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**PROCEEDINGS OF THE SYMPOSIUM ON  
WATER POLICIES ON U.S. IRRIGATED AGRICULTURE:  
ARE INCREASED ACREAGES NEEDED  
TO MEET DOMESTIC OR  
WORLD NEEDS?**

compiled by  
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## IRRIGATION WITHOUT SUBSIDY

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Last fall, the WALL STREET JOURNAL introduced each of its featured stories on agriculture as follows:

"The U. S., long preoccupied with rapid urbanization, is rediscovering its economic heritage and still its biggest industry - agriculture. News of food prices, grain exports and supply and demand is in the headlines, underscoring for citizens and national leaders the tremendous influence that agriculture has on the economic, social, and political well-being of America and the world."

You may also have read the interesting prediction by Orville Freeman in FORBES magazine that, if the food prices go high enough, they could bring as many as 100 million idle acres into production.

At this point in time, then, there is considerable merit in considering the question: "Is there a need for federal subsidies to future U. S. irrigation projects?"

California is an excellent location in which to discuss this matter. Our State contains virtually all of the national and local issues and institutional arrangements involved in irrigation and is an ideal laboratory for the study of all aspects of irrigated agriculture.

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Consider these facts:

- California has more irrigated acreage than any other state (nearly 9 million acres).
- The State produces a wider variety of commercial crops (more than 200) than any other state and most nations.
- California produces many crops which are vitally influenced by export and import policies of the United States Government and foreign nations.
- The commercial crop-growing climate ranges from about 100 days to 365 days at elevations from over 5,000 feet to below sea level.
- Irrigation applications vary from about one acre-foot per acre to six acre-feet per acre.
- Agricultural enterprises include small farms to huge corporate conglomerates.
- Water developments range from a farmer's own well and pump to multibillion dollar, interregional, multiple-purpose projects.
- Water prices at the farm vary from only a few dollars to over \$100 per acre per year.
- A thousand public districts, varying in size from a few hundred acres to several hundred thousands of acres, have the authority to provide irrigation water.
- A majority of the irrigated acreage is provided water by nonfederal and nonstate water facilities.
- Agricultural water marketing policies range from high subsidization to no subsidy.
- Federal Government price support payments account for less than 2 percent of gross farm income.

California has been the nation's leading agricultural State for the last quarter century, and the State's share of

the national gross farm income is 9 to 10 percent, or about \$7.5 billion. An additional \$15 billion is generated by agribusiness. For every 10 persons employed in California's agriculture, another 25 are employed in industries closely related to agriculture. About half of California's waterborne exports are attributable to agriculture -- in the amount of \$600 million. Virtually all of California's exports of agricultural commodities are grown on irrigated land. The nation's current and critically important international balance of trade would have been impossible without the burgeoning exports of agricultural products from California and other parts of the nation.

The history of water development in California begins with irrigated agriculture, as far back as the eighteenth century, when the Spanish missions were established. Even though acreage irrigated at the missions was small, it provided an important lesson for later settlers who arrived in California in the 1800s.

Today, nearly 9 million acres of California agricultural land are under irrigation. This total is expected to increase by an additional million acres by 2020.

The benefits of irrigated agriculture are often illustrated dramatically. During the rainy season of 1971-72, the principal agricultural producing regions of California experienced a 45 percent deficiency in precipitation, yet agriculture in the aggregate was little affected. One year later, 1972-73, the same areas received about 45 percent above normal precipitation yet again agriculture was little affected.

I am convinced that no nonirrigated agricultural producing region anywhere could maintain such a uniformity of both quantity and quality of output under such wide-swinging precipitation conditions.

Irrigated agriculture provides an economic stability to a region's economy that can't be matched by rain-fed agriculture; it provides a year-in and year-out uniformity of quality and quantity of output that can't be matched otherwise; it makes possible production of a wider variety of crops than can be produced otherwise; it responds more readily to changes in market demand for crops; and it makes possible a yield per acre of commodity, an intensity of land use, that far surpasses that of any rain-fed producing region.

We must remember the importance of irrigated agriculture in times of water shortages, such as drought. Irrigated agriculture supports the "ever normal granary" or food bank concept which can protect this nation from the vagaries of weather which periodically affect rain-fed agricultural regions, or from vagaries in agricultural import policies of foreign governments. The concept provides an insurance almost as reliable as the stability provided by irrigated agriculture, and has positive national defense and security implications.

Irrigated agriculture was one of the prime factors behind the settlement of the West. The West in general at the turn of the century was largely an undeveloped region in terms of both population and economy but offered a potential for

growth. It was economically and socially and politically desirable to provide an economic catalyst to spur development of the West. The catalyst of cheap water was provided by the 1902 Federal Reclamation Act and a series of subsequent amendments to that Act.

Highly subsidized features were legislated into federal water project programs in order to carry out this objective. The principal features were nonrepayment of interest on the capital costs allocated to irrigation and the application of surplus power and municipal water revenues to assist in the repayment of costs allocated to irrigation.

In the meanwhile, other forms of federal subsidy to agriculture developed which benefited agriculture mostly in the so-called rain-fed regions of the United States.

One example: the multibillion dollar flood control and navigation projects on the Mississippi River and its tributaries, which among other things, provide flood protection to millions of acres of farmland at very low cost to the beneficiary. Also, the provision of 9,000 miles of federally-improved navigable waters on the Mississippi River system at very low cost to the user for transporting bulk commodities is a subsidy.

Another subsidy which has had greater impact in the rain-fed regions than in the West is the Soil Conservation Service program. And, finally, federal price supports for tobacco, peanuts, cotton, rice, etc., have benefited the rain-fed regions more.

Thus, federal subsidies to agriculture have taken many forms, been carried out under numerous programs and by different federal agencies, and with considerably varying impacts throughout the United States. The issue of subsidized irrigation water should be placed in this larger context.

Irrigation subsidy policy should also be placed within a second context -- that of multiple-purpose water development. Current federal policy varies from nearly zero repayment of costs allocated to a purpose by the direct beneficiaries to more than 100 percent by other classes of beneficiaries. Therefore, if a change in irrigation subsidies is considered, the change should be correlated with the repayment policies of other project purposes in order to reduce distortion in the formulation of projects and increase an overall consistency.

The West has greatly developed and "come of age" in the 70-plus years since passage of the Reclamation Act, and the question has been raised as to whether such extensive subsidies to irrigated agriculture are still desirable.

A far-reaching document which discusses this and other related subjects in some detail is the final report of the National Water Commission. The report in general recommends as federal policy use of a relatively high discount rate in economically evaluating water projects and repayment of capital allocated to a project purpose, together with use of the same high interest rate to be paid on any unpaid capital.

These rigorous policies are expected to have a very inhibiting effect on future federal irrigation development.



On the other hand, for nearly two years now, we have witnessed an economic shortage of food and feed supplies that has this nation and even many countries throughout the world in a scramble to obtain enough to meet their needs.

The current supply-demand situation in agriculture is the reverse of what has been the case during most of the past 40 years. Economists tell me that increased domestic demand for food and livestock feed and livestock products, combined with an increased foreign demand for these same American-produced commodities, has resulted in demand exceeding supply and subsequent high prices for American farm products. I would hasten to observe that, had there not been excess production capability in American agriculture during the past 40 years, the current price increases and international distress would have been much worse.

Now those of us who are involved in water development and management, as well as those in agriculture, are faced with decisions for the future that depend on answers to many questions. Some of the relevant factors include: whether or not the economic "whiplash" of the last two years is permanent or temporary, energy considerations, pollution, world income, world population growth, varying inflation levels among countries, levels of crop output, and so forth.

It is quite probable that the longer-range outlook for marketing American farm products will not be as bright as it has been since 1972 but better than it has been for the past 40 years.

Reasons for this outlook include:

- an assumed continuing affluence in many foreign countries, as well as in the United States
- an aggressive national policy of promoting exports in order to help balance our international payments
- the increasing prospects of still more starvation in many of the crowded, but economically undeveloped, countries of the world
- the fact that food and fiber represent an annually renewable natural resource - stored energy from outer space

In view of the highly desirable effects occurring to a region in particular and to the nation at large that stem from irrigation, the position may be taken that some subsidy to users of irrigation water is justified. However, the extent of the historic federal subsidies to irrigation no longer seems justified.

The social and economic objectives of the Reclamation Act of 1902 have been substantially met, and agriculture in the United States seems to be in the throes of turning an important corner. Higher prices for commodities relative to costs increase the ability of the irrigator to pay more for water.

On the other hand, if farm commodity prices were to decline more than costs, an economic surplus of crops is indicated, with a consequent reduction in need for additional crop acreage. Additionally, if the price of irrigation water

to the user is made too attractive, relative to its costs, then demand increases and there is a tendency toward inefficient water management.

As Director of a public agency with a statewide interest in water development and management, I am aware of the almost infinite number of variations and situations extant with respect to California's irrigated agriculture. Because of this, I don't think the question of "subsidy or no subsidy" can be simply answered without qualification.

It is relevant to this matter that more than 80 percent of all water consumed in the nation is for agriculture and that more than 70 percent of all lands irrigated in the 17 western states are furnished water from nonfederal project sources.

The question refers to federal policy for federal projects, but, if it were otherwise, that is, federal policy applicable to state and local irrigation water marketing policies, then I would have to strongly comment that national policy should not dictate what state and local policies should be. By way of the democratic voting processes, public hearings, etc., districts in California have established water marketing policies varying from no subsidy to nearly 100 percent subsidy. This is within their statutory authority, and this local prerogative should be preserved. Additionally, in California, many thousands of individually owned and operated wells and pumps furnish water at full cost to the user.

The California State Water Project, which was built and is operated by the Department of Water Resources, charges all water contracting agencies -- including those which distribute water for irrigation -- their full allotted costs. That is, capital, interest thereon at the State cost (4.46%) of the actual borrowed money for construction of the Project, plus operation and maintenance costs. Also, since water costs increase with the distance from the source of water supply, the charges to all water-using contractors, including irrigation, increase. Such a policy, implicitly endorsed by the National Water Commission, has resulted in 3/4 of the water supply being contracted for urban purposes and only 1/4 for agriculture.

The question might be raised as to how irrigation development in the State Water Project service area has fared under the aforementioned rigorous water-pricing policies. In the southwestern portion of the San Joaquin Valley -- where the majority of Project water used for irrigation is applied -- water first became available in 1968. In that year, 64,000 crop acres -- including 50,000 new acres -- were irrigated. By 1973, the acreage had increased to about 330,000. Of the latter, orchard and vines and truck crops accounted for about 20 percent, cotton about 40 percent, and other field crops for the remaining acreage. Thus, within a short six-year time span, most of the ultimate irrigable acreage has been developed.

Whether or not irrigation water is subsidized to the user, there always will be farmers who are producing at the

margin, the ragged edge, so to speak. Whether or not irrigation water is subsidized, there are areas whose soils are too poor or the climate too severe or the farm operating unit not large enough or the water costs too high or the distance to markets and canneries and the railroad too great to bring about a viable agricultural economy.

The imposition of subsidized water prices, for the most part, pushes back these marginal farms. It permits the irrigation of still poorer soils, of lands at higher elevations, of lands more distant from markets; it increases the market price of the land; and the rate of irrigation development will increase faster than otherwise.

It results in a larger-sized water project, with consequent increases in investment dollars required, and raises the question -- at the federal level at least -- of the imposition of some form of acreage and/or water-use limitation on those who directly benefit from the use of such water. In this latter regard, agriculturists who benefit from flood control and navigation projects (as those I mentioned in the Mississippi Valley and eastern states) are not circumscribed by a federal benefit limitation.

Even if an irrigation repayment policy similar to that of the aforementioned California State Water Project were adopted for a large region -- or even a nation -- a conclusion should not be made necessarily that subsidies to the water user are never justified. In view of the regional benefits that

stem from development of an irrigation agriculture industry, a state or a political subdivision thereof could assist in paying such costs. In other words, the repayment base could be broadened. There are a number of instances of this in California.

The most typical case is the imposition of a county-wide ad valorem tax, the proceeds from which are used to reduce the payments of a smaller district for the purchase of water from, say, the U. S. Bureau of Reclamation or the State Water Project.

In conclusion, I believe that a more rigorous irrigation repayment policy at the federal level is justified when considering the bringing of additional lands into production. Furthermore, I would observe that, within the California region, local district-established policy varies from almost complete subsidy to full repayment. Also, subsidy to irrigation water users is only one kind of subsidy available to United States agriculture. Therefore, if future federally subsidized irrigation water becomes precluded, then other federal subsidies should be removed in order to strike a more equitable, competitive balance between the irrigated regions and the rain-fed regions of this country. Finally, the great majority of irrigated lands in the West were developed without federal subsidy to irrigation water. Irrigated agriculture in California will survive and expand even without additional federal subsidy.