

Irrigation seen drying up Nebraska's Platte River

AGRICULTURE

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overuse and lost through inefficient irrigation delivery systems.

A recently completed national assessment by the U.S. Water Resources Council says a water crisis is "a clear threat by the turn of the century." The combination of water depletion and water pollution "threatens the very survival of the United States," says the cabinet-level council.

American agriculture will bear a large share of the blame for any future water crisis. More than 80 percent of the water consumed in this country is consumed on farms and ranches. And agriculture, with its erosion, its run-off of chemicals and wastes and its irrigation-caused salinity is a major producer of water pollution.

Home and Industry

The underlying problem in the West is that too many people are using water for home and industry in arid country that perhaps should never have been subjected to urban development. In addition, a new agricultural technology has made it possible to moisten and cultivate land long thought too dry for agriculture.

"The necessity or economic desirability for man to use all of the land suited for agriculture has led him to settle in areas where good water supply is not permanently available," A. D. Latonell, president of the Soil Conservation Society of America, said at the group's annual convention in Denver in August.

Limited Ground Water Supply

One result of current policies is "serious economic and social problems, when economies develop based on a limited ground water supply," the U.S. General Accounting Office (GAO) said last year.

The GAO report cited the federally financed \$1.5 billion Central Arizona Project to take Colorado River water by canal to residents of Phoenix and Tucson, and the \$3.5 billion California Central Valley Project with 19 dams and canals to supply more irrigation water to the Sacramento and San Joaquin Valleys. Some of the California land to be irrigated otherwise "would be fit for growing only sagebrush."

In the case of both the Arizona and California projects, "It appears that the population and economies of the areas developed at higher rates than could be supported by the existing water supply," the GAO said. "Once such developments had taken place, crisis-oriented solutions had to be considered which involved large expenditures and required federal assistance."

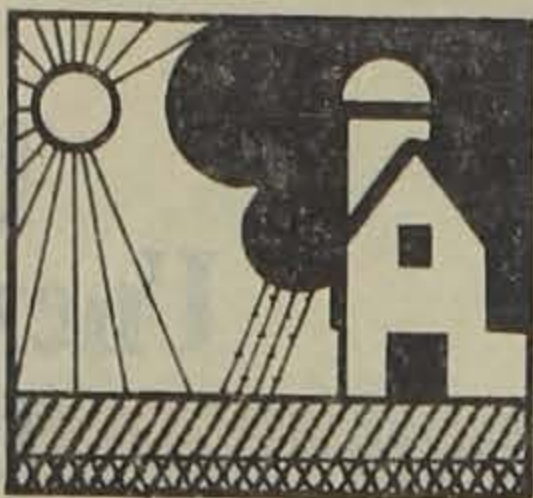
Even more critical water supply situations exist elsewhere.

"Probably the most dramatic instances of ground-water depletion are found in the Trans-Pecos areas of Texas," according to the new Water Resources Council study. In this High Plains section of west and north Texas, "severe and continuous declines" in water supplies "are the result of decades of pumping for irrigation and, more recently, from withdrawals for homes and industries."

"Uneconomic Conditions"

"Abandonment of large acreages of irrigated areas began recently when the required high pumping lifts, combined with sharp increases in prices for natural gas used to run the pumps, resulted in uneconomic conditions for continued production," said the council.

In recent years, the U.S. Geological Survey says, ground-water withdrawals in the southern High Plains of Texas have been seven to eight



million acre-feet per year, but the "recharge" of the supply from natural forces, even in non-drought years, has been only about 150,000 acre-feet a year.

Ground water deficiencies also are "critical" in eastern Colorado, western Nebraska and western Kansas, the Water Resources Council report indicates. Future declines in irrigated wheat production in Kansas are a "relative certainty," it said.

Agricultural water use in these areas has increased sharply in recent years, mainly to grow wheat, corn, cotton, soybeans and other crops on land mostly used for grazing before.

Use of ground-water in the nation has grown from 35 billion gallons per day in 1950 to a predicted 80 billion gallons or more by 1980. At about that time, the Interior Department has predicted, irrigated farming may grind to a halt in some areas.

In Nebraska, the number of acres irrigated for farming has increased six times, to 5 million acres, since 1950, and the Platte River and its tributaries appear to be drying up. Some 40 dams already withdraw water from the river for irrigation, and a recent study in National Wildlife magazine contends that if all proposed water development plans for the Platte are carried out, the river will be dry in 35 years.

"It has become evident," the Water Resources Council report says, "that in most of the United States water has become a scarce resource, scarce in the sense that one use will affect other uses."

"It must now be recognized that competition for water is a fact, that trade-offs must be considered seriously, that in some cases there must be restrictions on use, and that water is no longer the 'free good' that once was taken for granted."

No such recognition on the part of American agriculture has occurred. Water use continues at higher levels than ever before, and more land is irrigated and cultivated. The green circles, a mile in diameter, that one sees while flying across Nebraska and eastern Colorado, attest to the spreading popularity of center-pivot irrigation in the dry plains states.

Water Seeps Away

There is strong evidence that much irrigation water — perhaps 30 percent of it — is wasted, through unwise use and poor delivery systems that allow the water to evaporate or seep away without reaching the crops it is intended to irrigate.

Total freshwater consumption in the United States was estimated at 106 billion gallons a day in 1975. Of that, 86 billion gallons went for agricultural irrigation.

"Enormous amounts are wasted annually because of inefficient irrigation delivery systems which seep water," a GAO investigation determined last year. The loss from federal irrigation projects alone was about one-fourth of the water withdrawn from the ground and rivers. Some of the water returns to streams and rivers, but may become polluted by sediment and salts it picks up on the way.

The GAO study particularly criti-

cized the Interior Department's Bureau of Reclamation for not doing more to stop water waste, including its failure to require lining of many of its irrigation ditches so that water will not seep from them. The bureau acknowledged the need for improvements in a reply, but contended that parts of the GAO's findings "bordered on sensationalism."

The fact that federal water, obtained from the bureau by irrigation districts, is sold relatively cheaply has done nothing to discourage excessive use by farmers. "Low prices for irrigation water are the reason why a great deal of water is wasted by California agriculture," the biggest irrigation state, said a Natural Resources Defense Council study.

The GAO has recommended that the Bureau of Reclamation raise water charges to encourage wiser use.

"Negligible, Marginal Price"

But prevailing water pricing procedures — based on a complex array of federal rules, state water law, and a western frontier-type belief that water is there for the taking — result, in the words of a new Soil Conservation Service (SCS) study, in "a negligible, marginal price to the user in most areas of the West."

"There is often little economic incentive for the irrigation water user to limit the amount diverted," it says.

With the post-World War II boom in agricultural irrigation — now practiced on 44 million acres, or 12 percent of U.S. cropland — have come environmental problems.

"The effect of agricultural irrigation on water quality has only been fully recognized in recent years," says the SCS study in mapping out an attack on farm-caused pollution.

"The most significant water quality problem with respect to irrigated agriculture is high salinity levels. However, other pollutants such as pesticides, nutrients and sediment also contribute to degrading water quality as a result of agricultural irrigation."

The salt problems caused by irrigation activities are "not easily reduced," the SCS noted. Less irrigation, or more efficient delivery and use of the water, seem to be the only choices. The first would halt farm production in much of the West, and the second would cost billions of dollars.

Once the water supplies become salty, efforts to use it for additional irrigation produce lower yields for some crops. "Increased salinity also adversely affects water for domestic, industrial, recreational and fish and wildlife uses."

Water Hardness

For example, salinity can cause excessive water hardness and lead to corrosion of recirculating water systems used by industry. It also affects water tests, hampers home gardening, raises water softening costs, corrodes pipelines, increases consumption of detergents and soaps and shortens the life of clothing washed in the water.

As of now, most western U.S. rivers are "progressively increasing in salinity," and the higher salt concentrations threaten to become "a serious economic and environmental problem for users of water, particularly in the Colorado, Rio Grande and San Joaquin Basins," the SCS found.

The situation involving the vast Colorado River system is illustrative of the problem.

The natural salinity in the river, at its headwaters, is less than 50 milligrams of salt per liter of water. By the time the river reaches Imperial Dam on the California-Arizona border

near Mexico, the concentration is about 900 milligrams per liter.

"Direct Economic Losses"

A Bureau of Reclamation study says that for every milligram increase, there are direct and indirect economic losses of \$230,000. The Bureau predicts the concentration figure at Imperial Dam will reach 1,160 milligrams per liter by the year 2000, and some scientists set the figure even higher.

To reduce agriculture's salt pollution problem to acceptable levels, through better water management, construction of lined or closed delivery systems, and other measures, would cost a whopping \$3.2 billion, the SCS estimates.

That is nearly double the \$1.8 billion that it would take to control pesticide and fertilizer pollution of waters, six times the cost of cleaning up animal waste pollution, and, among the pollution problems caused by agriculture, second in cost only to the \$4.7 billion required to control the silt and sediment problem associated with soil erosion.

The various environmental problems associated with western agriculture's heavy water use are certain to provoke government actions, lawsuits and other controversies in the years ahead.

The political storm that ensued when the Carter administration attempted to enforce a 1902 law, restricting the amount of water a farmer can get from a federal water project to 160 irrigated acres per family member, is a prime example.

Andrus Backs Off

Despite clear evidence that those using federal water were enjoying great economic advantages over their neighbors who did not have access to the water, the cries of protest from large agri-business interests in California led Interior Secretary Cecil

Andrus to back off temporarily on his effort to enforce the law so that he could first prepare an "environmental impact statement." The issue still is not settled.

The initial move to begin enforcing the long-ignored law came because of a lawsuit, which seems to be the main way to get the government moving on western agricultural issues. Three major lawsuits are pending now, involving western water use, dam-building and salinity.

Any of the three pending lawsuits could make a big difference in the way western agriculture develops in future years. In any case, officials such as Assistant Agriculture Secretary Rupert Cutler see changes coming in the West. As underground water dries up, some crops such as cotton may have to move back to the more humid East, and westerners may have to revert to dryland farming, he said.

The natural climate limitations of the West may in the end be more powerful than human endeavor.

FRIDAY: The politics of agriculture and the environment.

Farmers protest land reform policies

NEW DELHI, INDIA (AP) — Police arrested several hundred landowning farmers Wednesday as they staged a demonstration to protest the government's "reverse discrimination" policies of leasing lands to untouchables and other landless peasants. The dispute, which has sparked a series of raucous protests, centers on the nearby village of Kanjhawla, where 120 acres of formerly communal grazing pasture was divided in 1970 and allotted to 120 families, most of them untouchables, members of the lowest of the Hindu castes.

COLD WEATHER CUTOFFS ASSAILED

The Iowa Commerce Commission was asked Wednesday to prevent utilities from shutting off utility services of customers who can't pay their bills during the winter months.

The petition, filed by the Ames-based Community Action Research Group, seeks regulatory changes to block shutoffs between the first of November and the first of April. "These are the coldest months of the year," said Skip Laitner, director for CARG. "Utility services are no longer a luxury but a vital necessity that can mean the difference between life and death. In such instances the economics favoring shutoffs should be ignored."

CARG attorney Ralph Kegel said the petition was prompted by an apparent reluctance of utilities to adopt such plans on their own.

"Persons living on fixed incomes, particularly elderly ones, cannot afford the spiraling increases of utility rates," Kegel said. "Is it reasonable to cut service from those persons, threatening them with possible death, simply because they fall behind in payments?" he asked.

Joining CARG in the effort are State Representative Thomas Jochum (Dem., Dubuque), Emilio Valdez, Dar Hurni, Brian and Rita Carter and Tami Luscombe, all of Sioux City; Iowa East Central TRAIN and Citizens for a Utility Rollback, both of Davenport.

CAB seat filled

WASHINGTON, D.C. (AP) — The Senate Tuesday confirmed former Connecticut Secretary of State Gloria Schaffer, who was defeated in her 1976 bid to unseat Senator Lowell Weicker (Rep., Conn.), to a seat on the Civil Aeronautics Board.

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