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Water Needs for the Future

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stream flows, minimum flows, fish life, and aesthetic and recreational aspects of water. But our critics should recognize that all municipalities in Colorado, including the metro Denver area, use less than three percent of the water diverted annually from our streams to meet the needs of millions of people.

The Water Department recognizes its primary responsibility to the people of the metropolitan area. That responsibility is to provide an adequate and safe supply of water for present customers, as well as those that all population projections tell us will be here in the years to come. These people also are entitled to a quality of living that a green environment assures, one that is possible only when there is sufficient water.

We shall continue to meet that responsibility until and unless some other agency created by the people and their elected representatives are willing and able to meet the needs of the people of this great and growing metropolitan Denver area.

Agriculture

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Since the early days of Colorado's history, agriculture has played a dominant role in its development. However, its population has grown and cities have expanded along the Front Range. The general consensus is that the importance of agriculture has declined. That is not true. In recent national ratings, development of new water supplies for irrigation was ranked well down on the list in terms of priority. This low priority may be due largely to the high productivity of American agriculture and our surpluses.

But recent world food shortages indicate a need for reconsideration of our priorities. Even today, agricultural production and related activity such as food, fiber, and livestock processing still constitutes a substantial share of our state's total economy. In 1970, for example, cash receipts from farm marketing totaled almost 1.2 billion dollars. And more recently until the

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recent farm price decline, it was approaching the 2 billion dollar level.

Much of the productivity of agriculture in Colorado stems from its supply of irrigation water. In fact, of the estimated water depletion of 5.3 million acre-feet per year in Colorado, about 4.2 million goes to irrigated agriculture. For the entire state the irrigation depletions represent 79 percent of the total, and are even higher—90 percent—if the Rio Grande basin is excluded. In comparison, only .25 million acre-feet, or 4.8 percent, is depleted by municipal and industrial use.

In the marketplace, irrigated agriculture is able to pay substantially less for water than can be paid by some of the other productive uses, such as municipal and industrial development. In the past, this situation has resulted in many irrigation water rights being converted or transferred to other uses. In the future, the ultimate result is likely to be a significant decline in overall irrigated acreage and in livestock production from irrigated hay and pastureland. This decline will occur more rapidly if cities have prescriptive rights to the water they need for expanding population.

A definite need exists to determine, adopt, and implement a water-use policy that will direct Colorado's future development on the basis of criteria other than just the ability to pay. A state water plan is needed.

Some water is used for problems that relate to specific areas that deserve special mention. For instance, in some cities along the South Platte River the municipal and industrial water supply is becoming critical, and, in the absence of other alternatives, agricultural water rights have been purchased. There is a danger here that the basic agricultural economy will be destroyed. In the Arkansas basin shortages and rationing of municipal and industrial (M & I) water supply have already occurred, even though irrigation water rights have been converted to M & I use. In the Colorado River basin, potential mineral development, especially in connection with oil shale development, offers substantial threats to agricultural water use. Through programs to rehabilitate existing private irrigation systems there is much opportunity to increase the efficiency of use of limited water supplies.

However, the careful redesigning of systems that is neces-

sary is often beyond the financial capability of private individuals or companies. Similarly, farm irrigation efficiency can also be greatly improved, but the essential equipment and structural changes can be costly, and widespread adoption of new practices cannot be accomplished on short notice. Existing programs need to be funded and new ones developed.

In the southeastern portion of the state there are numerous localized groundwater aquifers which have been mined in the past, and yet may offer opportunities to recharge. This is not a program that an individual can undertake for private benefit, but one which requires public investment in order to be practicable. The same principle holds true for managing the snow melt and heavy summer rainfall which runs off the land without full utilization. Storage reservoirs could control the majority of this water and provide opportunity for the release of downstream appropriations to increase the useable supply of Colorado water.

However, the realization of these opportunities nearly always requires public investment rather than private. In 1969, lands totalling nearly 36.7 million acres were included in Colorado farms and were used for agricultural purposes. These lands constitute approximately 55 percent of the total land area and are widely distributed over the state. In western Colorado, more than one-half of the agricultural land is used for grazing. The plains area, which includes the major part of both the Arkansas and Missouri River basins in Colorado, has most of the cropland. The intensively cultivated lands are those that have been developed for irrigation. The irrigated lands constitute 27 percent of the cropland and account for a large percentage of crop production.

This state needs to retain a diversified economy. The loss of water for irrigation purposes would be detrimental to our entire agricultural economy—the agricultural segment of Colorado and Wyoming economies would be greatly hindered—and it would drop from its present ranking and become minimal in its contribution to the overall condition of the economics of our state. Conservation of our water resources by farmers and ranchers is necessary, and we need to utilize our resources to a greater degree.

There are no trade-offs when it comes to maintaining irrigated agriculture in our region, but two important questions

need to be answered: (1) Should there be additional federal and state aid for developing water for irrigation? And, (2) are we going to maintain or expand our present acreage of irrigated agriculture in this region through the protection of prime agricultural land, together with incentives to promote agriculture and open space utilization? Other questions that need to be answered are: What really is beneficial use? What is considered domestic use of our water? What do we do about condemnation rights as they concern irrigation water? What do we do about the outright purchase of water by municipalities? What do we do about mineral development and energy production: the coming of coal plants, coal gasification, and nuclear development? These questions all affect our water.

In closing, we in agriculture would like to remain an important part of the economy of this state. Irrigation does play a significant role in the economy of our entire region. However, if we do not consider the alternatives to water-use justly, we will return to a dry-land type of agriculture in this state.

Energy

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One of the most important facts of life this Nation must face is that it takes water to produce energy under the technology available to us now and for the rest of this century.

The United States, with 6 percent of the world's population, consumes about 30 percent of all of the energy used in the world. That same 6 percent of the world's population produces 31 percent of the gross national product of the world. There is a direct correlation between energy consumption and the GNP.

The only way we can hope to guarantee our high level of productivity in America is to produce as much energy as we can from sources within our own borders. I think we should be realistic. We are going to continue to need and want energy, and we know that dependence on foreign oil for 40 percent of our national needs is dangerous. Another embargo would be far

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