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Water: Basin to Basin

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A fresh water source was of utmost importance as Texans settled this state. No one would have considered living far from a river or spring.

Texans then became less dependent on surface water sources with the development of windmills and pumps to bring water from underground reservoirs. In fact, cities and industries totally dependent upon underground water now prosper across the state.

Semi-arid areas have become productive lands with irrigation water from underneath the surface.

Modern Texans, however, pump more water from underground sources in many areas of the state than nature is replacing. This depletion of groundwater causes major problems such as area water shortages and subsidence.

An obvious answer to these problems is to use surface water instead; except good quality surface water in Texas is not always where it is needed. Moving large quantities of water from water-abundant East Texas or from out of state to water-needy West Texas has been a "cussed and discussed" issue in the state for the past twenty years. Although gas and oil conveyances crisscross the state delivering natural resources from areas of surplus to areas of need, transporting large amounts of water from one area to another is not as readily accepted.

Water transfer into water deficient areas of Texas would allow fuller development of the state's agricultural and industrial potential. It also would encourage population growth throughout the state instead of even heavier density in East Texas urban areas and along the Gulf Coast.

Arguments against large-scale water transfers include economic, social, and environmental considerations. The questions of who would benefit and who should pay

for water transfers are still debated in the state. One certainty is that already staggering costs of moving water are sure to escalate with future rises in energy and construction costs.

Area-wide ecological changes caused by removing large amounts of water, or adding large amounts of water, or transporting large amounts are all concerns of environmentalists. They caution that these changes are, for the most part, irreversible and could be drastic.

Transfer Systems

Under Texas law, water may be transferred from one river basin to another if the water supply involved will not be needed during the next fifty years for "reasonably foreseeable water supply requirements within the river basin of origin."

Small scale interbasin transfers--moving water by pipe, canal, or natural channel from the drainage area of one river to another--are currently taking place in the state to supply municipal and industrial demands.

- The city of Amarillo, in the Red River Basin, receives water from the Canadian River via the Canadian River Aqueduct.
- Dallas transports water from Lake Tawakoni in the Sabine River Basin and has plans to import water from Lake Palestine in the Neches River Basin.
- Water impounded by Lake Livingston in the Trinity River Basin is used by Houston industry in the San Jacinto River Basin. By the year 2000, as much as 986 thousand acre feet annually may be diverted from the Trinity for use in Houston.

According to the Texas Department of Water Resources (TDWR), interbasin transfers will grow in number and increase in size in the next 20-30 years as municipal, power plant, and industrial demands outgrow area water supplies. The TDWR has the legislative authority and responsibility for maintaining a current statewide water plan for conservation, development, and distribution of the water resources within the state.

Future Needs

Texas water planners for the past twenty years have concluded that there is not enough fresh water in Texas to fully develop the state's agricultural and industrial potential. The most recent effort in evaluating future Texas water needs is a planning document released by the Texas Water Development Board in 1977. This agency, now part of the Texas Department of Water Resources, estimates that by the year 2020 water supplies will fall short of needs in 11 of the state's 23 river and coastal basins. Major water deficiencies are predicted in the Winter Garden area and many of the state's urban and industrial areas including Houston and Dallas.

Nowhere else in Texas does the magnitude of a water problem approach that on the High Plains where millions of acres of crops are dependent on a diminishing groundwater supply of uneven distribution. The area now produces one-fifth of all U.S. cotton, one-quarter of the nation's grain sorghum (much of which is fed to the High Plains' one and one half million head of cattle), and significant amounts of wheat, corn, and soybeans. Without the groundwater for irrigation, the area, which receives less than 18 inches of rainfall annually, would be forced to return to dryland production. This would mean, according to agricultural economists associated with the Texas Water Resources Institute, more than a 50 percent decline in grain sorghum, cotton, and wheat yields and the end of corn and soybean production.

Water Import

Numerous proposals for augmenting the state's fresh water supply have been seriously presented. Weather modification, desalination (salt removal), wastewater reuse, and groundwater recharge are a few which have been, and are still, studied and discussed. None of these, however, has caught the imagination and interest of state water officials as has water importation into Texas.

"Without water importation," according to the 1977 Texas Water Development Board planning document, "sectors and regions of the Texas economy will suffer severe economic declines.... All sectors of the statewide economy will indirectly suffer these problems due to complex linkages of supply and demand to agriculture and related industries."

Texas Department of Water Resources Director of Planning, Herbert Grubb, recently testified before the House Natural Resources Subcommittee that imported water will be necessary to meet future water demands in the state. Studies are now underway to determine the feasibility of transferring water from Arkansas or eastern Oklahoma to the High Plains area.

Texas Governor Dolph Briscoe and his administration have given top priority to a water import program for the state. Briscoe joins his four predecessors--former governors Preston Smith, John Connally, Alan Shivers, and Price Daniel--in strong support of water importation.

A plan to import 12-13 million acre feet of water annually from the Mississippi was presented by the Texas Water Development Board to the 1969 Texas legislature. It proposed two canal systems to bring water to water-deficient areas in Texas. The Trans-Texas Canal was to extend from Northeast Texas to the High Plains, New Mexico, the Trans-Pecos area, and El Paso. The Coastal Canal was to go from Southeast Texas to the Lower Rio Grande Valley, serving Houston and coastal irrigation areas along the way.

Obstacles

A major obstacle to the plan's implementation was a report issued by the Bureau of Reclamation and the Mississippi River Commission in 1973. The report found that excess water is available from the Mississippi River, but concluded that "while it is engineeringly feasible to divert water from the Mississippi River to the High Plains, the cost of moving the water would be very high and the environmental impacts to the Gulf area and along the diversion route could be significantly adverse."

According to the federal report, the amount primary beneficiaries-- irrigators--could afford to pay for the irrigation water would be only seven percent of the annual economic cost.

Opponents of transfer schemes to bring water from outside Texas argue that it would be far better for Texans to conserve and improve the water supply in each area. Groups such as the Sierra Club also question the assumption of continued growth in water deficient areas. According to one Sierra Club member, "Whatever shortage exists is not a shortage of water, but a shortage of human foresight."

Big Projects

Large water transfer projects have proved successful in other parts of the U.S. and in other parts of the world. According to the Sierra Club, one out of every five persons in the western states is served by a water supply system that imports from a source at least a hundred miles away.

In Southern California, where water transfer began in the 1890's, the thriving economy is dependent upon water imported more than 200 miles. The Los Angeles area now receives more than one million acre feet per year from the system. One-third of the water delivered by the system in recent years has been used to replenish the groundwater in the coastal areas, a resource that was seriously overdrawn between 1950 and 1960.

New York City depends on three major transfer systems to supply approximately 1.7 million acre feet per year. Denver imports water from "the other side of the mountain" as do many other cities across the country.

In Mexico, systems for interbasin transfers have delivered water for 400 years and large-scale importation has been necessary for decades to bring potable water to Mexico City. Two major interbasin projects partially under construction in Mexico involve south to north transfers of water along the northwest coast; a third scheme concerns a large transfer system for increasing the municipal supply for Mexico City.

Even Bigger

The major difference between existing transfers and proposals for future systems is SIZE. Seriously-considered plans on two continents are ten or more times larger than any existing interbasin transfer system. An exception is a 620-mile canal in the U.S.S.R. delivering irrigation water to nearly 2,000 square miles of desert.

Even though most existing systems are for municipal and industrial purposes, present proposals for large scale transfers are, to a large extent, for irrigation.

Planners in several South American countries are looking into the feasibility for solving water scarcity problems by water transfer. Considerable interest has been expressed for water importation from the Rio Colorado in Argentina as well as for several rivers in Central Chile.

A variety of plans for large-scale transfers has been devised by engineers in both the U.S. and U.S.S.R. to move huge volumes of runoff from "surplus" areas to "deficit" areas.

In the U.S.S.R., which has more fresh surface water than any other country in the world, 84 percent of the river flow is in sparsely populated regions of the Northwest, Far East, and Siberia. Since important industrial and agricultural areas farther south lack sufficient fresh water, there is intense interest, according to Philip P. Micklin, an expert in Soviet geography, in redistributing part of the river flow. This would further economic and agricultural growth in other areas as well as improve the water balances of the southern seas.

In spite of existing irrigation projects and a long history of interest and design, no north-south interbasin water diversions in the U.S.S.R. have been implemented. Micklin feels that environmental considerations (adverse effects on fisheries, climate, forests, hydrology, agriculture) in the area of export have importance in the lack of implementation.

Several regional plans in the U.S. have been proposed, but none to compare in size with the North American Water and Power Alliance (NAWAPA). It proposes the transfer of water from Northwestern Canada to seven Canadian provinces, thirty-three states in the western U.S., and three states in Mexico. For an interbasin transfer project of this size, institutional and political arrangements and agreements would have to be devised on a scale never before attempted. Certainly there would be irreversible effects on the environment, economy, and culture of the entire region.

Present massive proposals testify to man's ability to change surface water patterns for entire continents. Political, economic, and environmental questions should be considered, however, before large-scale transfers become reality.

Perhaps more than anywhere else in the world, Texas' future will depend upon answers to these questions.

Water

The rain is plenteous but, by God's decree,
Only a third is meant for you and me;
Two-thirds are taken by the growing things
Or vanish Heavenward on vapour's wings:

Nor does it mathematically fall
With social equity on one and all.
The population's habit is to grow
In every region where the water's low:
Nature is blamed for failings that are Man's,
And well-run rivers have to change their plans.

--Sir Alan Herbert