



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

378.788  
E73  
I54  
L5

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

compiled by  
Victor A. Koelzer

March 1975

**Waite Memorial Book Collection**  
Division of Agricultural Economics

**ENVIRONMENTAL RESOURCES**



**CENTER**

**Colorado State University  
Fort Collins, Colorado**

Information Series  
No. 15

378.788

E73

I54

15

**Waite Memorial Book Collection**  
**Division of Agricultural Economics**

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

Presented at 104th Annual Meeting of  
American Association for the Advancement of Science  
San Francisco, February 28, 1974

Compiled by Victor A. Koelzer

Distributed by the Environmental Resources Center,  
Colorado State University, Fort Collins, Colorado 80523

TABLE OF CONTENTS

	Page	
Foreword by Victor A. Koelzer . . . . .	ii	
Abstracts . . . . .	iv	
 <u>PART A</u> HOW SHOULD U.S. AGRICULTURAL PRODUCTION FIT INTO WORLD FOOD NEEDS?		
 "Forecasting Water Use in U.S. Irrigated Agriculture with Different Alternative Futures" by Russell G. Thompson and Earl O. Heady . . . . .		1
 "Review: National Water Commission's Export Projections" by Martin E. Abel . . . . .		8
 "Demand and Supply Prospects for U.S. Agriculture" by Kenneth R. Farrell . . . . .		23
 <u>PART B</u> IS THERE A NEED FOR FEDERAL SUBSIDIES TO FUTURE U.S. IRRIGATION PROJECTS?		
 "National Water Commission Agricultural Policy" by Ray K. Linsley . . . . .		32
 "Irrigation Without Subsidy" by John R. Teerink . . . . .		42
 "Social Values in Irrigation and Water Development Policy" by Wade H. Andrews . . . . .		54
 "Federal Water Resource Investments" by Carl H. Bronn . . . . .		82

FOREWORD

By Victor A. Koelzer<sup>1/</sup>

The papers in this symposium were presented at the 140th Annual Meeting of the American Association for the Advancement of Science, San Francisco, on February 28, 1974. The program was sponsored by AAAS Section W (Atmospheric and Hydrospheric Sciences), the American Meteorological Society, and the American Geophysical Union.

The symposium focused on policies recommended by the U.S. National Water Commission, as related to irrigated agriculture. The Commission was established in 1968 to make a 5-year study of the Nation's water resource problems, the alternative solutions to those problems, and the economic and social consequences of water development--in short, a complete analysis of water resources policies.

The Commission's recommendations on Federal policies for irrigated agriculture, as contained in its final report<sup>2/</sup>, were quite controversial. The Commission concluded that (1) no additional irrigated agriculture (and not even all of the present irrigated area) is needed to meet domestic and export needs, and (2) Federal subsidies for

---

<sup>1/</sup> Professor of Civil Engineering and Director of International School for Water Resources Environmental Management, Colorado State University, Fort Collins, Colorado. (Program arranger for AAAS Section W, San Francisco Meeting.)

<sup>2/</sup> Final Report to the President and the Congress of the United States by the National Water Commission, "Water Policies for the Future, June 15, 1973, Government Printing Office, Washington, D.C. (stock no. 5248-000-06, item no. 1089.)

development of additional irrigation in the United States should be discontinued. Some critics disagreed sharply with these conclusions and recommendations--others gave hearty endorsement.

New ingredients to the situation that have been added since the Commission's report include the recent sharp rises in farm prices, developments in the export market, and the energy crisis. The symposium explored the Commission's findings in the light of conditions that existed at the time of the Commission's studies, as well as conditions currently existing. Other viewpoints on factors that should affect policy decisions were given. A particular effort was made to obtain a spectrum of views, to foster a type of debate on this important subject that had not been possible during formulation of the Commission's recommendations.

The first three papers of the symposium dealt with the basic question of "How should U.S. agricultural production fit into world food needs?" They were essentially of a "forecasting" nature, exploring the domestic market and production capability, together with foreign markets, world food needs, and world production. The Thompson and Heady paper presented the results of the National Water Commission study that was basic to the Commission's recommendations. The Farrell and Abel papers presented critiques of the Commission study, as well as additional views.

The last four papers analyzed U.S. policies in the light of the production needs as outlined in the first three papers, i.e. "Is there a need for Federal subsidies to future U.S. irrigation projects?" The Linsley paper presented the rationale behind the Commission's recommendation that subsidies be discontinued on future projects. The Andrews, Teerink, and Bronn papers gave, from widely different perspectives, rationales for conclusions that were generally at variance with those of the Commission.

## ABSTRACTS OF SYMPOSIUM PAPERS

### "FORECASTING WATER USE IN U.S. IRRIGATED AGRICULTURE WITH DIFFERENT ALTERNATIVE FUTURES," by Russell G. Thompson and Earl O. Heady

The reasoning underlying the conclusions of the National Water Commission that Federal subsidies to irrigated agriculture should not be made in future Federal projects is given. The Thompson-Heady studies, indicating adequate agricultural production capability to meet domestic and export markets, is seen as the primary basis. The small production from irrigated agriculture on Federal projects relative to total U.S. production is stressed. The subsidy of food production in the U.S. for export use is seen as unreasonable. The need is voiced to consider all methods of increasing agricultural production in the event of a world food shortage, rather than singling out irrigation for special treatment.

### "REVIEW: NATIONAL WATER COMMISSION'S EXPORT PROJECTIONS," by Martin E. Abel

The projections of agricultural imports and exports contained in the National Water Commission's Report are reviewed. These projections are found to be unrealistically low in terms of (a) information available at the time they were made, and (b) trade developments since the original projections were made. It is suggested that a new set of agricultural export and import projections for the U.S. be prepared based on improved methodologies and more realistic sets of assumptions. It should be determined whether or not the new projections alter the conclusions of the National Water Commission Report.

### "DEMAND AND SUPPLY PROSPECTS FOR U.S. AGRICULTURE," by Kenneth R. Farrell

Assuming continuation of certain favorable conditions for farmers, substantial increases from 1973 to 1985 are projected for harvested cropland and for output of feed grains, wheat, soybeans, cotton, and beef in the United States. U.S. agricultural exports are projected to increase 46 percent from 1970 to 1985 under one set of assumptions about world agricultural conditions, and 70 percent under another set. If the developing countries sustain recent rates of increase in yields of major crops, world food supply would be adequate to meet world demand in 1985. However, less optimistic projections might result from assumptions that included stringent regulations to enhance environmental quality, high prices of inputs, and other departures from recent trends.

### "NATIONAL WATER COMMISSION AGRICULTURAL POLICY," by Ray K. Linsley

The National Water Commission recommended that Federal water programs to increase the agricultural land in the United States be sharply curtailed and that project beneficiaries be required to repay the full cost of any future projects. The evidence suggests that current available crop land will be quite adequate for domestic food and fiber needs and probably also

export needs to the year 2000. In any case, subsidy of exports is not justified.

"IRRIGATION WITHOUT SUBSIDY," by John R. Teerink

California is an ideal laboratory for the study of all aspects of irrigated agriculture because the State contains virtually all of the national and local issues and institutional arrangements involved in irrigation. The issue of federally-subsidized irrigation water should be placed within the larger context of all federal subsidies to agriculture, which have taken many forms and been carried out with considerably varying impacts throughout the United States. In view of the improved long-range outlook for agriculture generally, a more rigorous federal irrigation repayment policy is justified when considering the bringing of additional irrigated lands into production. However, if future federally-subsidized irrigation water becomes precluded, then other federal subsidies to agriculture should be removed in order to strike a more equitable, competitive balance between the irrigated regions and rain-fed regions of this country. The great majority of irrigated lands in the West were developed without federal subsidy to irrigation water, and irrigated agriculture in California will survive and even expand without additional federal subsidy.

"SOCIAL VALUES IN IRRIGATION AND WATER DEVELOPMENT POLICY," by Wade H. Andrews

Irrigation development has been branded as an unnecessary subsidy for a developed western region from an economic standpoint by the Report of the National Water Commission. There are some new frontiers, however, that should be considered in evaluation. Case studies show much of the arid West is in need of adequate, dependable water supplies on present lands to stabilize the basic economy of rural communities to relieve fluctuating income and anxiety. Also, studies show the value of recreational and aesthetic use of reclamation water is greatly underestimated. Social elements need to be included in systems models of evaluation studies.

"FEDERAL WATER RESOURCE INVESTMENTS," by Carl H. Bronn

The States are encouraged to collaborate on Federal legislation to use water resources to aid National aims. National aims are illustrated by agricultural impacts of flood control works on the Mississippi River. Over-concentration on profit evaluation would short-circuit the political policy potential of a key public resource.