

"ALBUQUERQUE GREATER URBAN AREA
WATER RESOURCES STUDY"

Major Stuart MacKenzie
U.S. Army Corp of Engineers

I would like to take this opportunity and talk to you about Corps of Engineer involvement in regional water resource planning through the Urban Studies program.

The Corps got into the business late in 1970 when Congress and the Office of Management and Budget indicated an interest in having the Corps of Engineers undertake wastewater management pilot studies for several major metropolitan areas. The objective was to produce for each study area a report that would identify feasible alternative means of reaching very high standards of water quality on a regional basis. A further requirement was that land treatment be considered as an alternative to advanced treatment plant systems. The five areas selected for study were:

1. Cleveland-Akron area in Ohio
2. Chicago metropolitan area
3. Detroit metropolitan area
4. San Francisco Bay area
5. Merrimack Basin in New England

The alternatives developed by the studies would be used to assist the State and local governments in solving their wastewater management problems. Thus, the studies would encompass the formulation and evaluation of wastewater systems and their impacts, the required engineering design considerations, identification of associated institutional arrangements, and public involvement. The Urban Studies Program evolved from these regional wastewater planning efforts. The focus was expanded to include all water problems that presently exist in urban areas, as well as water problems which appear to be emerging in the future. I might mention that all five pilot programs have been completed and are currently undergoing review.

The Urban Studies Program is the newest type of planning study conducted by the Corps of Engineers. Through this program, the Corps

seeks to provide a range of urban water resource plans that are compatible with comprehensive urban development goals of the region under study. These plans will provide an integrated approach to water resources management and will be designed to meet applicable State and Federal requirements for implementation. In other words, the Corps will provide water resource plans that are acceptable to the public, compatible with the urban development goals and implementable by its institutions.

The kind of concerns that receive attention in the Urban Studies Program are:

1. Urban flood control
2. Flood plain management
3. Wastewater management
4. Bank and channel stabilization
5. Regional harbor and waterway development
6. Lake, marsh, and estuarine restoration and protection
7. Water supply
8. Recreation, fish and wildlife

Other concerns which have to be considered and included in the evaluation of water resource problems include land use, population and regional growth, current institutional arrangements, energy requirements of the considered alternatives, urban renewal, and many others of this nature.

These concerns are then examined within the framework of the following basic principles.

1. State and local governments have responsibility for, and leadership of, urban comprehensive planning.
2. Corps urban water resource planning must not duplicate other Federal programs.
3. Where the plan includes an element under regular Corps authority (such as flood control), the plan developed for that specific purpose will be in accordance with established Corps policy for that element.
4. Wastewater management components of alternative urban water resource plans must fulfill the intent of PL 92-500. Also, study funds for this element must include a 25-percent, non-Federal cost share.

That's the program in a nutshell. The impact that it has on the State of New Mexico is this: There is presently an Urban Study on-going in Albuquerque, conducted concurrently with the Albuquerque Metro 208 planning effort. The study is called the Albuquerque Greater Urban Area Water Resources Study and, typical of the military, we promptly found an acronym that goes with it--AGUA. Its goal is prudent use and effective management of our water resources.

The study area is located in the Middle Rio Grande Valley of central New Mexico. The watershed of the main stem Rio Grande from Cochiti Dam to the confluence of the Rio Puerco, an area of approximately 1500 square miles, will be examined, with emphasis given to the urbanizing area from Bernalillo to Belen. It was chosen based on its hydrogeologic integrity. This choice has subsequently haunted us, but I will discuss that in a minute. The study procedure used for AGUA can be divided into three parts or stages. These are:

1. Development of the plan of study
2. Development of preliminary plans
3. Development of final plans.

Also, the following processes will be performed during the conduct of the study:

1. Problem identification
2. Formulation of alternatives
3. Impact assessment
4. Evaluation

These four actions are to be continuously reiterated throughout the study so that continuous sifting and winowing occur to insure the best selection of final plans. The interrelationship of the three-stage, four-phase process is shown below:

At the present time, we are just a little more than halfway through the study. The areas of concern that have been identified and which are currently under investigation are:

1. Flood control and flood plain management. Very briefly, the problems in this area are:
 - a. Main stream flooding
 - b. Tributary and arroyo flooding
 - c. Aggradation of the Rio Grande and erosion control
 - d. Identification of flood hazard areas for flood insurance.
2. Water Supply Management. Again, without getting into great detail, we have identified:
 - a. Problems caused by uneven distribution and limited quantity of the supply.
 - b. Problems caused by the variable quality of the supply.
 - c. Problems caused by the unknown capabilities of the aquifer.
3. Recreation, Fish and Wildlife. There are in this area:
 - a. Problems caused by the fact that sites for water related recreation within the geographic boundaries of the study area are limited.
 - b. Problems with the reduction of habitat for fish and wildlife populations produced by ongoing changes in land use.
4. Wastewater Management. This area of the urban study will be carried out through the 208 planning process. As the State's designated planning agency, the Environmental Improvement Agency will manage this effort. Ms. Callahan has mentioned the specifics of this program previously, so I will only mention the 208 Plan will be fully coordinated with the AGUA Urban Study and will be incorporated into the latter to produce the complete Urban Study. Both will use the same baseline data for their congruent areas of study.

The next two items I will mention not as problems but as broad considerations which I think, in the long run, will be the most significant developments of the study. The first is water quality which we consider to be the fabric on to which all our water resources are embroidered. The alternatives will be based not only on the long

range demands made of the total resource, but also on the fact that the preservation of the quality of the resource is essential to those making the demands. Thus, while attempting to provide alternatives for the entire gambit of water resource problems, it must be recognized that the fabric of the resource is quality. Specific solution can not levy greater demands against the already stressed resource. Instead, alternatives must maintain and reinforce the integrity of this vital fabric.

Finally, Environmental Enhancement, Economic and Human Resource Development. This is a hodge-podge of vocabulary, but we consider it to be the dynamic forces that shape a region; those which create the problems as well as the opportunities, the attractions as well as the blights. Looking at the study area, we find that political and cultural boundaries are not necessarily coincident with natural boundaries. How do these interact? What are the financial arrangements? If alternatives are developed, can they be implemented by existing institutions? It is these types of questions which we hope to answer, and it is in this area where we feel the greatest strength of the Urban Study Program lies.

