Sharing Water in Times of Scarcity

Guidelines and Procedures in the Development of Effective Agreements to Share Water Across Political Boundaries

Edited by Stephen E. Draper

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SHARING WATER IN TIMES OF SCARCITY

GUIDELINES AND PROCEDURES IN THE DEVELOPMENT OF EFFECTIVE AGREEMENTS TO SHARE WATER ACROSS POLITICAL BOUNDARIES

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Preface

This report, Part II of the Final Report of the Task Committee for the Shared Use of Transboundary Water Resources (SUTWR), is provided to the Laws & Institutions Committee of the Environmental & Water Resources Institute (EWRI) and the American Society of Civil Engineers (ASCE) for publication as the SUTWR Task Committee Report, Part II.

The Water Laws Committee (now the Laws and Institutions Committee of the EWRI Planning and Management Council) of the Water Resources Planning and Management Division of the American Society of Civil Engineers (ASCE) created the Model Water Code Project in 1990 under the leadership of Professor Ray Jay Davis of the Brigham Young University School of Law. The purpose of the project was to develop model statutory provisions intended for adoption by state governments for allocating water rights among competing interests and for resolving quantitative conflicts over water.

After Professor Davis retired from Brigham Young University in 1995, the project continued under the leadership of Professor Joseph W. Dellapenna of the Villanova University School of Law. In 1997, the Regulated Riparian Model Water Code was published as the ASCE/EWRI Regulated Riparian Model Water Code (Joseph W. Dellapenna ed. 1997). It was recently accepted as the ASCE/EWRI Standard 40-03 (Dellapenna, 2003b). The Appropriative Rights Model Water Code is presently in the final stages of review for publication as a Committee Report of the EWRI Laws and Institutions Committee and has been accepted for the consensus process by the Water Regulatory Standards Committee of the EWRI Standards Development Council,

Early in the project formulation and development process, the ASCE Water Law Committee recognized that effective water allocation and management required planning and regulation on a water basin basis. However, since most basins are shared by two or more political entities (e.g., states or nations) the committee recognized the need for a companion model code for utilization of waters flowing across or along the boundary of sovereign governments.

The Need for a Model Water Sharing Agreement

When two or more independent governments share a common water resource, the timing and magnitude of the respective individual uses can be continual sources of conflict. Water scarcity is evident throughout much of the western United States, and the use of shared water resources is often a major source of legal and political conflict. The interstate and international conflicts over the allocation of the waters of the Colorado River began early in the Twentieth Century and have still not been totally resolved. But the problem is not limited to the western states. Even when water is relatively plentiful, the increasing demand for water from shared resources is growing as the population

expands, dramatically increasing the needs of public water supply. This has been graphically shown by the recent dispute between Florida, Alabama and Georgia over allocation of the waters of the Apalachicola-Chattahoochee-Flint River basin. The problem is pervasive, since few river basins in the continental United States are contained within a single state's boundaries.

The problem is magnified in the international arena. There are 268 major rivers shared between and among two or more nations. These international river basins cover almost one half of the total land surface of the globe. Fifty-three rivers are shared by three or more nations, with the Danube being shared by 13 riparian countries. International river basins sustain over 40% of the world's population. Almost 25% of the world's population lives in the earth's semiarid and arid zones where scarcity of water is often acute. Therefore, the potential for conflict is enormous. Among others, protracted conflict over shared waters exists between Turkey, Iraq and Syria in the Tigris-Euphrates basin; between Jordan and Israel regarding their opposite bank sharing of the Jordan River; and between nations in the Nile River Basin. The Ganges River is a source of dispute between India and Bangladesh. Armed conflict has occurred between Ecuador and Peru over the Cenepa River. The breakup of the Soviet Union has caused conflict between former members, especially in the arid regions east of the Caspian Sea. Seven active transboundary water disputes currently exist in Africa; six in Europe and Asia; and at least five in the Americas.

The need for effective cooperation among riparian countries has greatly expanded because of the growing demand for water in various international basins and the increasingly harmful effects of activities in upstream countries. While some form of interstate compact covers most of the shared river basins in the United States, many were drafted in the first half of the Twentieth Century. These agreements were often uni-dimensional and limited in scope, being oriented to specific problems rather than holistic management of the basin's water. It can be argued that many of these interstate water compacts are inadequate to resolution of the more complex water sharing issues that will develop in the Twenty-First Century. Water resource experts now recognize that the shared use of water resources is most effective when management is on the river basin level and when management of the shared resource is comprehensive and multi-dimensional. Internationally, the problems are more acute. Over a third of the 200 international river basins are not covered by any international agreement, and only some 30 have truly cooperative institutional arrangements. Therefore, a significant need exists for guidance and procedures that can facilitate the development of agreements that can provide a basis for the effective and efficient water sharing between autonomous political entities.

The ASCE/EWRI SUTWR Project

In 1995, ASCE initiated the SUTWR Project. The purposes of the project was to review existing transboundary water sharing agreements and develop both guidelines and procedures for the development of water sharing agreements as well as model agreements

for utilization of water by sovereign governments or sub-units within sovereign nations. The focus of these guidelines and model agreements was the allocation and use of shared waters and the resolution of conflicts involving such waters. The goal was to provide agreements that would limit potential conflict while providing an appropriate balance between efficient use of the water resource for economic purposes, public health and ecological protection. The scope of the work was to include international agreements, interstate compacts and state-tribal agreements for regulating water resources along or across political boundaries. It was to apply to any sharing of waters between independent political governments.

Advice and assistance concerning the management of shared water resources were solicited from engineers and scientists engaged in water resources development; from government administrators working with water from a variety of perspectives; from lawyers representing development interests as well as representing environmental and ecological interests; from individuals representing a wide spectrum of business, and industries; from academics in a variety of disciplines, to include civil engineering, ecology, economics, hydrology, law, and political science; and from environmental activists. A number of experts from such varied backgrounds gave detailed critiques of the several drafts of the project; many of these experts also attended two or more meetings per year where the drafts were discussed in detail. Those involved in the project agree that overall the end products are carefully balanced to represent a coherent body of law that would markedly improve the management of shared water resources. (Draper, 2002)

Stephen E. Draper chaired the SUTWR Task Committee. Members of the committee included Joseph W. Dellapenna; Christopher Estes; Marshall Goulding; Conrad G. Keyes, Jr.; Kris G. Kauffman; Zachary McCormick; Don Phelps; and Gerald Sehlke. In addition, Robert Chuck, William E. Cox, J. Wayland Eheart, and Olen Paul Matthews provided significant assistance to the project.

Part I of the Task Committee Report, has been published as the ASCE/EWREI *Model Water Sharing Agreements for the 21st Century*, (Draper, ed., 2002). Part I provided three separate model agreements that may be used to provide a framework around which an agreement could be formed. This publication, Part II of the Task Committee Report, provides narrative guidelines and procedures for the initial formulation stage of the water sharing process.

These guidelines and procedures consider a variety of issues that influence the development of interstate and/or international water sharing agreements. This publication provides guidelines to enable integration of the multiple aspects of the water resource through an analysis that synthesizes the disciplines of science, engineering, technology, economics and law. The document seeks to ensure that all pertinent factors are considered in the development of an agreement so that the agreement accommodates the physical realities of the shared resource along with the different political systems, cultures, and/or water use customs of the particular water basin.

This Committee Report forms a bridge between the theory and the practice of effective shared water management. It provides a process that all states and/or nations can use when creating or modifying a transboundary water sharing agreement. This process includes an assessment of the various factors influence by the shared water use, to include correlating the geographical and political issues surrounding utilization of the water resource, inventorying the sources and uses of the water resource, analyzing the ecological impact of the transboundary use, and examining its effect on economic growth and quality of life of the various constituents. This Committee Report presents the various alternatives available for allocation of water among the parties, with special emphasis on extreme events (droughts or floods). The alternatives include allocation methods for surface water, underground water, and atmospheric waters. Finally, different choices for the administration apparatus that is to supervise implementation are provided.

The final draft of this Committee Report was subject to independent review by three prominent experts in interstate compacts and the law of transboundary water sharing who had not been actively involved in the drafting of the Guidelines and Procedures. These prominent experts included Lisa Bourget, Secretary, U.S. Section, International Joint Commission, *Treaty between the United States and Great Britain relating to Boundary Waters*; Douglas L. Grant, Cord Foundation Professor of Law, William S. Boyd School of Law, University of Nevada-Las Vegas; and R. Timothy Weston, Kirkpatrick & Lockhart LLP and Attorney for the Delaware River Basin Compact. In addition to the independent review, the report was subject to extensive review by the members of the original SUTWR Task Committee and the Laws and Institutions Committee of the EWRI Planning and Management Council. These groups have involved individuals of diverse backgrounds, some of whom were members of the original ASCE Model Water Code Task Committee whose work has provided a foundation from which the SUTWR II report has developed. The review process therefore has been comprehensive both in terms of scope and depth.

SECTION 1

FOUNDATION OF EFFECTIVE WATER SHARING

1.1 Purpose and scope of these guidelines and procedures.

Economic growth and prosperity and improved quality of life require adequate supplies of quality water on a regular and sustained basis. This requirement means that the utilization of shared waters be carefully and systematically coordinated among or between the parties sharing the waters. At present, there are 268 transboundary river basins worldwide. These basins cover almost two-thirds of the global landmass. Forty percent (40%) of the world's population depends on these shared river basins for the water they need. (International Network, 2002; Sea River, 2002) Of the 71 rivers in the continental United States (excluding Alaska and Hawaii) that are more than 350 miles in length, only 6 are not shared by one or more states and/or countries. Of over 56,000 river miles, less than 7% are not shared. (Pearson Education, 2002) Over 90% of the population in the continental U.S. depends on waters shared with other states. (Draper, 2003) Clearly, guidelines and procedures for efficient and effective water sharing are necessary.

An effective agreement can facilitate adequate planning, conservation, utilization, development, management and control of water resources on a water basin basis, in a manner that is reasonable and equitable under the circumstances and that causes no significant harm to most other parties. A key challenge for the parties is to make more efficient and productive use of water and to reshape the water policies of the individual parties to better respond to periods of water shortages. (Postel 1996; Draper, 2002)

This document provides guidelines and procedures to be used in the formulation of water sharing agreements between and among sovereign governments so they may meet the challenge of devising an effective and equitable water sharing agreement. These guidelines and procedures seek to limit potential conflict while providing an appropriate balance between efficient use of the water resource for existing economic purposes, preserving the common water resource for future needs, and promoting the protection of the environment. The guidelines and procedures focus on the process of creating or modifying a transboundary water sharing agreement to ensure that the sovereign parties include all pertinent factors in their negotiations.

Although these guidelines and procedures have been developed predominately using the American experience with transboundary water sharing, a number of international agreements were analyzed in order to gain an appreciation for other experiences. Consequently, these guidelines and procedures have broad application