

The Water Supply of the  
Upper Rio Grande River

by

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In discussing the effects of the proposed programs on the water supply of the Rio Grande, two important questions are raised by water users in the area. First, what measures are included to conserve soil and water and also to reduce sedimentation and flood damage. Secondly, what will be the effect of these measures and of the overall program on the total water supply and how much water will be available for irrigation of agricultural crops.

It has been recognized by the authorities that in the semi-arid southwest an adequate supply of water is essential for a stable agriculture. This is indicated by some of the present programs which provide for federal aid on measures such as improved water application practices, land leveling, canal lining, rehabilitation of irrigation systems and the construction of small irrigation reservoirs. The inclusion of water salvage measures is also consistent with the broad policy of conservation at least insofar as it is directly associated with bringing about a favorable balance in the supply of irrigation water. The proposed efforts to retard surface run-off will decrease sedimentation and will improve water shed conditions and reduce flood damage. Such measures will minimize the adverse effects on the water supply and will be consistent with our concept of water rights and beneficial use. They conform to the premise that established water supplies and the use of that water should be improved wherever possible.

To confine the discussion more specifically to the Upper Rio Grande Valley the writer has obtained information from several of the local agencies of the state, county and municipal utilities. There is considerable information available but little is for public release at the present time.

The Carson National Forest, the U. S. Soil Conservation Service and the County governments together have accomplished a great deal in planning and developing this area. Proposals have been made for new dam sites particularly El Chiflo on the Rio Grande, as well as many smaller but similar projects. In addition new vegetation has been planted and ditches have been constructed for irrigation.

Several counties in Colorado, and Rio Arriba county in New Mexico have all benefited from the waters of the Rio Grande. Taos county, however, has received no water from this source since here the river runs through a gorge which varies from 400 to 1700 feet in depth. Although there are a number of other small rivers, creeks and streams in Taos county there

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is a general shortage of water for irrigation particularly in late summer. The water shortage begins in early August and becomes very acute by mid-September.

Today as one motors through some of the beautiful canyons in the Taos area one finds little or no water in the rivers and streams. In 1955 precipitation was considerably below normal. It was therefore not surprising that a river such as the Don Fernando de Taos, which flows just below the Taos city limits, looks like a dry arroyo from there to its head waters.

Despite the shortages of water the method of distributing irrigation water in Taos was much better in 1956 than in previous years. This resulted in a better growing season for the area.

The underground water source seems to be rather stable in Taos County. In the past few years the water table has dropped only 8 feet. The local water department last year supplied water to 40% more users than in 1949.

To discuss the factors that affect the total supply of water to the Rio Grande one must consider the physical and climatic conditions of the area.

The soil is predominately mountains with moderate to steep slopes. The soils are of medium to shallow depths and are frequently underlain by consolidated deposits.

The annual precipitation varies from 14 to 45 inches and averages about 18.5 inches. A large portion of it falls as snow and some of it runs off when the spring thaw occurs. The infiltration rate for the area averages about 1.2 inches per hour and on a large portion of the area may exceed 1.5 inches. The annual evaporation rate varies from less than 2 feet to about 4 feet. The average for a number of years has been 2.5 feet.

Therefore, most of the water yield to the rivers and streams in this area results from accumulated snow and occasional heavy rain. The losses from evaporation and channel seepage are much less here than on the Lower Rio Grande and the precipitation rate seldom exceeds the infiltration rate except when rapid thaws of snow occur. The surface run-off, which contributes to the Rio Grande water supply is estimated to be around 2 acre-feet per square mile per year. This is small when compared to the total yield of water which may be as high as 1600 acre-feet per square mile per year.