, viable finance programs. Mr. Curley emphasized the BECC and NADBank should institute financial policies that insure appropriate project design and user fee based financing decisions that emanate from, and are controlled by, local communities. Local accountability for project costs and revenues is the foundation of successful financial performance.

- **Victor Miramontes**, The Deputy Director of the NADBank, was the last speaker. Mr. Miramontes emphasized that border environmental improvements would require long-term planning efforts built on reasonable expectations and prudent financial management. He agreed that the BECC and the NADBank should promote appropriate, affordable technologies for the border communities. Ideas such as conservation of water, wastewater reuse and the promotion of water as a marketable resource should be encouraged. Mr. Miramontes emphasized that the NADBank would not be the lender of last resort, as the binational seed money would be leveraged and would have to be backed by solid loans.

October 1, 1994

Meeting Financial Responsibility Requirements on Tribal Lands

In 1994 under a grant from Region 8, the EFC prepared a report on how tribally owned and privately-owned tanks on tribal land can meet the financial responsibility (FR) requirements of the Underground Storage Tank (UST) program. In 1988, EPA issued regulations defining financial responsibility for various categories of facilities to insure funds would be available from sources other than the federal trust fund. The regulations identified a range of methods for tank owners to demonstrate FR Several important issues affect tribal compliance with the FR requirements. First tribes may own and operate underground tanks so they must meet the FR requirements themselves. State governments, however, do not have jurisdiction over underground tanks on tribal lands. Tribes are not treated as states under the UST program and cannot receive federal trust fund money directly. States have established State Assurance Funds but the tribes have no equivalent mechanism. The Region asked the EFC to focus on three question, which the report covers indepth.

1. What methods are used in general to provide for the FR requirements, with an emphasis on state assurance funds?

2. What characteristics within the tribal environment need to be taken into account in order to design an appropriate mechanism, for meeting financial assurance requirements for tanks on tribal lands?

3. What feasible options merit analysis?

November 1993
Environmental Clean-up Along the Mexico-United States Border:
An Examination of Financing Alternatives

In 1993, EPA asked the New Mexico EFC to examine the full range of financing alternatives for environmental systems along the border. The EFC had already begun field work involved with assisting small water and wastewater system in the border area. With NAFTA fast approaching it became very evident that new financing ideas and techniques must be evaluated and adopted if the pressing public health needs of the border area were ever to be met.

The EFC asked the Government Finance Group to identify and evaluate alternatives, including some highly innovative ideas such as asset securitization where long term infrastructure loans would be "warehoused" by a public lender until project start-up risk is overcome whereupon the loans could be purchased and packaged into publicly-traded securities.

This report and the early work of the EFC helped inform the debate over financing options during development of the environmental side agreements to NAFTA .

PUBLIC-PRIVATE PARTNERSHIPS
FOR ENVIRONMENTAL FACILITIES AND SERVICES:

THE MANAGEMENT CHALLENGE FOR LOCAL GOVERNMENTS

June 22, 1993
Austin, Texas

Summary of Proceedings

Local communities have the responsibility for constructing and operating environmental facilities and for providing services to their residents. As financing to provide services and build facilities becomes more limited, partnerships between the public and private sectors becomes one important option. Unfortunately, there has too often been a history of mistrust and misunderstanding between the public and private sectors. Raising the level of competence of public administrators to deal effectively with alternative options for providing environmental services and facilities will help eliminate the harmful misconceptions between the private and public sectors. Public administrators need the skill and expertise to analyze opportunities as well as structuring and managing the contract effective. Public administrators also must be aware that a contract might not relieve the public entity of certain legal responsibilities and liabilities.

The New Mexico Environmental Finance Center, under a grant from USEPA Resources Management Division, developed a training program for local government official, state officials and private participants on initiating public-private partnerships for solid waste, drinking water, and wastewater treatment facilities and services. The training was developed as a one-day overview for elected officials and managers, and as a two-day, in depth session. As part of the training program, the New Mexico EFC developed an extensive training manual.

In cooperation with the Texas Water Development Board, a one-day training session was held in Austin, Texas. Speakers included representatives from USEPA, New Mexico EFC, Texas Water Development Board, private consultant, Texas Attorney General Office, and the State Bond Advisor for the State of Oklahoma. The conference was well received by the attendees and evaluation forms reflected that the attendees felt that the conference presented a good overview and identification of the issues involved in developing a public-private partnership.

U.S.-MEXICO BORDER ENVIRONMENTAL ASSEMBLY AND COLLOQUY
Santa Fe, New Mexico
June 25-26, 1992

The Integrated Environmental Plan for the Mexican-US Border Area, published in Spring of 1992, calls for extensive work in all media to improve environmental conditions along the border between the two countries. While both Mexico and the U.S. have committed significant funding to push ahead with the border plan, there will still remain a shortfall unless alternative financing mechanisms are identified and implemented. This was the focus for an international colloquy between Mexican and U.S. officials who came to Santa Fe, New Mexico in June 1992 to discuss financing needs and alternatives for environmental infrastructure along the U.S. - Mexico border. Over 200 participants from both countries attended the assembly. The first day of the assembly was open to the public and the second day was reserved for working groups.

The intent of the Colloquy was to help build a broader public understanding of the challenges and opportuntiies which the two countries face as they work together to address border environmental concerns. The overall purpose was not only to build awareness of environmental finance needs and mechanisms, but also to give the U.S. and Mexican governmentc specific suggestions to ways in which financing barriers can be eliminated and new opportunities for environmental infrastructure investment can be created. The intent was to help guide future policy deliberations in both countries. A notebook of documents was sent to each of the participants before the colloquy to provide the participants with critical information related to the topics that will be covered at the U.S./Mexico Border Environmental Infrastructure Finance Colloquy. The book included historical documents such as the 1944 U.S.-Mexico Water Treaty and the La Paz Accord of 1993, as well as The Integrated Environmental Plan for the Mexico/U.S. Border. The historical documents represent key milestones in the maturation of border environmental progress.

The 1944 Water Treaty is significant in its creation of the International Boundary and Water Commission, and sets the stage for subsequent agreements on environmental protection. The La Paz Agreement and its Annexes instituted the present working arrangement between our two countries, with National Coordinators assigned to coordinate and implement media-specific plans and policies. Annex I relates to wastewater treatment in the Tijuana/San Diego area; Annexes II and III deal with hazardous substance spills and shipments; and Annexes IV and V are concerned with air pollution emissions and monitoring in the border region.

The background section contains a variety of materials which were drawn from materials in the files at EPA and SEDUE, and from contributions by the various participants. Items included budget and summary pages on the Integrated Environmental Plan,

a 1991 speech on the Plan by former SEDUE Secretary Chirinos, a workplan to improve conditions in the colonias now being carried out by the Rural Community Assistance Corporation, and various news articles. The newspaper articles chosen because of their emphasis on the question of how to pay for environmental protection.

There were four working panels on the second day of the colloquy. Each panel had a moderator to lead the dicussion and a working agenda which the participants received before the session. The following is a brief overivew of the panels and the suggested action items they developed.

PANEL A: State and Local Government Environmental Infrastructure Finance

LEADER: Elizabeth Ytell, Rural Community Assistance Corporation

TOPIC: Colonias Infrastructure; financing and management of water, wastewater and solid waste systems in the U.S. colonias.

MEMBERS:

Noe Fernandez, Texas Water Development Board
Mayor William Tilney, El Paso
Patrick Benegas, Anthony Water and Sanitation District

GOALS:

Develop action items for EPA related to support of existing colonias programs and duplication of successful local efforts.

ACTION ITEMS:

Increase training for water and wastewater system operators; Governmental coordination of circuit riders to operate and maintain environmental facilities; Survey of existing wastewater treatment systems, with an analysis of alternative technologies for lower cost construction and operations; Establishment of colonias solid waste franchises as a source of revenue.

GENERAL DISCUSSION:

Overview of state of infrastructure among U.S. colonias; Review of current activities to finance and construct new infrastructure development; Current methods for system management and administration (includes billing and collection).

PANEL B: Mexican Privatization

LEADER: Alfonso Caso

TOPIC: Privatizing Environmental Infrastructure and Services in Mexico

MEMBERS:

Fernando Heftye, National Commission for Foreign Investment (SECOFE)
William Chew, Standard and Poors Corporation
Guadalupe Arispe de la Vega, Mexican Association of Community Health and Development Organizations
Francisco Gil Diaz, Secretaria de Hacienda

GOALS:

Develop action items for the U.S. and Mexican governments to facilitate improved environmental conditions, especially along the border area, through privatization of traditionally government environmental activities in Mexico. Acquire first-hand knowledge of existing privatization techniques currently used in the U.S.

ACTION ITEMS:

Document in case study format any successfully privatized facilities and services in Mexico; Publish a bi-lingual manual on understanding debt/equity transactions in Mexico; Analyze the barriers and incentives for private construction and ownership of environmental facilities in Mexico; Establish a mechanism to improve communication between U.S. companies and their Mexican counterparts to establish strategic alliances.

GENERAL DISCUSSION:

Current activities of Nacional Financiera and other Mexican institutions to support privatization; U.S. institutional involvement in Mexican privatization and ways to increase private equity participation; Capital gains under Mexican tax laws.

PANEL C: Public-Private Sector Environmental Infrastructure Financing

LEADER: Linda Powers, Deputy Assistant Secretary for Service Industries and Finance, U.S. Department of Commerce

TOPIC: Funding Infrastructure Needs of the U.S. - Mexico Border Area

MEMBERS:

Fabian Chavez Superintendent of Insurance, State of New Mexico
John Adams, Vice-President and Manager, International Services, Union National Bank of Texas Jose Cruz, General Electric
Michael Basham, Smith, Barney, Upham and Harris

GOALS:

Discuss (1) criteria lenders or investors would use to evaluate infrastructure projects and (2) the structure/key terms of typical financial arrangements.

GENERAL DISCUSSION:

1) What criteria do lenders and investors utilize to evaluate infrastructure projects? Examples of such criteria include types of project risk (legal, environmental, currency, interest rate and sovereign), acceptable margins of return, and ability to syndicate and/or securitize.

2) Assuming a favorable determination by lender(s) or investor(s), what structure/key terms are typical in financing such projects? Examples of such characteristics include the extent of recourse, types of covenants or performance requirements, form of syndication, debt-equity structure, form of legal ownership, and the impact of regulatory concerns.

SUMMARY OF PROJECTS AND ACTIVITIES RELATED TO CAPACITY DEVELOPMENT FOR DRINKING WATER SYSTEMS

During the past four years, the University of New Mexico Environmental Finance Center (EFC) has built a solid record of accomplishments. The EFC initially began with an emphasis in its training program on the application of public private partnerships to operating and owning public purpose environmental systems. From there the EFC anticipated the NAFTA environmental side agreements by beginning to provide technical assistance to border communities on ways of lowering costs for basic sanitary services. Additionally, the EFC undertook an early study of financing alternatives for environmental infrastructure along the border that served as a guide to feasible choices for public policy decision making. Since then the EFC has worked closely with the leadership of the Border Environmental Cooperation Commission (BECC) and the North America Development Bank (NADBank). Of particular interest to financing institutions is the viability of communities to help pay for their environmental services and institutional means to create greater self sufficiency among users. In continuing its important border work, the EFC has recently field tested a water and wastewater rate model with several New Mexico communities. The model will be a mainstay of the EFC's financial outreach program.

Increasing water viability in New Mexico's small water systems.

The New Mexico EFC recently submitted a proposal to EPA Region 6 to work with the New Mexico Environment Department (NMED) to identify deficiencies in water system data collection, develop a viability model to assess the viability of the state's water systems, and assist in implementing a state wide water viability program through a series of train-the-trainer type sessions. The EFC's intent is to establish a program that New Mexico can sustain over the long term that would be consistent with EPA's goals as identified in the draft Safe Drinking Water Act, and then extend it to other states.

Rate Model Software for Full-Cost Pricing

To achieve sustainable management of drinking water and wastewater services, it is important to set rates to cover the full cost

of these vital environmental services. In August 1995, the New Mexico EFC planned, hosted and assisted with field (beta) testing of computer software for setting financially responsible drinking water and wastewater rates. The beta test of the software package, entitled "Utility Rate: A Rate Setting Model and Financial Planning Tool for Water and Sewer Utilities", was also coordinated with the Syracuse University EFC in Region 2. Both EFCs will conduct "train-the-trainers" sessions on the rate model for EFC staff this summer, followed by training sessions for local officials beginning in the fall (1996).

Enhancing the Viability of Small Water Systems in New Mexico

Eighty-six (86) percent of the water systems in New Mexico are small systems (systems that serve 3,300 people or fewer). At the present time, there are 69 systems serving 2,500 persons or more, 159 systems serving 500-2499 persons, and 1,058 systems serving under 500 persons. Small water systems, in general, experience greater operation and maintenance problems, are less financially secure, and have reduced technical capability than larger systems. As a result, communities experience interruptions in service, crisis-oriented management which addresses problems as they arise rather than setting long-term replacement/upgrade goals. All of this can and does impact the quality of water of small community water systems. The EFC continues to build on its work of increasing the viability of small systems through technical assistance.

Otero County Water System Restructuring Project

The EFC has developed expertise in the area of small water system viability. One example is a water viability project in the Cloudcroft area, located in Otero County, New Mexico, that presented an array of restructuring options to operators and board members for the purpose of improving viability with the small mountain community systems.

In this example, the EFC engineered a drinking water project to introduce the concept of regional cooperation to these small water systems. The goal was to link the water systems into a regional consortium which could benefit from economies of scale and improve the overall viability of water systems in the region. In addition to increasing community awareness of restructuring options, the EFC was instrumental in arranging operator certification training in the Cloudcroft locality with an expected result of 100 percent operator certification in the area.

Dona Ana County Viability Assessment Project

The work with Otero County provided valuable insights into productive methods of approaching communities that are resistant to outside intervention. Concurrent to the Otero County project, a water viability study was being carried out to assess the viability of three small water systems in unincorporated "colonias" in Dona Ana County, New Mexico. These small system case studies were representative of small water systems throughout Dona Ana County and provided necessary data which is being used to analyze various institutional options for the county and recommend financing strategies to support these structures.

In the process of creating these institutional and financial alternatives, research is being conducted on Federal, State, and local regulatory financial, legal, and cooperative resource decision-making, such as "one stop shops" and single preapplication processes. In designing possible scenarios for managing water systems, the EFC is considering issues of equity and efficiency and the necessity of inclusive participation processes which are sensitive to the unique cultural conditions of the area.

Border Environmental Facilities Finance Roundtables

On behalf of the Border Environmental Cooperation Commission (BECC), the EFC sponsored two Roundtables on financing environmental facilities for the U.S./Mexico Border areas. The first was held in May 1995. Discussions centered on the development of reliable, user-fee based projects that must be established to provide security for the loans and repayment of debt. It was emphasized that the border project would require long-term planning efforts built on reasonable expectations and prudent financial management. Without this perspective, the viability of the environmental facilities assisted by the BECC and the work of the North America Development Bank (NADBank) would be jeopardized.

The second Roundtable was called as a follow-up to the May session and was held in July 1995. This meeting brought together many of the primary state and federal level financing institutions. Much of the discussion focused on the feasibility of funding a bi-national water project from the perspectives of the financial institutions and how to initiate the BECC-NADBank proposal process.

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Revised 8/16/2000

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