

WATER RESOURCES DEVELOPMENT BY CORPS OF ENGINEERS

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By way of introduction to my remarks, I want to compliment Dr. Stucky and the others responsible for this series of annual conferences on water resources development in New Mexico. This State and most of the Southwest have an ever growing need for water resources development. This need can only be met through public awareness of water problems. Meetings such as this stimulate such awareness and, to the extent that awareness stimulates action, they return benefits to the State and the area.

Dr. Stucky has suggested that this presentation be on the topic, "Current Approach to Water Resources Development by the Corps of Engineers," with particular emphasis on water resources development planning peculiar to the Southwest and New Mexico. Following his suggestion, I shall review briefly past and present activities of the Corps of Engineers in New Mexico, then attempt to relate these to regional and national trends in water resources development.

Basically, we in the Corps of Engineers consider our role to be one of partnership with the States and local governments and the various federal agencies concerned in this field of water resources development. Functionally, we play several roles. We are here to help in planning, and, where appropriate, to construct facilities to meet water needs of the Southwest. In a growing number of instances our function is helping cities, at their request, to determine the best means for regulating and managing known flood areas within their borders without having to resort to building large preventive structures.

The Corps of Engineers' program of water resources development in New Mexico began over 30 years ago. For most of this time the principal interest in water has had to do with floods, particularly along the Rio Grande and in some communities where water rushing out of the mountains through arroyos has created devastating flood damage. The Corps' first dam and reservoir in New Mexico was Conchas, near Tucumcari, which was completed in 1938. Incidentally, Conchas also was the first project in the Southwest and one of the first in the Nation to be built by the Corps. Since that time we have built Jemez Canyon, two rivers at Roswell, and Abiquiu Dam in New Mexico. We have also constructed a local flood control project at Socorro, and jointly with the Bureau of Reclamation, the Rio Grande floodway below Albuquerque.

Our Albuquerque District now has three projects under construction in the Rio Grande Basin, which will benefit the area appreciably: Cochiti Dam and Reservoir, Galisteo Dam and Reservoir, and the Albuquerque Diversion Channels. The Galisteo Project, located on Galisteo Creek about 12 miles upstream from its confluence with the Rio Grande, is 90 percent

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complete. It is scheduled for completion by the end of June this year, except for installation of some operational equipment. Cochiti Dam, located near the Cochiti Indian Village on the main stem of the Rio Grande, is now 22 percent complete and scheduled for completion in 1975.

The Albuquerque Diversion Channels Project consists of two channels located on high ground East of and parallel to the Rio Grande Valley. The North Channel, which is now complete, extends about 10 miles from Campus Wash to the vicinity of Alameda and will intercept discharges from the numerous arroyos North of U. S. Highway 66. The South Channel, which is under construction, begins about one-half mile South of Highway 66, extends South for about six miles to Tijeras Canyon and thence to the Rio Grande.

Congress has authorized new flood control projects on the Rio Grande here at Las Cruces and at El Paso. The Las Cruces Project, which was authorized by Congress in 1962, would include construction of two dams. The Las Cruces Dam would be constructed East of the city to impound waters from Las Cruces and Alameda Arroyos and from the streams that drain the area between these two arroyos. Campus Dam would be constructed on Campus Arroyo East of the university. Initiation of construction is awaiting fulfillment of the requirements of local cooperation as required by public law.

The El Paso Project is included as a new construction start in the Fiscal year 1971 budget, now before Congress. We hope to have it under construction by the end of this year. El Paso is vulnerable to flooding from the tributary arroyos on the Eastern, Southern and Western slopes of the adjacent Franklin Mountains. The plan of improvement consists of a single-purpose flood control system of detention dams, diversion dikes and channels to collect and regulate arroyo runoff into the Rio Grande.

In the Pecos River Basin the district is now concerned with projects at Carlsbad, the Los Esteros Dam and Reservoir near Santa Rosa, studies in the Rio Felix and the Rio Hondo, above Roswell, and a study of the Pecos above Santa Rosa.

Congress authorized a flood control project at Carlsbad in 1958. However, the city of Carlsbad, which was the local sponsor of the project, was unable to meet the cooperation requirements for its construction, so work on the project was suspended. After the disastrous Carlsbad flood of 1966, Congress extended the authorization of the project. The Senate has now requested a review study, which is under way in our Albuquerque District. The study is looking at possible dam sites on the Pecos, as well as on tributaries above Carlsbad, and the needs for channel rectification.

The Los Esteros Dam and Reservoir is included as a new construction start in the Fiscal year 1971 budget. This project is deserving of special mention in this presentation, because it represents in a demonstrable way some of the cooperation that I mentioned earlier as an essential to water resources development. Before going into detail, let me preface some comments about Los Esteros with a little history.

In the early days of the Corps of Engineers' participation in water resources development, the basic purposes for which we built projects were flood control and navigation. Sometimes we were allowed to include water supply in a project, but this was through special dispensation of Congress. The Water Supply Act of 1958 opened the door for including water supply for municipalities and industries, as well as irrigation, hydro-electric power, water quality control, recreation and other related purposes, in all of our reservoir projects where local interests agree to pay for the cost of those improvements. It has been difficult to include these purposes in projects in New Mexico for several reasons. These have included such draw-backs as the inability for local governmental entities to provide the necessary elements of local cooperation, the water rights of downstream users, and the shortage of avail-dam sites where water could be stored without excessive evaporation.

The Los Esteros-Alamogordo Project represents a breakthrough of some of these bars to water conservation, largely through the cooperation of the State of New Mexico, the Pecos River Compact, the Carlsbad Irrigation District, the Bureau of Reclamation, the U. S. Fish and Wildlife Service, the U. S. Department of Agriculture and the Corps of Engineers.

The project provides for construction of a dam at the Los Esteros Site on the Pecos River about seven miles upstream from Santa Rosa and for modification of the existing Alamogordo Reservoir of the Bureau of Reclamation downstream from Santa Rosa. Irrigation storage in the Alamogordo Reservoir will be transferred to the Los Esteros Reservoir, and the two will be integrally operated under the terms of the Pecos River Compact for flood control and irrigation. Thus, Los Esteros will have a permanent pool for conservation and recreation purposes.

Another new development in New Mexico water is reflected in a study of a major segment of the Rio Grande that is included in the President's budget for Fiscal year 1971. This should be of interest to all of us here today. As you know, in recent years Congress and the Federal agencies have taken a step beyond the multiple-purpose single project concept and enlarged our thinking to cover entire river basins or segments of river basins in plans for development. Such an approach permits much better utilization of our available water resources than the piecemeal type of development where we build a single project to meet specific local needs. By resolution of the Senate Committee on Public Works, we have been authorized to conduct a comprehensive study of the Rio Grande Basin from El Paso to its source in Colorado. The study will include the urgent need for flood control and major drainage on the Rio Grande in New Mexico and Colorado. But it will also include investigation of needs for irrigation, municipal and industrial water supply, water quality control, recreation, fish and wildlife conservation and related features. Improvement such as reservoirs, diversion channels, levees, channel rectification works, and non-structural alternates will be considered.

The basin-wide approach on the Rio Grande will search out the most desirable means for conserving the water resources of the area for all practical uses. One day we may be able to solve some of the water problems of this area through diversions from other basins. Meanwhile, we must make a successful effort to intelligently conserve and use the waters that are available. This would be the aim of a well-grounded basin-wide plan.

As a next step in progression beyond the basin-wide approach, we and the other agencies concerned with water resources development are now looking seriously at possible regional approaches. Many large-scale schemes, or proposals, have been advanced for moving water from areas of plenty on the North American continent to the Southwest. Most of the proposals advanced thus far have been largely conversational one possibility, which may or may not ever become reality, has at least reached the study stage. This is the possibility for diversion from the Mississippi River Westward. The success of any major diversion of the scope that must be considered hinges on three principal factors: (1) the likelihood of a future surplus water in the "giving" basin; (2) The willingness of people in the "have" area to provide water for the "have not" area; and (3) The possibility of conveying the water at acceptable cost. As the Chief of Army Engineers, Lieutenant-General Frederick J. Clarke, recently said, "It is very likely that the success of any diversion from the Mississippi River system will depend upon finding ways in which the Mississippi River people, as well as you in the Southwest, can benefit from the diversion." Aside from the problems of conveyance at reasonable cost, there are power problems, environment problems, political problems and a host of others that must be overcome.

There are presently three studies under way aimed at determining whether such a project can be devised. One is a very broad and broadly based study in which seven federal agencies and seven states are participating under the chairmanship of the Mississippi River Commission. This is a comprehensive, framework-type study of the lower Mississippi region, carried out under the Water Resources Planning Act. It is aimed at determining the unsatisfied water needs of the lower Mississippi Basin for all purposes up to the year 2020, and at developing a general program for satisfying those needs. Present schedules call for its completion by the Summer of 1973.

A second study is similar but different. It is the West Texas and Eastern New Mexico import study being carried out by the Mississippi River Commission and the Bureau of Reclamation. It too looks ahead to water needs in the year 2020, and it too is scheduled to be completed in mid-1973. The difference is that the comprehensive study aims at forming plans geared to the probable future development and need in the lower Mississippi area; whereas the import study is based on determining the remotest contingencies of possible development in that area, as a prelude to determining whether an exportable surplus exists.

The import study must necessarily be thorough and exhaustive in its search for the effects of a trans-basin diversion upon the lower Mississippi Basin itself. It must project economic needs, future municipal and industrial needs, irrigation needs, water requirements to satisfy recreational needs, look into the direct and indirect effects of a diversion upon fish and wildlife, among other requirements. In today's climate of deep concern for the natural environment and ecology, these aspects are being scrutinized very closely. Most of the aspects I have mentioned have been contracted to research institutes or other governmental agencies for study. The Corps of Engineers, among other things, is looking at the possibilities for storage reservoirs to augment low flows on the lower Mississippi River.

We expect that around the beginning of next year the study will have advanced far enough for a preliminary, reconnaissance-type report on the first phase to be issued. About a year after that, it is hoped that the ground work will be sufficiently along to permit having some proposals before the public for public scrutiny and comment. Public hearings will be held in the Mississippi Valley probably starting in 1972. Following that, the record will move through regular channels to Congress, which will then determine whether the Federal government will participate further in the import proposal.

Another study is being done by our Fort Worth District, which is working with the State of Texas to analyze the Texas water plan in terms of possible Federal participation. This plan lays considerable emphasis upon the possibility of importing water to the high plains area from the Mississippi Basin. Here, again, we are studying the feasibility, appropriateness, direction and extent of Federal participating in conveyance and storage works, and the extent and nature of Federal cost sharing.

Nobody can anticipate the results of these studies. However, there is significance to the fact that the studies are being made. As long as people are working toward a particular goal, there can be hope that the goal will be reached.

The same principle is true with respect to all phases of your water resources development in New Mexico. As long as there is dialogue such as you have in conferences such as this, there is the possibility that feasible solutions will grow from them.

In closing I want to assure you of the continuing desire of the Corps of Engineers to work with State and local interests and the other agencies of the Federal government in the interest of developing our water resources. It has been a pleasure to participate in this meeting today.