Water Importation into Arid Lands

AAAS Symposium • 30–31 December 1968
Dallas, Texas

The forces of change (expanding technology, expanding population, and expanding uses of natural resources) in recent decades have required a re-examination of the approaches to development, management, and use of water. Such forces have the effect of shrinking or eliminating geographic separations thereby increasing interdependency, interaction, and impact among and between social interests. Thus, while technology has broadened planning perspectives, project formulation and evaluation have also become more and more complex as the planning unit expands to regions. Part of this added complexity results from the sheer increase in the number of social interests to be served and the number of political and institutional entities involved. More of a factor, however, is the complex and dynamic interlinking between the physical, social, political, legal, and economic elements which enter the planning milieus. Although conceptually simple, in composite these factors are extremely difficult to quantify and relate functionally.

So while the evaluation of the social and economic consequences of water development become exponentially more difficult to predict and project, it becomes more important to predict and project accurately because of the tremendous investments involved and the "irreversible" nature of a scheme once implemented. Physical works once constructed generally translate the same "irreversibility" to the social consequences to which it is coupled. Thus, decisions about water development based on weak or flimsy linkages between the physical and social components may ultimately reveal economic and social disadvantages or sacrifice which cannot be reclaimed.

While the fundamental physical objective of water development (to bring about a new hydrologic equilibrium prerequisite to achieving some net social advantage) is independent of scale, experience with small-scale development does not necessarily provide all the necessary answers to large-scale development. Elements of the planning matrix can relate in much more subtle and devious ways and combine to create much larger impacts. If the impacts are desirable, the rate of return on such an investment can be extremely large. Alternately, if impacts turn out to be undesirable, the losses may be of tremendous proportions.

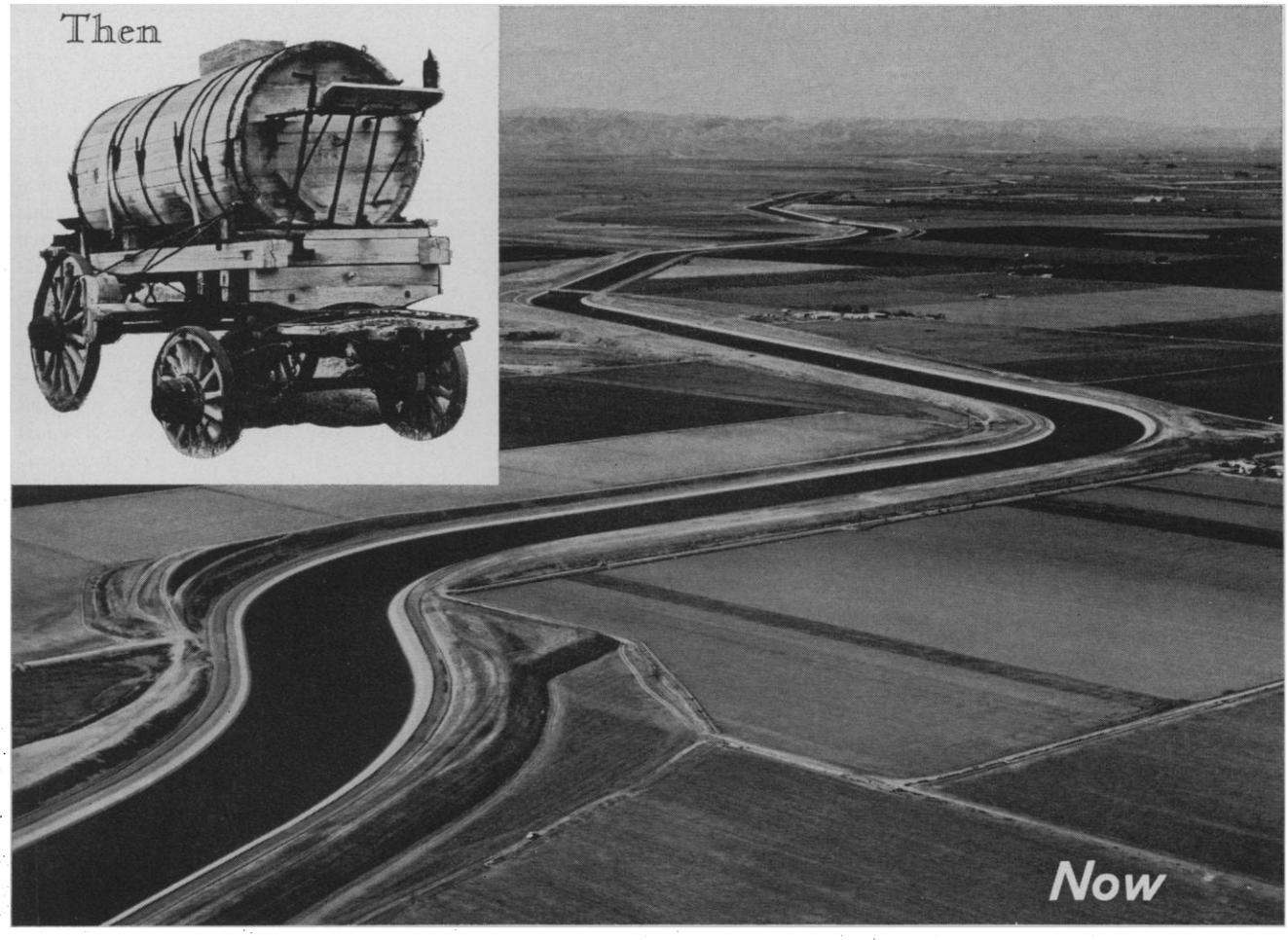
This, then, is the basis for a symposium dealing with large-scale transfers of water between regions. The symposium is scheduled to take place 30–31 December 1968 during the AAAS Annual Meeting. Such large-scale redistributions of water have potential for major and sustained impact on both exporting and importing areas. This symposium purports to bring together some of the best current thinking on this subject and to provide an atmosphere for meaningful interchange of opinions and ideas developed by these individuals.

The participants as assembled represent broad disciplinary and regional experience from which to draw their viewpoints. They will consider such questions as: What is the philosophic basis for regional water transfer and how does it differ (or does it differ?) from the philosophy of water resources development within a particular river basin? What are the legal and administrative problems involved in conveying large quantities of water across state boundaries wherever doctrines, principles, and regulations of water rights vary? How are these complicated when sovereign nations are involved? What are the large-scale and long-term physical implications on local water balances and the maintenance of water quality? Can regional growth patterns be regulated by regional water transfer and should they be? What are the ecological implications and can they be predicted? Can existing institutional patterns be adapted to the considerations of large-scale water transfers? What institutional changes seem desirable? What are the intrastate, interstate, and international political realities? What are the economic impacts to regions that export and import? If a region has a surplus of water needed by neighboring regions, how can it be determined whether exported water will limit its own future economic growth? How does economic development stemming from regional water transfers compare to alternative investment plans not water-oriented? How can costs and benefits be evaluated and allocated where states and nations are involved? Are there alternatives to large-scale water imports? How can these be evaluated and compared? Will considerations of large-scale water transfer entail a painful reorientation of present philosophy on water resource development? Can this philosophy serve as an instrument for peace between neighboring countries?

These are indicative of the kind of questions which will be treated in the symposium at Dallas. The intent of the symposium is not to provide a forum for debate about specific pet schemes for large-scale import, although some of these will no doubt be used to illustrate points. Rather, the intent will be to encourage a frank interchange regarding the basic issues and principles universally applicable to considerations of large-scale import-export schemes.

The symposium is the program of the AAAS Committee on Arid Lands. The arrangers of the program are Jay M. Bagley (Utah State University) and Terah L. Smiley (University of Arizona).

JAY M. BAGLEY
Utah State University, Logan



Then. Old water wagon used in the early 1900's by the citizens of Coalinga, California, to transport drinking water from the nearby San Joaquin Valley. *Now.* San Luis Unit, Bureau of Reclamation's Central Valley Project, California. This 103-mile long canal is one of the major waterways in the West; it is a link in the chain to transport water from northern to southern California. [J. C. Dahilig, Bureau of Reclamation]

Speakers and Topics

30 December (morning)

Chairman: Jay M. Bagley (Utah State University)

Historical Background and Philosophic Basis of Regional Water Transfer, Calvin Warnick (University of Idaho).

Intrastate, Interstate, and International Legal and Administrative Problems of Large-Scale Water Transfer, Edward Weinburg (U.S. Department of the Interior).

Physical Implications (Equilibrium Changes in Hydrologic, Climatologic, Water Quality, and Other Factors), P. H. McGauhey (Sanitary Engineering Research Laboratory, Richmond, California).

Social and Ecological Implications, Thadis W. Box and Gerald W. Thomas (Texas Technological College).

30 December (afternoon)

Chairman: Terah L. Smiley (University of Arizona)

Institutional and Political Factors, Irving K. Fox (University of Wisconsin).

Economics of Large-Scale Transfers, Charles W. Howe (Resources for the Future, Washington, D.C.).

Import Alternatives, Gale Young (Oak Ridge National Laboratory).

Water Importation in Water Resources Development Philosophy, Dean F. Peterson (U.S. State Dept.).

31 December (morning)

Moderator: Henry P. Caulfield, Jr. (Water Resources Council)

Panel Discussion: E. Roy Tinney (Department of Energy, Mines, and Resources, Ottawa, Canada); Emery N. Castle (Oregon State University); Sol Resnick (University of Arizona); Earnest F. Gloyna (University of Texas); and Harvey O. Banks (Leeds, Hill, & Jewett, San Francisco).

General Program Notes on the AAAS Annual Meeting (26–31 December 1968) appear in the 4 October issue of Science. *Hotel reservation forms and meeting and tour registration forms appear in the 18 October issue of* Science *and will appear in alternating issues. Reports of symposia at the Meeting appear in the following issues: 13 September, "Sport and Its Participants"; 20 September, "The Control of Fertility"; 27 September, "Unanticipated Environmental Hazards"; 11 October, "Continuing Education for Engineers"; and 18 October, "Antarctic Research."*