

COMPREHENSIVE STUDY ON THE RIO GRANDE -
SAN MARCIAL, NEW MEXICO TO FORT QUITMAN, TEXAS

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It is an honor for me to be present at this water conference and to discuss with you a program of investigation which we believe you will want to consider carefully and participate in. In the 1930's the states of Colorado, New Mexico, and Texas negotiated and accepted a compact which simply stated, provided for a fair division between the three states of the waters of the Rio Grande above Fort Quitman, Texas. The agreement, called the Rio Grande Compact, became the law of the three states, and was passed by the U. S. Congress as a public act and signed by the President of the U. S. on May 31, 1939. The first paragraph of the compact states in part, as follows:

The state of Colorado, the state of New Mexico and the state of Texas, desiring to remove all causes of present and future controversy among these states and between citizens between one of these states and citizens of another state, with respect to the use of the waters of the Rio Grande above Fort Quitman, Texas, and being moved by considerations of interstate commodity and for the purpose of accepting an equitable portion of such waters, have resolved to conclude a compact for the attainment of these purposes.

The compact provided that the Texas Commissioner would be appointed by the Governor of Texas, and would, as such commissioner, represent the area of the Rio Grande from San Marcial, New Mexico to Fort Quitman, Texas. This is the area of this great southwest covered by my assigned subject. For the past two years, a group of people whose vocation and avocation are both water, have been looking at this area in great length and depth. The people closest to the study have been the board and management of the Elephant Butte Irrigation District, the El Paso County Water Improvement District, and the Hudspeth County Conservation and Reclamation District, and responsible leaders of the Bureaus of the USDA and Interior, and state governments of New Mexico and Texas as well as some of the great universities of both states.

Action was started when the irrigation district managers, working with New Mexico and Texas members of the Congress, arrived at an agreement with the Secretary of the Interior, that the department, acting through the Bureau of Reclamation, would assume the responsibility and leadership for organizing and directing an investigation, which we now refer to as a regional environmental study of the Rio Grande Valley for Elephant Butte Reservoir to Fort Quitman, Texas.

The purpose of the study is to determine the scope of the economic role that the area can attain in the decades ahead. How that role can be adapted to the changing economy of the region involved. And, perhaps more importantly, how that role can be performed so as to create acceptable economic and

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environmental conditions for the individuals of the area, who in the aggregate, will be responsible for perfecting it. The study, therefore, would embrace subordinate disciplines in the fields of economics, sociology, environments, and the physical sciences relating capture, extraction, and utilization of water and other basic resources. The over-riding goal is continuation and creation of an acceptable and dignified way of life for those who live in the area in future decades and centuries.

The area of study lies in the more arid portion of North America. Average annual rainfall at El Paso, Texas, for example, is less than eight inches. Under these desert conditions, the future social and economic history of the area will be determined largely by how well the available waters in the area's streams and sub-surface sources are used by the men who live in the area. Thus, the study proposes, among other matters, a search for new water sources to support the growing area economy and to integrate additional water use into a planned overall area use for attainment of maximum future social, economic and environmental value. Heretofore the area has used available waters well.

In a large degree, the present economy of the Rio Grande is a reflection of the effective use that has been made of the surface flow of the Rio Grande, and to some extent, tentative exploitation of local underground water sources. The growth of the area in the last several decades has been rapid. If it is to continue, and the growing population is to be appropriately supported, new water must be identified and conveyed to points of use. It is worthy of note that the past competition for water of the Rio Grande has been so keen that total use of the waters of this historic stream above Fort Quitman is now being made; and that this use in three states and two nations is rigidly governed by interstate and international water compacts and treaties.

In many ways the area is a geographic, economic, and social unit because of its physical location and isolation. From El Paso it is 600 miles to Austin, Texas, with virtual desert over half the entire distance. From El Paso westward, there is a stretch of 320 miles to the first large city, which is Tucson, Arizona. From Elephant Butte Dam to Santa Fe, the capital city of New Mexico, it is 215 miles.

The area, with political responsibilities to the three states and the two nations is so far removed from the power centers of these government units, that it is almost an entity within itself; responsible in a large degree for its own past development, its future growth, and the way of life that it will provide for the individuals that will inhabit it. The area is a product of cultures -- the Indian, the Latin, the Anglo-Saxon -- to the advantage of each. Each culture has contributed a heritage of its skills and crafts to blend a unique culture profiting well from diversity of origin.

It is an area rich in history. In 1610, Franciscan fryors trekked northward through El Paso del Norte to found the oldest church in America, at Santa Fe. Coronado passed through the area in 1542, only 50 years later than the voyage of Columbus, enroute to his futile search for the cities of gold. The valley has been farmed in modern times since 1650; over 120 years ago, the gold rush in California augmented many cattle drives that began their

overland trek from the El Paso area to the west coast. Area growth in the present century has reflected the energy of the people and effective use of resources available. The area is a lush, thin, green strip of profitable irrigation bordering the Rio Grande on both sides. And like the Nile in Africa, is surrounded by hundreds of miles of desert in every direction. It is a green and profitable oasis in a desert land. A good place in which to live, and one that can and will be made better. The irrigation effort is organized and based on one of the earliest projects of the Bureau of Reclamation. It has been phenomenally profitable and is a basic bulwark of the present area economy.

Total gross area income for the project since 1915 exceeds \$1,261,000,000, and the current annual gross income from the enterprise is over \$40 million. Current studies in the El Paso and Las Cruces area indicate that these figures are multiplied by approximately seven times through the interplay of trade at the basic income generates. Urban areas in the region have expanded both as a result of profit from irrigation and a continuing local creation and influx of various types of industry. Major U. S. urban centers are El Paso and Las Cruces, with a combined 1970 population of 385,000 compared with a population of 105,000 in 1940. The city of Juarez, Chihuahua, Mexico has a population in excess of 600,000. Urban growth has been accomplished by a demand for more water.

The area now faces the circumstance that new water sources must be sought to support further urban expansion, which otherwise can occur only by reducing or eliminating irrigation through conversion of part or all of the irrigation water supplied to other uses. This alternative is not desired, as neither the area nor the affected states and nations can afford the resulting economic losses.

To support future growth, the proposed study, therefore, will establish facts concerning water sources within and adjacent to the area, and will explore new water sources for import into the region at acceptable costs. The main theme will be emphasis on efforts to use more effectively what we now have, and to help ourselves solve our problems before we ask help from other states or from other water basins. One aim of the study will be to determine whether the region's economy can be strengthened through changes in the kinds of economic goods that it produces, -- in order to use national needs to better advantage. Since the future growth of the area will be a direct function of optimum use of known water supplies, and the availability of new water supplies, it might seem that the only matter issue is a water-supply project. This, however, is not the case. The era in which a water-supply project could be developed with little concern for its complex interrelationships with all other facets of the economy that it helps support, is past. New water projects can only be successfully proposed in the framework of careful consideration of their interrelationship with the multitude of factors that will govern the future environment of the area and that they will help serve. While the region is geographically isolated, its full economic potential can occur only with its full awareness of its future economic relationships with other regions. This interrelationship must be examined to determine what adjustments within the region would be desirable. The study, while it proposes to seek new water resources, more importantly proposes an examination of all related factors that will affect the area's economy and environment for a decade to come, so that new water will be

used to make the maximum practicable contribution to achievement of an acceptable future environment.

It follows that the study will involve a variety of disciplines. The overall state leadership must come from our governors. These men represent all of the citizenship and because a political state line crosses the area, it must be recognized as artificial and non-existent for study purposes. The total skills of the Department of the Interior will be required, together with those of the Federal Water Quality Administration, the U. S. Department of Agriculture, the International Boundary and Water Commission, the Bureau of Mines, and many other U. S. government agencies. The great agencies of our state governments, such as the New Mexico State Engineers Office, the New Mexico Interstate Streams Commission, the Texas Department of Agriculture, the Texas Water Development Board, the Texas Water Rights Commission, and others. The Soil Conservation District, the Irrigation District, the Council of Government of both states and many others.

I would place primary reliance on two great universities that have intimate knowledge of the areas past and its potential. These are New Mexico State University at Las Cruces, and Texas Tech at Lubbock. I would have these universities provide leadership for a group of other universities composed of the University of New Mexico at Albuquerque, New Mexico Institute of Technology at Socorro, University of Texas at El Paso, Texas A & M at College Station, and the University of Texas at Austin. Scientists and engineers from these universities would investigate a variety of areas, including opportunities for production of new crops, in that area which will be in national demand as tastes of a growing national population change. Social studies are needed to determine the scope of labor available for growing industry. Studies of educational levels, and perhaps the need for improvements in the area as new types of industry demand a higher level of personal skills. The universities will investigate new industrial potentials that will permit more effective utilization of area resources on an integrated areawide basis. Marketing procedures for all area products must be studied and surveys made for improvement so that the area's economy and living standards keep pace. Studies are needed relative to the practicality of recycling water for reuse and reuse again. Climatological studies are needed to explore opportunities for increasing surface water runoff, a procedure which appears to gain in practicality year-by-year. Studies of this potential will be needed from the St. Louis Valley southward throughout the entire region. Institution studies will be needed.

As the area is virtually a separate and distinct geographic, geologic, economic and social entity, it is obvious that its greatest advances will occur by accepting this circumstance and providing for future integrated development on an areawide basis without being stopped at state lines. The possibility for increased trade between the two countries involves detailed scrutiny.

Other types of studies are needed, which are too numerous to be described in detail here. For example: land classification, non-agricultural resources, recreation, retirement, review of energy available, areawide in-put and out-put studies, cost benefits, marketing, weather, education, and labor. The aggregate of the studies to be made will permit recommendations to the areas and state agri-business communities for new paths to the future that will extract

optimum benefits from the sources available and simultaneously help provide an area environment more conducive to greater individual dignity and freedom from want.

It is emphasized that the study need not be of a "crash" nature. None of the urban centers in the area face immediate depletion of water sources now supporting their growth. Such will occur, however, in the predictable future. The purpose of this study is to preclude cessation of growth by identifying new water resources and planning their orderly development. We will learn to live in the area and learn to use the god-given natural resources of the area, the most important of which is people, or we will, in the next century have as our largest export from the area, people.