

Comprehensive Transboundary Water Quality Management Agreement

With Guidelines for Development
of a Management Plan, Standards, and Criteria

American Society of Civil Engineers

Comprehensive Transboundary Water Quality Management Agreement

With Guidelines for Development of a Management Plan,
Standards, and Criteria



Published by the American Society of Civil Engineers



Library of Congress Cataloging-in-Publication Data

Comprehensive transboundary water quality management agreement : with guidelines for development of a management plan, standards, and criteria.

p. cm.

Includes bibliographical references and index.

ISBN 978-0-7844-1019-6

1. Water quality management—Law and legislation—United States. 2. Regional planning—Law and legislation—United States. 3. Interstate agreements—United States. I. American Society of Civil Engineers.

KF3790.C66 2009

346.7304'691—dc22

2009021830

Published by American Society of Civil Engineers

1801 Alexander Bell Drive

Reston, Virginia 20191

www.pubs.asce.org

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ISBN 13: 978-0-7844-1019-6

Manufactured in the United States of America.

16 15 14 13 12 11 10 09

1 2 3 4 5

STANDARDS

In 2003, the Board of Direction approved the revision to the ASCE Rules for Standards Committees to govern the writing and maintenance of standards developed by the Society. All such standards are developed by a consensus standards process managed by the Society's Codes and Standards Committee (CSC). The consensus process includes balloting by a balanced standards committee made up of Society members and nonmembers, balloting by the membership of the Society as a whole, and balloting by the public. All standards are updated or reaffirmed by the same process at intervals not exceeding five years.

The following standards have been issued:

- ANSI/ASCE 1-82 N-725 Guideline for Design and Analysis of Nuclear Safety Related Earth Structures
- ASCE/EWRI 2-06 Measurement of Oxygen Transfer in Clean Water
- ANSI/ASCE 3-91 Standard for the Structural Design of Composite Slabs and ANSI/ASCE 9-91 Standard Practice for the Construction and Inspection of Composite Slabs
- ASCE 4-98 Seismic Analysis of Safety-Related Nuclear Structures
- Building Code Requirements for Masonry Structures (TMS 402-08/ACI 530-08/ASCE 5-08) and Specifications for Masonry Structures (TMS 602-08/ACI 530.1-08/ASCE 6-08)
- ASCE/SEI 7-05 Minimum Design Loads for Buildings and Other Structures
- SEI/ASCE 8-02 Standard Specification for the Design of Cold-Formed Stainless Steel Structural Members
- ANSI/ASCE 9-91 listed with ASCE 3-91
- ASCE 10-97 Design of Latticed Steel Transmission Structures
- SEI/ASCE 11-99 Guideline for Structural Condition Assessment of Existing Buildings
- ASCE/EWRI 12-05 Guideline for the Design of Urban Subsurface Drainage
- ASCE/EWRI 13-05 Standard Guidelines for Installation of Urban Subsurface Drainage
- ASCE/EWRI 14-05 Standard Guidelines for Operation and Maintenance of Urban Subsurface Drainage
- ASCE 15-98 Standard Practice for Direct Design of Buried Precast Concrete Pipe Using Standard Installations (SIDD)
- ASCE 16-95 Standard for Load Resistance Factor Design (LRFD) of Engineered Wood Construction
- ASCE 17-96 Air-Supported Structures
- ASCE 18-96 Standard Guidelines for In-Process Oxygen Transfer Testing
- ASCE 19-96 Structural Applications of Steel Cables for Buildings
- ASCE 20-96 Standard Guidelines for the Design and Installation of Pile Foundations
- ANSI/ASCE/T&DI 21-05 Automated People Mover Standards—Part 1
- ANSI/ASCE/T&DI 21.2-08 Automated People Mover Standards—Part 2
- ANSI/ASCE/T&DI 21.3-08 Automated People Mover Standards—Part 3
- ANSI/ASCE/T&DI 21.4-08 Automated People Mover Standards—Part 4
- SEI/ASCE 23-97 Specification for Structural Steel Beams with Web Openings
- ASCE/SEI 24-05 Flood Resistant Design and Construction
- ANSI/ASCE/SEI 25-06 Earthquake-Actuated Automatic Gas Shutoff Devices
- ASCE 26-97 Standard Practice for Design of Buried Precast Concrete Box Sections
- ASCE 27-00 Standard Practice for Direct Design of Precast Concrete Pipe for Jacking in Trenchless Construction
- ASCE 28-00 Standard Practice for Direct Design of Precast Concrete Box Sections for Jacking in Trenchless Construction
- ASCE/SEI/SFPE 29-05 Standard Calculation Methods for Structural Fire Protection
- SEI/ASCE 30-00 Guideline for Condition Assessment of the Building Envelope
- SEI/ASCE 31-03 Seismic Evaluation of Existing Buildings
- SEI/ASCE 32-01 Design and Construction of Frost-Protected Shallow Foundations
- ASCE/EWRI 33-09 Comprehensive Transboundary Water Quality Management Agreement
- EWRI/ASCE 34-01 Standard Guidelines for Artificial Recharge of Ground Water
- EWRI/ASCE 35-01 Guidelines for Quality Assurance of Installed Fine-Pore Aeration Equipment
- CI/ASCE 36-01 Standard Construction Guidelines for Microtunneling
- SEI/ASCE 37-02 Design Loads on Structures During Construction
- CI/ASCE 38-02 Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data
- EWRI/ASCE 39-03 Standard Practice for the Design and Operation of Hail Suppression Projects
- ASCE/EWRI 40-03 Regulated Riparian Model Water Code
- ASCE/SEI 41-06 Seismic Rehabilitation of Existing Buildings
- ASCE/EWRI 42-04 Standard Practice for the Design and Operation of Precipitation Enhancement Projects
- ASCE/SEI 43-05 Seismic Design Criteria for Structures, Systems, and Components in Nuclear Facilities
- ASCE/EWRI 44-05 Standard Practice for the Design and Operation of Supercooled Fog Dispersal Projects
- ASCE/EWRI 45-05 Standard Guidelines for the Design of Urban Stormwater Systems
- ASCE/EWRI 46-05 Standard Guidelines for the Installation of Urban Stormwater Systems

ASCE/EWRI 47-05 Standard Guidelines for the Operation and Maintenance of Urban Stormwater Systems

ASCE/SEI 48-05 Design of Steel Transmission Pole Structures

ASCE/EWRI 50-08 Standard Guideline for Fitting Saturated Hydraulic Conductivity Using Probability Density Functions

ASCE/EWRI 51-08 Standard Guideline for Calculating the Effective Saturated Hydraulic Conductivity

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FOREWORD

The Board of Direction approved revisions to the ASCE Rules for Standards Committees to govern the writing and maintenance of standards developed by ASCE. All such standards are developed by a consensus standards process managed by the ASCE Codes and Standards Committee. The consensus process includes balloting by a balanced standards committee and reviewing during a public comment period. All standards are updated or reaffirmed by the same process at intervals between five and ten years.

The provisions of this document are written in permissive language and, as such, offer to the user a series of options or instructions, but do not prescribe a specific course of action. Significant judgment is left to the user of this document.

The purpose of the *Comprehensive Transboundary Water Quality Management Agreement with Guidelines for Development of a Management Plan, Standards, and Criteria* (the Agreement) is to provide a framework that riparian governments could adopt or modify for comprehensive water quality planning and management of shared water resources. This Agreement and its appendices are based on the concept of shared sovereignty. It is appropriate only for those situations in which sovereign governments, hereafter called Parties, are prepared to manage their portion of shared water resource together with their neighbors and when the Parties show an interest in improving the quality of the water resource.

The Agreement is extensive and considers many aspects of planning and management of water resources. Parties agree to restrict practices to the reasonable use of water and provide sufficient data to the other Parties to verify beneficial use. The Agreement suggests that information acquisition costs be apportioned so that data collection, environmental assessment, and inventories of basin water user efforts should be systemic in nature and integrated across the basin.

The Agreement is based on the elements of Model C, *Comprehensive Management Agreement Relating to the Shared Use of Transboundary Water Resources, Model Water Sharing Agreements for the Twenty-First Century* (Draper 2002), which is based on the Delaware River Basin Compact (DRBC 1961), and its amendments. The Delaware Compact has been successful in resolving interstate conflicts over the water rights and water quality management of the basin between and among the States of New York, Pennsylvania, New Jersey, and Delaware. Commentary in this Agreement is based on the *Comprehensive Transboundary International Water Quality Management Agreement*, ASCE/EWRI Standard 33-01, published in 2001.

The intent of this Agreement is to be sufficiently flexible for use across borders of sovereign governments in a variety of geopolitical settings. Article 2 lists major definitions and general provisions for the document. Defining the terms avoids the need to include similar language at numerous points throughout the Agreement. Many definitions were taken from *The Regulated Riparian Model Water Code* (ASCE 2003).

Blanks _____ within the text are used to allow a reader to insert names or material appropriate for a particular set of Parties. Numbers underscored (20) within the text refer to sample agreements derived from other cases throughout the world. Some sub-articles are optional and have been labeled accordingly.

The ASCE/EWRI Border International Water Quality Standards Committee (BIWQ SC) is a Committee within the Standards Development Council (SDC) of the Environmental and Water Resources Institute (EWRI) of the American Society of Civil Engineers (ASCE). Committee members who have attended one or more meetings and/or voted on one or more ballots regarding the Agreement are listed below in alphabetical order. Those Committee members are as follows: Raymundo Aguirre, Fernando Cadena, Rongqiu Cai, Robert T. Chuck, Fadi G. Comair, Harold J. Day, Stephen E. Draper, John H. Easton, David J. Eaton—Chair, Thomas G. Gebhard, Jr., Carolyn E. Gerwe, Ramakar Jah, Kathlie Jeng-Bulloch, Conrad G. Keyes, Jr.—Past Chair, Mark W. Killgore—Secretary, April Lander, Elizabeth Lien, John P. McCullough, Daene C. McKinney, David H. Merritt, Percival A. Miller—Vice Chair, Stephen Niemeyer, Bernardino Olague—Treasurer, Jeroen Olthof—Representative to the EWRI SDC, Jim Stefanov, Gerald Sehlke, Mike Stenstrom, D. Rick Van Schoik, and Peter R.B. Ward.

This BIWQ SC reports to the Environmental and Water Resources Institute's Standards Development Council. The EWRI SDC and the ASCE Codes and Standards Committee have approved the balloting process according to the ASCE Rules for Standards Committees that have been established in agreement with the American National Standards Institute.

This standard has been prepared in accordance with recognized engineering principles and should not be used without the user's competent knowledge for a given application. The publication of this standard by ASCE is not intended to warrant that the information contained therein is suitable for any general or specific use, and ASCE takes no position respecting the validity of patent rights. The user is advised that the determination of patent rights or risk of infringement is entirely his/her own responsibility.

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**AGREEMENT CONCERNING THE COMPREHENSIVE TRANSBOUNDARY
WATER QUALITY MANAGEMENT OF THE _____ RIVER BASIN
and/or AQUIFER BASIN**

PREAMBLE

**The Parties to this Agreement, _____
And _____;**

Recognizing that the water and related resources of the _____ River Basin and/or Aquifer Basin (hereafter using _____ Basin) are regional assets, for which they have a joint responsibility, and that the reasonable and beneficial use of these water resources are necessary for the health and welfare of its respective people;

Acknowledging that water and the related resources of the _____ Basin may be experiencing water quality problems to be addressed in order to promote sustainable development;

Recognizing the need to establish a transboundary organization to strengthen cooperation among interested Parties and to facilitate the financing, construction, operation, and maintenance for projects in the _____ Basin;

Convinced of the need to collaborate with governments and states, local communities, nongovernmental organizations, the private sector, and other members of the public in the effort to manage water quality in the _____ Basin;

Recognizing that the conservation, utilization, development, management, and control of the water and related resources of the _____ Basin and its tributaries, under a comprehensive multipurpose plan, will bring the greatest benefits to public welfare and environmental protection within the context of water resource sustainability;

Recognizing that Parties seek to provide effective flood damage reduction; conservation and development of underground and surface water supply for municipal, industrial, and agricultural uses; and watershed projects;

Recognizing that protection and aid to fisheries dependent upon water resources, development of hydroelectric power potentialities, improved navigation, control of the movement of saline water, abatement and control of water pollution, and regulation of surface flow are beneficial to the Parties;

Affirming the desirability of encouraging increased investment for water quality management in the _____ Basin;

The Governments of _____ and _____ hereby solemnly covenant and agree with each other, to the following Agreement.

ARTICLE 1 DECLARATION OF PURPOSES AND POLICIES

1.1 PURPOSES OF AGREEMENT

1. The Waters of the _____ Basin are affected by local, national, and regional interests, and their planning, conservation, utilization, development, management, and control, under appropriate arrangements for intergovernmental cooperation, are public purposes for the respective signatory Parties.
2. The purposes of this Agreement are to promote comity; alleviate causes of present and future controversy; make secure and protect present developments within the governments of the _____ Basin; and encourage and provide for the planning, conservation, utilization, development, management, and control of the water resources of the _____ Basin.
3. The purposes include providing for cooperative planning, financing, and action by the signatory Parties with respect to water quality such that human health and beneficial uses are protected.
4. These policies seek to apply reasonable and nondiscriminatory treatment to all water users, and to all users of related facilities without regard to established political boundaries.
5. A controlling Commission is to be established to carry out the operations within the _____ Basin.

Commentary: A key challenge for the Parties is to make more efficient and productive use of water and to reshape the institutions managing water to better suit the increase in water shortages (Postel 1996). The purpose statement is indefinite in order to allow flexibility in the planning and management of the shared water resource.

The Parties should carefully frame the extent of the water resources involved in the Agreement. They should identify the type and geographical extent of the Waters of the _____ Basin subject to the Agreement. To be accurate, an analysis should examine factors that influence the availability of water, such as the following: the climatology, physiology, geology, and the interaction between underground and surface water resources. The analysis should also identify pollution sources and their impacts on basin water quality. The purposes and scope of the Agreement will affect this assessment, as they will delineate the Parties to be included and their responsibilities, as well as the structure of the Commission established to manage operations within the _____ Basin.

The geographic extent of the water resources to be covered by the Agreement should be equal to the water sharing problems to be addressed. The use of the terms “_____ Basin” or “Waters of the _____ Basin,” if objectionable for any reason by one or more Parties, may be changed to “region,” “area,” or “system,” or any word that accurately describes and encompasses the entirety of the water resources subject to the Agreement.

Comprehensive basin-wide management is established in a number of recent international agreements, to include the Convention on Biological Diversity (1992); Convention on Wetlands of International Importance (1975); and Rio Declaration on the Environment and Development (1992). It has been noted that “integration of water quality and quantity programs is one aspect of, and is inseparable from, comprehensive, coordinated, multipurpose, basin-wide water and related resource planning and management” (Goldfarb 1993).

Cross-Referencing: 1.6 (coordination and cooperation); 2.1.3 (amendments and supplements); 2.1.4 (withdrawal); 2.2.1 (_____basin defined); 2.2.2 (beneficial use defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 3.2 (powers and duties); 3.3 (intergovernmental relations); 5.3 (grants, loans, or payments); 5.5 (borrowing power).

1.2 JOINT EXERCISE OF SOVEREIGNTY

The water quantity and quality of the _____ Basin are subject to the sovereign right and responsibility of the signatory Parties, and it is the purpose of this Agreement to provide for the joint exercise of such powers of sovereignty in the common interests of the people of the region.

Commentary: To be effective, any sovereign government directly affected by the shared use or having direct access to the surface or underground water should be identified and included in discussions. Both governmental and private stakeholders may influence Agreement formulation, even if private water rights holders within the various jurisdictions will not participate as Parties to the Agreement. Although the extent of consultation with private groups will depend on the political nature of the sovereignties themselves, recognition of existing rights is required. For instance, in some situations a conflict could exist between demands for water for economic purposes and the needs of environmental protection. Water users may respond better to incentives to accept that some water is reserved for environmental and ecological protection.

Additional incentives may also help users to maintain or improve water quality during or following use and prior to discharge in accordance with water quality standards or other compliance requirements. Unless the governmental entities involved with formulating the Agreement consider the interests of the various user groups, the effectiveness of the Agreement may be reduced.

Many agreements reserve the sovereign right of each signatory to exploit its own resources (e.g., Convention on Long-Range Transboundary Air Pollution 1979). Some, however, allow for a measure of joint sovereignty but reserve sovereign activities that affect industrial and commercial secrecy or national security (e.g., Convention on Environmental Impact Assessment in a Transboundary Context 1993). However, some recent agreements refer to joint development of shared water resources (Trolldalen 1992) and joint development presupposes the joint exercise of sovereignty. Examples include the Delaware River Basin Compact (DRBC 1961), the Susquehanna River Basin Compact (SRBC 1970), as well as the Act Regarding Navigation and Economic Development between the States of the Niger Basin (1963); Convention Establishing the Organization pour la Mise en Valeur du Fleuve Senegal (OMVS) (1974); Convention and Statute Relating to the Development of the Chad Basin (1974); and the Agreement on the Action Plan for the Environmentally Sound Management of the Common Zambezi River System (1987).

Cross-Referencing: 2.1.4 (withdrawal); 2.2.15 (party or parties defined); 3.2.2 (powers and duties reserved to the commission); 3.2.9 (condemnation proceedings).

1.3 INTERRELATIONSHIP OF WATER RESOURCES

The Waters of the _____ Basin are functionally interrelated, and the uses of these resources are interdependent. Joint planning, management, and coordination of projects and policies within the Basin are essential to effective and efficient use of the water resource.

Commentary: This provision expands the purpose statement by expressing the intent of the Parties to seek effective water management. Similar provisions are included in the Report of the United Nations Conference on Environment and Development, Agenda 21 (1993), which proposed a program of integrated water resources development and management.

Cross-Referencing: 1.6 (coordination and cooperation); 2.2.1 (____ basin defined); 2.2.15 (party and parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined).

1.4 SEVERANCE OR MATERIAL BREACH (Optional)

- 1. Parties consider this Agreement to be a whole. Each recommendation and provision of this Agreement is considered material to the entire Agreement, and failure to implement or adhere to any recommendation or provision may be considered a material breach.**
- 2. Tribunal Parties of competent jurisdiction may hold any part of this Agreement to be void or unenforceable; all other severity provisions shall continue in full force and effect.**

Commentary: The drafters of an Agreement should consider whether they wish to include these clauses. If any part is found to be void or unenforceable, a severance clause avoids the possibility of having the entire Agreement become null and void. These provisions are standard to most agreements, indicating that all provisions of an Agreement are interrelated and that breach of any provision by one Party may jeopardize an Agreement.

Cross-Referencing: 2.1.3 (amendments and supplements); 2.2.15 (party and parties defined); 3.2.2 (powers and duties reserved to the commission); 3.3.4 (cooperative services); 6.3 (conciliation and mediation).

1.5 GOOD FAITH IMPLEMENTATION

Each of the Parties pledges to support implementation of all provisions of this Agreement, and covenants that its officers and agencies will not hinder, impair, or prevent any other Party from carrying out any provision or recommendation of this Agreement.

Commentary: A government normally enters into any transboundary Agreement with a position of self-interest. In the negotiations, each party seeks the rights and authorities critical to certain political, economic, or social objectives while ceding less critical rights and authorities to joint decisions. While accepting this fact, all Parties have a duty to cooperate and negotiate in good faith. This principle is the foundation of international law, and it applies in all relations among sovereign States.

Similar provisions are found in the following references: Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States in Accordance with the Charter of the United Nations (1970), Charter of Economic Rights and Duties of States (1975), Helsinki Rules on the Issues of the Waters of International Rivers (1966), and Stockholm Declaration of the United Nations Conference on the Human Environment (1972).

Cross-Referencing: 2.2.15 (party and parties defined); 3.1.4 (commission administration); 3.2 (powers and duties); 3.3.2 (project costs and evaluation standards); 6.1 (alternative dispute resolution).

1.6 COORDINATION AND COOPERATION

The Parties shall at all times endeavor to agree on the interpretation and application of this Agreement, and shall make every attempt through cooperation and consultations to arrive at a mutually satisfactory resolution of any matter that might affect its operation.

Commentary: This provision recognizes the inherent need for coordination and cooperation in the joint management of the basin. This provision appears in a number of international treaties, including: Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States in Accordance with the Charter of the United Nations (1970); Stockholm Declaration of the United Nations Conference on the Human Environment (1972); Charter of Economic Rights and Duties of States (1975); Treaty for Amazonian Cooperation (1978); Convention on Long-Range Transboundary Air Pollution (1979); Vienna Convention for the Protection of the Ozone Layer (1985); Convention on Environmental Impact Assessment in a Transboundary Context (1993); the North American Free Trade Agreement (NAFTA) (1993); and Agreement between the Government of the United States of America and the Government of the United Mexican States Concerning the Establishment of a Border Environment Cooperation Commission and a North American Development Bank (1993).

Cross-Referencing: 1.1 (purposes of agreement); 1.3 (interrelationship of water resources); 2.2.13 (multilateral body defined); 2.2.15 (party or parties defined); 3.2.1 (general powers and duties); 3.2.10 (meetings, hearings, and records); 3.3.1 (intergovernmental coordination and cooperation).

ARTICLE 2 GENERAL PROVISIONS

2.1 GENERAL OBLIGATIONS

2.1.1 Effective Date of Execution

This Agreement shall become binding and effective (____) days after the enactment of concurring legislation by the signatory Parties. The Agreement shall be signed and sealed in (____) duplicate original copies by the respective chief executives of the signatory Parties. One such copy shall be filed with the Secretary of State of each of the signatory Parties or in accordance with the laws of the country or nation in which the filing is made, and one copy shall be filed and retained in the archives of the Commission.

Commentary: This provision is administrative in nature. It describes when the Agreement becomes enforceable and the administrative steps necessary to ensure all Parties are so informed (ASCE 2001a).

Cross-Referencing: 2.1.2 (duration of agreement); 2.2.15 (party and parties defined); 4.4 (water allocation).

2.1.2 Duration of Agreement

- 1. The Parties intend that the duration of this Agreement shall be for an initial period of (____) years from its effective date. If none of the signatory Parties notifies the Commission of intention to terminate, the Agreement shall be continued for additional periods of (____) years.**
- 2. In the event that this Agreement should be terminated by operation of the above paragraph, the Commission shall be dissolved, its assets and liabilities transferred, and its corporate affairs discontinued, in such manner as may be provided by agreement of the signatory Parties.**

Commentary: Setting duration for an extended period of time allows for predictability on terms of water management. This provision allows sufficient time to recover capital costs in the financing of projects. Establishing duration ensures that the Parties reconsider the Agreement only after a sufficient hydrologic record is established (ASCE 2001a).

Cross-Referencing: 2.1.1 (effective date of execution); 2.2.15 (party or parties defined); 3.1.1 (commission created); 4.2 (purpose and objectives); 4.5 (withdrawals and diversions).

2.1.3 Amendments and Supplements

1. Amendments and supplements to this Agreement to implement the purposes thereof may be proposed by any of the signatory Parties. The amendments and supplements shall become incorporated in the Agreement if approved by all Parties.
2. In the event that any Party is substantially hindered or prevented from performing any obligation or implementing any provision under this Agreement by reasons of circumstances beyond the control of the Party (including natural disasters, labor disputes, judicial decrees, armed intervention, and/or action of national legislative bodies), the Parties agree to meet and negotiate an appropriate modification of the applicable provisions of the Agreement. Such modifications may include extensions of applicable schedules and timetables, or agreements on substitute actions to fulfill the objectives and spirit of this Agreement.

Commentary: This provides a mechanism for the Parties to agree and develop extensions to the Agreement when the need arises. It also provides a remedy for unintentional breaches of the Agreement that may occur due to certain unforeseen or changed conditions. Similar provisions may be found in many agreements (Convention on Environmental Impact Assessment in a Transboundary Context 1993; Vienna Convention for the Protection of the Ozone Layer 1985). One example is the concept of a “Minute” mechanism within the Mexico–U.S. transboundary water Treaty of 1944 on Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande (1944).

Cross-Referencing: 1.1 (purposes of agreement); 1.4 (severance or material breach); 2.2.15 (party or parties defined).

2.1.4 Withdrawal

Any sovereign Party has the power and right to withdraw from this Agreement. Notification of withdrawal to all Parties shall be made (___) months in advance of the prospective withdrawal.

Commentary: This provision acknowledges the advance notification of withdrawal by any individual Party and recognizes that any relinquishment of sovereignty is limited solely to the purposes of this Agreement (ASCE 2001a).

Cross-Referencing: 1.1 (purposes of agreement); 1.2 (joint exercise of sovereignty); 2.2.15 (party or parties defined).

2.1.5 Existing Agencies

The Parties shall preserve and utilize the functions, powers, and duties of existing offices and agencies to the extent consistent with the Agreement. The institution established to enforce this Agreement is authorized and directed to utilize and employ such offices and agencies for the purpose of this Agreement to the extent it finds feasible and advantageous.

Commentary: The use of existing offices and agencies prevents duplication associated with costs of data collection and management of the water quantity and quality subject to the Agreement (ASCE 2001a).

Cross-Referencing: 2.2.15 (party or parties defined); 3.2.2 (powers and duties reserved to the commission); 3.2.7 (advisory committees); 3.3.1 (intergovernmental coordination and cooperation); 3.3.4 (cooperative services); 4.3 (conditions of comprehensive plan).

2.1.6 No Precedence (Optional)

The physical and other conditions pertinent to the _____ Basin constitute the basis for this Agreement, and its provisions are applicable only to the _____ Basin.

Commentary: The Agreement reflects the circumstances and compromises reached in its formulation. The Parties may not wish to make this Agreement apply to other basins. This clause may avoid later claims that other rivers and basins or other bodies of water should be dealt with in a similar manner (ASCE 2001a).

Cross-Referencing: 2.2.1 (_____ basin defined); 2.2.15 (party or parties defined).

2.2 DEFINITIONS

2.2.1 _____ Basin

“_____ Basin” means the area of drainage into the _____ River and its tributaries, aquifers underlying the drainage, or the aquifers themselves.

Commentary: The Agreement could include the total surface area of drainage throughout the _____ Basin and contain aquifers underlying the surface drainage. Some tributaries can be connected to the underlying aquifers holding the underground water. Some of the aquifers could be connected to more than one surface water basin. The geographic scope of the Agreement should be defined to ensure there are no future disagreements about what lands are or are not

covered by the Agreement. A map may be incorporated, but care should be taken that the map is cartographically accurate. Because the map is likely to be at a scale too small for precise delineation of boundaries, it should be made clear that it is for general reference only. In the event of a dispute over land being within the defined _____ River and its tributaries, the actual limits of the watershed as determined on the ground should be controlling (Draper 2002; ASCE 2001a).

Cross-Referencing: 1.1 (purposes of agreement); 1.3 (interrelationship of water resources); 2.1.6 (no precedence); 2.2.3 (commission defined); 2.2.23 (transboundary waters defined); 2.2.25 (waters of the _____ basin defined); 3.1.1 (commission created); 3.1.2 (jurisdiction of the commission); 3.2.1 (general powers and duties); 3.2.2 (powers and duties reserved to the commission); 3.2.3 (obligations of the commission); 3.2.6 (referral and review); 3.3.3 (projects of the signatory parties and their subdivisions); 3.3.4 (cooperative services); 4 (transboundary water quality management).

2.2.2 Beneficial Use

“Beneficial use” includes that use by which the water supply of a drainage basin or aquifer is consumed or stored, when usefully employed by human activities, and also includes water lost by evaporation and other natural causes from streams, canals, ditches, irrigated areas, and reservoirs. The term includes instream use for aesthetics, ecological and environmental maintenance, and protection, recreation, minimum flow maintenance, or any other purpose agreed by the Parties to be for the general benefit of the public and the environment.

Commentary: “Beneficial use” has long been a criterion for the validity of water rights under the appropriative rights doctrine. In that setting, the concept of beneficial use serves both to define the proper purposes for which a water right might be acquired and to limit or measure the quantity of water lawfully appropriated for the intended purpose (Dellapenna 2007). For example, if the Parties use surface water for groundwater recharge for water supply conservation, aquifer use could be pertinent. An example is recharge on Long Island, New York, established under New York Environmental Conservation Law Section ECC 27-07-04 (1983), and related rules and regulations. In this case aquifer recharge could affect the types of development allowed and pollutant discharge guidelines for the designated areas (ASCE 2001b).

At the present time, not all jurisdictions agree that “instream” uses are beneficial, but the trend is to

recognize and provide for such uses. Requirements of instream use maintenance should be addressed; if not, future requirements may result in disruption of allocation or other provisions contained in the Agreement. The Parties may wish to modify or refine this definition further, depending upon the particular goals included in the Agreement (ASCE 2001a).

Cross-Referencing: 1.1 (purposes of agreement); 2.2.3 (commission defined); 2.2.11 (instream use defined); 2.2.15 (party or parties defined); 2.2.21 (sustainable water use defined); 4.2 (purpose and objectives of transboundary water quality management); 4.4 (water allocation).

2.2.3 Commission

“Commission” means the _____ Basin Commission created and constituted by this Agreement.

Commentary: A Commission may be constituted from personnel from the Parties. Further information about the Commission is covered in Article 3 of this document (ASCE 2001a).

Cross-Referencing: 2.2.1 (_____ basin defined); 2.2.2 (beneficial use defined); 3 (administration); 4 (transboundary water quality management); 5 (financing); 6 (dispute resolution).

2.2.4 Comprehensive Transboundary Water Quality Management Plan

“Comprehensive Transboundary Water Quality Management Plan” means a plan that considers the interrelationship of transboundary water resources, describes current and prospective water uses, identifies water supplies, and matches these supplies to water uses. It also identifies water-related management measures, facility needs, and costs, addresses environmental concerns, and offers program and policy recommendations to better manage the basin’s water resources and water quality. A plan may seek to produce high quality and efficient use of water resources for the greatest benefit to the public and the environment.

Commentary: Comprehensive water management plans are guides for the orderly development and management of water resources. Such a plan could span a decades-long horizon and consider population growth, development and availability of new water supplies, water transfers from one basin to another, data sources and methodologies, cost of water, regional or sub-regional plans, regulatory issues, economic development, specific projects, health and public safety issues, specific long-term benefits of conserving water quantity and quality in the Basin, and other concerns.

The Parties should negotiate the time horizon and the schedule for revising the plan. An example is the Texas Water Plan (Texas Water Development Board 2007). Appendix to this Agreement provides Guidelines for the Development of a Transboundary Water Quality Management Plan.

Cross-Referencing: 3.3.3 (projects of the signatory parties and their subdivisions); 4 (transboundary water quality management).

2.2.5 Consumptive Use

“Consumptive Use” means water consumed or not returned to the _____ Basin.

Commentary: A consumptive use is one that diminishes the quantity of water in a water source. Excessive consumptive use impedes the sustainable development of a water source. While water rights can be perfected for both consumptive and nonconsumptive uses, the effects of the two forms of use are so different that regulations and permits will often treat consumptive uses differently from nonconsumptive uses. This has been defined by the ASCE/EWRI Standard 40-03, Regulated Riparian Model Water Code (ASCE 2003).

Cross-referencing: 4.2 (purpose and objectives of transboundary water quality management)

2.2.6 Cost

“Cost” means direct and indirect expenditures, financial commitments, and net adverse cost effects, whether compensated or not, incurred or resulting from the establishment, acquisition, construction, operation, and maintenance of a project.

Commentary: The Appropriate Rights Model Water Code (Dellapenna 2007) uses the term “cost” in the sense of “opportunity cost,” referring to the value of foregone opportunities made necessary by the project or activity for which the cost is to be determined. Opportunity costs include the actual out-of-pocket expenditures such as costs of construction, land acquisition, acquiring water rights, easements, and franchises, and expenses for engineering, legal work, planning, surveys, and other tasks for determining the feasibility of a project or activity. Opportunity costs also include the adverse effects on the environment, including costs to mitigate negative environmental impacts, and on others (people, entities, and organizations) regardless of whether those effects are compensated.

Cross-Referencing: 2.2.17 (project defined); 2.2.18 (reasonable use defined); 3.2.4 (regulations and enforcement); 3.3.2 (project costs and evaluation standards); 5.1 (annual current expense and capital budgets).

2.2.7 Drought Conditions

“Drought Conditions” means water scarcity conditions, defined by and acceptable to the Parties, brought about by occurrences such as an extended period of precipitation below the annual mean, or other causes resulting in significant drainage or depletion of water capacity of the basin.

Commentary: Management action will arise from a drought, or lack of mean annual rainfall, but could arise from other causes as well, such as the collapse of a dam with the resulting draining of a reservoir on which the Commission users depend. Mather (1974) indicates that there are many drought definitions, but the meaning of the term “drought” in any specific case should depend on the intended water use. A “drought management strategy” would be a specific course of conduct planned by the Commission as a necessary or appropriate response to the lack of precipitation or a reduction in water quantity, including catastrophic events (e.g., dam failure). This strategy may include a contingency plan, limited to emergency alternatives to historical or foreseeable drought occurrences. Other causes may be failure of a reservoir dam, earthquake drainage of a reservoir or aquifer, extensive saltwater incursion, or wide-scale contamination beyond basin water treatment capacity, etc. (ASCE 2001a).

Cross-Referencing: 2.2.15 (party or parties defined); 4.2 (purpose and objectives of transboundary water quality management); 4.3 (conditions of comprehensive plan); 4.5 (withdrawals and diversions).

2.2.8 Effluent Standards

“Effluent Standards” is a limit on the discharge of a pollutant from a point source.

Commentary: According to the State of Texas, these govern any effluent or wastewater discharged from any point source prior to entering a water body (30 TAC, Chapter 307).

Cross-Referencing: 2.2.16 (point source defined); 4.6 (water quality); Appendix A-4.3 (strategies to control pollution); Appendix A-5 (implementation of measures for sustainable use); Appendix B-1 (the process leading to establishment and implementation of transboundary water quality standards and criteria); Appendix B-2.2 (water quality regulations); Appendix B-2.3 (designated use in each government); Appendix B-4 (Mexico–U.S. transboundary water quality standards).

2.2.9 Equitable

“Equitable” means fair, just, or according to the principles of justice. An equitable settlement of a dispute is fair to each side.

Commentary: Utilization of a transboundary water resource in an equitable manner requires taking into account all relevant factors and circumstances (Draper 2002). These may include: (1) social and economic needs of the Parties, (2) population dependent on the water resource of the Parties, (3) effects of the use or uses of the water resources of the other Parties, (4) existing and potential uses of the water resources, and (5) availability of alternatives.

Cross-Referencing: 3.2.1 (general powers and duties of administration); 3.2.2 (powers and duties reserved to the commission).

2.2.10 Flood Conditions

“Flood Conditions” refers to the flow resulting from heavy runoff with a frequency agreeable to the Parties.

Commentary: A flood condition is almost the opposite of a drought. A large amount of water is to be controlled by facilities of the Commission. The Parties are to agree as to the frequency of the flow of high waters in the Basin. High flow events usually exceed the flow that occurs during the years of mean annual precipitation (ASCE 2001a).

Cross-Referencing: 2.2.15 (party or parties defined); 4.2 (purpose and objectives of transboundary water quality management); 4.3 (conditions of comprehensive plan).

2.2.11 Instream Use

“Instream Use” includes any use that does not withdraw water from the stream but may affect instream water quality or habitat. Examples include navigation, certain types of hydroelectric power facilities, maintenance of water quality, provision for fish and wildlife habitat, and fulfillment of aesthetic goals.

Commentary: The uses of water for certain types of use are to be classified as “instream use.” The Parties would need to agree as to the uses that fit into this category, such as navigation, certain types of hydroelectric power facilities, maintenance of water quality, provision for fish and wildlife habitat, and fulfillment of aesthetic goals (Dellapenna 2007; ASCE 2001a). These uses can be recognized and associated water rights could be the property of the Commission or part of the Party’s water resources.

Cross-Referencing: 2.2.2 (beneficial use defined); 4.4 (water allocation).

2.2.12 Minute

“Minute” as used in this Agreement refers to the joint undertaking of the _____ Basin

Commission to study, investigate, and prepare plans for generating projects or agreements that shall be reported to the two Governments as to the works that will be built, the estimated costs thereof, and the part of the works to be constructed by each Government.

Commentary: Each Government agrees to construct, through its section of the Commission, such works as may be recommended by the Commission and approved by the two Governments (The Treaty Between the United States and Mexico of February 3, 1944).

Cross-Referencing: 3.1.1 (commission created); Appendix A-2.3 (governmental action procedures); Appendix B-4 (Mexico–U.S. transboundary water quality standards).

2.2.13 Multilateral Body

“Multilateral Body” means any joint commission or other institutional arrangements for cooperation among Parties.

Commentary: This is another organization different from the Commission. A Commission may use such groups to carry out operations and/or other activities of the Commission or can be used by the Parties of the Commission to fulfill other items in association with the Commission activities (ASCE 2001a).

Cross-Referencing: 1.6 (coordination and cooperation); 2.2.15 (party or parties defined); 5.8 (funding and refunding).

2.2.14 Non-Point Source (NPS) Pollution

“Non-Point Source” or “NPS” pollution comes from many diffuse sources, caused by rainfall or snowmelt moving over and through the ground.

Commentary: Runoff picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even our underground sources of drinking water. These pollutants include excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas; oil, grease, and toxic chemicals from urban runoff and energy production; sediment from improperly managed construction sites, crop and forest lands, and eroding streambanks; salt from irrigation practices and acid drainage from abandoned mines; and bacteria and nutrients from livestock, pet wastes, and faulty septic systems. Atmospheric deposition and hydro-modification are also sources of non-point source pollution (USEPA 1994).

Cross-Referencing: 2.2.22 (total maximum daily load defined); 4.6 (water quality); Appendix A-4 (plan to improve water quality for use designations);

Appendix B-3.1 (distinction between water quality standards, criteria, goals, objectives, and others).

2.2.15 Party or Parties

“Party or Parties” means those sovereign governments signatory to this Agreement, unless the text otherwise indicates.

Commentary: The apportionment of water among Parties can be established by the Agreement or refer to an allocation established among the Parties earlier. Any agreement among Parties should be binding on the citizens of each of the Parties (Draper 2002). The allocations can refer to the time, location, quality, use, or means of access to the water to be withdrawn.

Cross-Referencing: 1 (declaration of purposes and policies); 2.1 (general obligations); 2.2.2 (beneficial use defined); 2.2.7 (drought conditions defined); 2.2.10 (flood conditions defined); 2.2.13 (multilateral body defined); 2.2.19 (riparian rights defined); 2.2.23 (transboundary waters defined); 3.1 (administrative authority); 3.2 (powers and duties); 3.3 (intergovernmental relations); 4 (transboundary water quality management); 5 (financing); 6 (dispute resolution); 7 (implementation).

2.2.16 Point Source

“Point Source” refers to any discernible, confined, and discrete conveyance from which pollutants or wastes are or may be discharged into or adjacent to any water in the basin.

Commentary: According to the State of Texas, Point Source contamination may include but is not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft from which waste may be discharged (30 TAC, Chapter 307).

Cross-Referencing: 2.2.8 (effluent standards defined); 2.2.22 (total maximum daily load defined); 4.6 (water quality); Appendix A-1.3 (general approach to developing actions to improve water quality); Appendix A-4.2.1 (water body traversing the boundary); Appendix A-4.2.2 (water body defining the boundary); Appendix A-4.4 (cost sharing); Appendix B-1 (the process leading to establishment and implementation of transboundary of water quality standards and criteria); Appendix B-3.1 (distinction between water quality standards, criteria, goals, objectives, and others).

2.2.17 Project

“Project” means any work, service, or activity that is undertaken or anticipated to be undertaken by the Commission within a specified area for the conservation, utilization, control, development, or management of water resources.

Commentary: A project can be established and utilized independently or as an addition to an existing facility, or can be considered as a separate component for purposes of evaluation (ASCE 2001a).

Cross-Referencing: 1.1 (purposes of agreement); 1.3 (interrelationship of water resources); 2.2.6 (cost defined); 3.2 (powers and duties); 3.3 (intergovernmental relations); 4 (transboundary water quality management); 5 (financing).

2.2.18 Reasonable Use

“Reasonable Use” means the use of water, whether in place or through withdrawal, in such quantity and manner as is necessary for economic and efficient utilization without waste of water, without unreasonable injury to other water right holders, and consistent with the public interest and sustainable development.

Commentary: This definition was taken from the ASCE/EWRI Standard 40-03, Regulated Riparian Model Water Code (ASCE 2003). “Reasonable use” includes the geographic, hydrographic, hydrological, climatic, ecological, and other factors of a natural character that pertain to water resources, subject to the agreement by the Parties. The Parties of the Agreement may also need to agree to any conservation, protection, development, or other uses of the water resource and the costs of such measures. Estimations of the reasonable uses by each suggested activity associated with water quality management within the Parties should be established before the signing of the Agreement or during initial meetings of the Commission. The concept of “sustainable development” that originated in the writings of economist Kenneth Boulding (Jarrett 1966) and was incorporated in the Rio Declaration on Environment (1992) is used herein; EWRI and ASCE Model Water Codes (Dellapenna 1997; ASCE 2003). A national and international consensus has emerged over the past several decades that “sustainable development” is a criterion for combining the exploitation of resources with the protection of the environment without compromising the ability of future generations to meet their own needs.

Cross-Referencing: 2.2.6 (cost defined); 2.2.25 (waters of the _____ basin defined).

2.2.19 Riparian Rights

“Riparian Rights” means the rights of the Parties bordering the same watercourse.

Commentary: Holders of the “Riparian Rights” of the watercourse are the groups, individuals, companies, landowners, or others that own property along

and adjacent to the river with water usage rights pertaining thereto (ASCE 2001a).

Cross-Referencing: 2.2.15 (party or parties defined); 3.2.9 (condemnation proceedings).

2.2.20 Standards and Criteria

“Standards” refer to water quality standards defining the goals for a body of water. “Criteria” define the instream conditions necessary to support the standards for a body of water.

Commentary: Standards are defined by the purposes for which water should be fit—such as recreation, support of aquatic life, or drinking water supply. Criteria are either a numeric limit on the amount of a pollutant a water body can contain or a narrative prohibition on a certain condition in the water, such as color, odor, or turbidity (30 TAC, Chapter 307).

Cross-Referencing: Appendix A-1 (steps toward an agreement); Appendix A-3 (agreement on standards and criteria); Appendix A-4.3 (strategies to control pollution); Appendix B (guidelines for the development of transboundary water quality standards and criteria).

2.2.21 Sustainable Water Use

“Sustainable Water Use” means the reasonable and beneficial use of water that avoids the wasting of the water resources and ensures reasonable protection of the watercourse and its environment.

Commentary: Water resources are finite, and demand is approaching or exceeding the available supply in most regions of the world. To achieve sustainability will require decisions regarding the conservation of water and steps to limit the use of water to uses that do not permanently impair the biological, physical, and chemical integrity of the water resource. “Sustainable Water Use” will require the integrated management of water sources within a water basin basis and could limit withdrawals to the safe yield of each water source without degrading the source (ASCE 2001a; ASCE 2003; Dellapenna 1997).

Cross-Referencing: 2.2.2 (beneficial use defined); 2.2.24 (wasting defined); 4 (transboundary water quality management).

2.2.22 Total Maximum Daily Load (TMDL)

“Total Maximum Daily Load” means the sum of the individual waste load allocations for point sources, load allocations for non-point sources and natural background, and a margin of safety.

Commentary: The definition was obtained from Storm Water Pollution Control (Dodson 1998). TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures that relate to a government’s water quality standard. Pollutant loads

may be transported into water bodies by direct discharge, overland flow, ground water, or atmospheric deposition. The TMDL concept has been applied successfully to develop waste load allocations for point source discharges in low flow situations where non-point sources are not a concern. TMDLs can be used to consider the effect of all activities or processes that cause or contribute to the water quality-limited conditions of a water body. Activities may relate to thermal changes, flow changes, sedimentation, and other impacts on the aquatic environment. Application of control measures to implement TMDLs, therefore, are not limited to government units that regulate water quality discharge, but may include government authorities whose actions may reduce non-point source pollution (USEPA 1991).

Cross-Referencing: 4.1 (comprehensive transboundary water quality management plan).

2.2.23 Transboundary Waters

“Transboundary Waters” means any surface or underground waters that mark, cross, or are located on boundaries between two or more Parties; wherever transboundary waters flow directly into the sea or ocean, these transboundary waters end at a straight line across their respective mouths between points of fresh water discharge.

Commentary: This definition of transboundary waters can refer to either surface or underground waters. The surface waters do not have to be connected to the underground waters of the _____ Basin. Some aquifers could be connected to more than one surface water drainage source, sub-basin or basin, and/or watershed. The location of the boundary at the inlets to the sea or ocean is defined in this section, and this definition could be used for rivers that lie between the Parties of the Agreement (Draper 2002).

Cross-Referencing: 2.2.1 (____ basin defined); 2.2.7 (drought conditions defined); 2.2.10 (flood conditions defined); 2.2.15 (party or parties defined); 4 (transboundary water quality management).

2.2.24 Wasting

“Wasting” of water for a specific purpose means use of water at a rate over the amount necessary for the specific beneficial purpose, based on technology or scientific analysis.

Commentary: “Wasting” of water is defined by the Appropriate Rights Model Water Code (Dellapenna 2007). A definition for “wasting” allows the Parties to regulate or otherwise deal with the waste of water in all of its myriad forms. “Wasting” includes any use of water that takes an unreasonable form, regardless of whether the waste is intentional or

unintentional. It can be said that the wasteful use of water is never beneficial.

Cross-Referencing: 2.2.21 (sustainable water use defined).

2.2.25 Waters of the _____ Basin

“Waters of the _____ Basin” includes the water in, on, under, or above the ground, which is subject to beneficial and reasonable use, ownership, or control of the Parties or their citizens and legal residents.

Commentary: This definition would be included to make it clear that underground and atmospheric water can be included within the scope of the Agreement, if that is the intent of the Parties. The technological questions relating to atmospheric and underground water may result in uncertainty regarding its allocation. The Parties may decide to reserve that right for later resolution. The Parties may also decide whether water imported from other basins should be included within the scope of the Agreement (ASCE 2001a).

Cross-Referencing: 1.3 (interrelationship of water resources); 2.2.1 (_____ basin defined); 2.2.18 (reasonable use defined); 3.1.2 (jurisdiction of the commission); 3.2 (powers and duties); 3.3 (inter-governmental relations); 4 (transboundary water quality management).

2.2.26 Water Quality Monitoring

“Water Quality Monitoring” is the monitoring of the quality of surface and ground water to evaluate physical, chemical, and biological characteristics of aquatic systems to determine compatibility with human health concerns, ecological condition, and designated uses.

Commentary: Water Quality Monitoring data are used to provide a basis for effective policies that promote the protection, restoration, and wise use of surface and ground water (TCEQ, *Surface Water Quality Monitoring*).

Cross-Referencing: Appendix A-5.1 (water quality monitoring); Appendix B-1 (the process leading to establishment and implementation of transboundary water quality standards and criteria).

2.2.27 Zero Discharge

“Zero Discharge” represents an ideal goal of a Water Quality Management Program that would result in no discharge of any pollutant from a point or non-point source into ground or surface water.

Commentary: The term “zero discharge” is taken from the State of Texas surface water quality discharge rules (30 TAC, Chapter 307).

Cross-Referencing: Appendix B-3.1 (distinction between water quality standards, criteria, goals, objectives, and others).

ARTICLE 3 ADMINISTRATION

3.1 ADMINISTRATIVE AUTHORITY

3.1.1 Commission Created

The _____ Basin Commission is hereby created as an administrative body of the governments of the respective signatory Parties. The Commission shall develop and effectuate policies for water quantity and quality of the _____ Basin and its tributaries in accordance with this Agreement.

Commentary: The Parties should carefully frame the specific extent of the water resources involved in the Agreement, including the type and geographical extent. To be accurate, an analysis must include consideration of factors that influence the availability of water (such as the climatology, physiology, geology, and the interaction between underground and surface water) and pollution sources and their impact(s) on water quality. Implementing the purposes and scope of the Agreement depends upon this assessment, as it will delineate the Parties to be included and their responsibilities as well as the structure of the Commission established to manage operations within the basin. The geographic extent of the water resource to be covered by the Agreement should be equal to the water sharing problems to be addressed.

Cross-Referencing: 1 (declaration of purposes and policies); 2 (general provisions); 3 (administration); 4 (transboundary water quality management); 5 (financing); 6 (dispute resolution); 7 (implementation).

3.1.2 Jurisdiction of the Commission

- 1. The Commission shall have, exercise, and discharge its functions, powers, and duties within the limits of the _____ Basin, except that it may in its discretion act outside the _____ Basin whenever such action may be necessary or convenient to effectuate its powers or duties within the _____ Basin. Exercise of Commission powers inside and outside the _____ Basin shall be only with consent of the Party or government in which action is proposed.**
- 2. Associated aquifers that have a direct connection to and recharge capability from surface waters of the _____ Basin shall be included in the waters of this Agreement. In the event**

such aquifers are or have the potential of being used by Parties not signatory to this Agreement, the Commission should enter into consultations and negotiations with such Parties, to reach agreement on uses of the interconnected water.

Commentary: This provision describes the geographic and hydrologic jurisdiction of the Commission. Similar provisions appear in other agreements in order to clarify and define the limits of supranational authority (e.g., Bellagio Draft Treaty [Hayton and Utton 1989]; Treaty Respecting Utilization of Water of the Colorado and Tijuana Rivers and of the Rio Grande [1944]; Treaty between the United States and Great Britain Relating to Boundary Waters [1990]).

Cross-Referencing: 2.2.1 (____ basin defined); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.25 (waters of the ____ basin defined); 3.2.3 (obligations of the commission); 3.2.4 (regulations and enforcement); 3.2.9 (condemnation proceedings); 3.3.3 (projects of the signatory parties and their subdivisions); 5.9 (remedies for holders of bonds); 6.6 (penal sanction).

3.1.3 Commissioners

1. The Commission shall be governed by (____) Commissioners, consisting of the President, Prime Minister, or other Chief Executive Officer of each signatory Party.
2. Each member of the Commission may appoint an alternate to act in his/her place and stead, with authority to attend all meetings of the Commission, and with power to vote in the absence of the member. Unless otherwise provided by law of the signatory Party, each alternate shall serve during the term of the member, subject to removal by the member. In the event of a vacancy in the office of alternate, it shall be filled in the same manner as an original appointment and be for the duration of the non-expired term.
3. The Commissioners shall recognize all matters requiring a policy decision or a decision affecting the substance of the Agreement, and unanimity shall be required. If the Commissioners agree as a matter of policy, Commission matters that do not involve policy decision or Agreement modification may be made on some other basis. Each member shall be entitled to one vote on all matters that may come before the Commission.

Commentary: This provision recognizes that the responsibility and authority for all policy decisions or decisions affecting the substance of the Agreement

remains with the principal executive office of the respective Parties or their designee.

Cross-Referencing: 2.2.3 (commission defined); 2.2.15 (party or parties defined); 3.1.4 (commission administration); 3.2.1 (general powers and duties); 3.2.2 (powers and duties reserved to the commission); 3.2.8 (reports); 5.7 (indebtedness).

3.1.4 Commission Administration

1. Management of the routine and customary affairs of the Commission shall be vested in a Commission Administration consisting of an Executive Director and such additional officers, deputies, and assistants as the Commissioners may determine. The Executive Director shall be appointed and may be removed by the affirmative vote of a majority of the full membership of the Commissioners. The Executive Director under such rules of procedure shall appoint all other officers and employees as the Commission may determine.
2. Except for the express limitations provided in this Agreement, implementation and administration of the Agreement terms shall be vested in the Commission officers appointed by the Commissioners. The Commission officers shall report to the Executive Director.
3. In the appointment and promotion of Commission officers and employees, no political, racial, age, gender, sexual orientation, disability, or religious test should be permitted or given consideration. All such appointments and promotions should be based solely upon a candidate's merit.

Commentary: The Commission officers provide the day-to-day administrative management of the comprehensive plan for the Commission. While all substantive policy-making decisions involving the Agreement rightly remain with the Commissioners, the Commission's purpose is to carry out the technical facets involved with Agreement implementation. The Parties may wish to establish a Commission membership that equitably allocates officers and employees among citizens of the various organizations of the governments. If the Parties do not wish such an allocation, a reference to the nonexistence of a test of citizenship or residency could be added. Nondiscrimination on the basis of race, gender, or religion is encouraged.

Cross-Referencing: 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 3.1.3 (commissioners); 5.1 (annual current expense and capital budgets).

3.2 POWERS AND DUTIES

3.2.1 General Powers and Duties

The Commission shall:

- (a) manage the waters of the _____ Basin, in accordance with the doctrine of equitable apportionment, among the Parties signatory to this Agreement, and to and among their respective governments, and impose conditions, obligations, and release requirements related thereto;
- (b) develop and implement plans and projects for the use of the waters of the _____ Basin for efficient economic development and environmental protection;
- (c) administer and coordinate Agreement implementation;
- (d) develop activities consistent with its functions so as to further the conservation and enhancement of natural beauty and the sustainability of the environment;
- (e) coordinate the collection, compilation, and analysis of data and information of hydrologic, environmental, and social economic importance within the _____ Basin;
- (f) authorize the Commission administration to respond to emergency conditions;
- (g) report at regular intervals to the Parties on the implementation of the Agreement as agreed by the Commission;
- (h) develop active public involvement programs to ensure that the needs of all stakeholders are considered;
- (i) prepare annual budgets for implementation of the Agreement;
- (j) identify and recommend to the Commissioners appointments to the Commission staff and to any review panel;
- (k) establish standards of planning, design, and operation of all projects and facilities in the _____ Basin that affect its waters;
- (l) develop and sponsor research on water resource issues that may arise during the life of the Agreement;
- (m) prepare, publish, and disseminate information and reports with respect to the water problems of the _____ Basin and for the presentation of the needs, resources, and policies of the _____ Basin to Commissioners and the executive and legislative branches of the signatory Parties;
- (n) plan, manage, budget, and allocate financial resources necessary to accomplish the purposes of this Agreement;

- (o) exercise such other and different powers as may be delegated to it by this Agreement or otherwise pursuant to law; and
- (p) exercise all powers necessary or convenient to carry out actions that may be implied reasonably from its express power or powers.

Commentary: This list of powers and duties provided should be adequate to implement the Agreement. Caution should be exercised when adding Commission powers to ensure any substantive policy-making authority added is not in conflict with inherently sovereign powers or duties of Parties in the basin involved. The powers added should not be so detailed as to restrict the management of the inherently variable conditions of the waters of the _____ Basin.

In addition to the Delaware River Basin Compact (DRBC 1961) and Susquehanna River Basin Compact (SRBC 1970), similar provisions are included in the Report of the United Nations Conference on Environment and Development, Agenda 21 (1993). The objective of equitable utilization appears in the Helsinki Rules (1966) and the Israeli-PLO Declaration of Principles (1993). The term equitable utilization appears in the Israeli-PLO Declaration of Principles (1993) and the Report of the United Nations Conference on Environment and Development (1993). It implements the concept “freshwater management” based on a balanced consideration of the needs of people and the environment within a catchment basin.

Cross-Referencing: 1.1 (purposes of agreement); 1.5 (good faith implementation); 1.6 (coordination and cooperation); 2.2.1 (_____ basin defined); 2.2.3 (commission defined); 2.2.9 (equitable defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the _____ basin); 3.1.3 (commissioners).

3.2.2 Powers and Duties Reserved to the Commission

The Commissioners shall supervise and control the implementation of the provisions of the Agreement. The Commission may delegate certain powers but shall retain the powers to:

- (a) approve the appointment of Commission officers designated to administer the Agreement provisions;
- (b) adopt annual budgets prepared for Agreement administration;
- (c) approve all plans and capital projects developed by the signatory Parties relating to the waters of the _____ Basin;

- (d) adopt and promote coordinated policies for water conservation, control, use, and management in the _____ Basin;
- (e) approve the planning, development, and financing of water resource projects according to such plans and policies;
- (f) require the maintenance of faithful records of all meetings and decision-making activities of the Commission and promote timely public access to those records;
- (g) promote public meetings as agreed to by the Parties concerning the activities of the Commission and provide opportunity for interest groups and the general public to express their views, in oral and written forms.
- (h) determine the character of and the necessity for its obligations and expenditures and the manner in which they shall be incurred, allowed, and paid subject to any provisions of law specifically applicable to agencies or instrumentality's created by Agreement;
- (i) provide for the internal organization and administration of the Commission;
- (j) appoint the Executive Director of the Commission and delegate and allocate to him/her the administrative functions, powers, and duties;
- (k) create and abolish offices, employment, and positions for the purposes of the Commission and, subject to the provisions of this article, fix and provide for the qualification, appointment, removal, term, tenure, compensation, pension, and retirement rights of its officers and employees; and
- (l) let and execute agreements to carry out the purposes of this Agreement.

Commentary: These powers and duties of the Commissioners are the minimum necessary to administer effectively a Comprehensive Transboundary International Water Quality Management Plan, while ensuring that all stakeholders have a channel to express their preferences. Although the list can be expanded, there is no benefit to an infringement of national sovereignty that may cause the Agreement to be breached.

Cross-Referencing: 1.1 (purposes of agreement); 1.2 (joint exercise of sovereignty); 1.4 (severance or material breach); 1.5 (good faith implementation); 2.1.5 (existing agencies); 2.2.1 (____ basin defined); 2.2.3 (commission defined); 2.2.9 (equitable defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined); 3.1.3 (commissioners).

3.2.3 Obligations of the Commission (Optional)

The Commission, for the purposes of this Agreement, may:

- (a) enter into contracts, sue, and be sued in all courts of competent jurisdiction;
- (b) receive and accept such payments, appropriations, grants, gifts, loans, other funds, properties, and services as may be transferred or made available to it by any signatory Party or by any other public or private corporation or individual, and enter into agreements to make reimbursement for all or part thereof;
- (c) provide for, acquire, and adopt detailed engineering, administrative, financial, and operating plans and specifications to construct, maintain, or develop any facility or project necessary to implement this Agreement;
- (d) control and regulate the use of facilities owned or operated by the Commission;
- (e) acquire, own, operate, maintain, control, sell, and convey real and personal property and any interest, therein, by contract, purchase, lease, license, mortgage, or otherwise as it may deem necessary for any project or facility, including any and all appurtenances thereto necessary, useful, or convenient for such ownership, operation, control, maintenance, or conveyance;
- (f) provide for, construct, acquire, operate, and maintain dams, reservoirs, and other facilities for utilization and protection of surface and underground waters of the _____ Basin, and all related structures, appurtenances, equipment, and discharge practices in the _____ Basin and its tributaries, and at such off-river sites as it may find appropriate, and may regulate and protect the use thereof; and
- (g) have and exercise all corporate powers essential to the declared objectives and purposes of the Commission.

Commentary: Although the powers and duties listed in this section assist in effective implementation of the Agreement, they are optional and may be deleted or expanded, according to the specific geopolitical situation (ASCE 2001a).

Cross-Referencing: 1.1 (purposes of agreement); 1.5 (good faith implementation); 2.1 (general obligations); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined); 3.1.2 (jurisdiction of the commission); 5.2 (capital financing by signatory parties and guaranties); 5.5 (borrowing power); 5.8 (funding and refunding); 6.1 (alternative dispute resolution).

3.2.4 Regulations and Enforcement

The Commission may:

- (a) provide public notice and hearing prior to adoption of any rule or regulation that affects citizens of any of the Parties and comply with the laws of each signatory Party as well as applicable administrative rules and regulations;
- (b) make and enforce reasonable rules and regulations for the application and enforcement of this Agreement;
- (c) adopt and enforce practices and schedules for or in connection with the use, maintenance, and administration of projects and facilities it may own or operate and any product or service rendered thereby;
- (d) provide stream regulation in the main stem or any tributary in the _____ Basin;
- (e) assess on an annual basis or otherwise the cost thereof upon water users or any classification of them specially benefited thereby to a measurable extent, provided that no such assessment shall exceed the actual benefit to any water user. Any such assessment shall follow the procedure prescribed by law for local improvement assessments and shall be subject to judicial review in any court of competent jurisdiction;
- (f) provide corresponding regulation for groundwater withdrawals; and
- (g) designate any officer, agent, or employee of the Commission to be an investigator or watchman.

Commentary: Any successful Comprehensive Transboundary International Water Quality Management Plan requires detailed regulations. This section provides the Commission with the power to establish and enforce regulations for Agreement implementation.

Cross-Referencing: 1.1 (purposes of agreement); 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.6 (cost defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the _____ basin defined); 3.1.2 (jurisdiction of the commission).

3.2.5 Prohibited Activities

- 1. No Commissioner or Commission officer or employee shall:
 - (a) directly or indirectly have, acquire, or acquiesce to a financial interest, in any contract, sale, purchase, lease, or transfer of real or personal property involved in a Commission action;

- (b) solicit or accept money or any other thing of value in addition to the compensation or expenses paid by the Commission for services performed within the scope of official duties;
 - (c) offer money or any thing of value in consideration of obtaining an appointment, promotion, or privilege in employment with the Commission; or
 - (d) gain personal benefit from any action taken by the Commission, unless such conflict is disclosed and the individual abstains.
- 2. Any officer or employee who willfully violates any of the provisions of this article shall forfeit his/her office or employment.
 - 3. Any contract or agreement knowingly made in contravention of this article is void.
 - 4. Officers and employees of the Commission shall be subject in addition to the provisions of this article to such criminal and civil laws and the law of the signatory Party in which such misconduct occurs.

Commentary: This section is used to make the administration of the Agreement more professional and guards against corruption in its enforcement.

Cross-Referencing: 1.1 (purposes of agreement); 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the _____ basin defined).

3.2.6 Referral and Review

Any person, corporation, or governmental authority shall hereafter not undertake a project having a substantial effect on the _____ Basin water resources unless it shall have been first submitted for review to and has secured approval by the Commission. The Commission shall approve a project whenever it finds and determines that such project would not substantially impair or conflict with the comprehensive transboundary international water quality management plan. It may also modify and approve as modified, or may disapprove any such project whenever it finds and determines that the project would substantially impair or conflict with such plan. The Commission shall provide by regulation for the procedure of submission, review, and consideration of projects, and for its determinations pursuant to this section.

Commentary: This section establishes the primacy of the Commission in water resource planning, providing it with the sole authority to approve projects that substantially affect waters within the _____ Basin. Without this restriction, the goals and objectives

of the Comprehensive Transboundary Water Quality Management Plan may be thwarted. The determination of what constitutes “substantial impairment or conflict” is case specific.

Cross-Referencing: 2.2.1 (____ basin defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined); 3.2.1 (general powers and duties); 4.1 (comprehensive transboundary international water quality management plan); 4.4 (water allocation); 5.1 (annual current expense and capital budgets).

3.2.7 Advisory Committees

The Commission may constitute and empower advisory committees, which may comprise the representatives of the public and of federal, state, regional, county, and municipal governments, water resource agencies, water-using industries, agriculture, cities or towns, interest groups, labor, nongovernmental groups, or other water users.

Commentary: This section allows the Commission to seek independent advice and counsel regarding water issues within the basin.

Cross-Referencing: 1.1 (purposes of agreement); 1.5 (good faith implementation); 2.1.5 (existing agencies); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined).

3.2.8 Reports

The Commission shall make and publish an Annual Report to the Commissioners and the executive and legislative bodies of the signatory Parties and to the public reporting on its programs, operations, and finances. It may also prepare, publish, and distribute such other public reports and informational materials as it may deem necessary or desirable.

Commentary: This section reinforces both the public nature of the Agreement administration and provides for accountability of the Commission.

Cross-Referencing: 1.1 (purposes of agreement); 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined); 3.1.3 (commissioners); 3.2.1 (general powers and duties); 4.5 (withdrawals and diversions); 5.10 (annual independent audits).

3.2.9 Condemnation Proceedings

1. The Commission shall have the power to acquire by condemnation the fee or any interest in lands, lands lying under water, development rights in

land, riparian rights, water rights, waters, and other real or personal property within the ____ Basin for any project or facility authorized pursuant to this Agreement. This grant of power of eminent domain includes, but is not limited to, the power to condemn for the purposes of this Agreement any property already devoted to a public use, by whomsoever owned or held, other than property of a signatory Party. Any condemnation of any property or franchises owned or used by a municipal or privately owned public utility shall be subject to the authority of such jurisdictional board or Commission as may have regulatory jurisdiction over such public utility, unless the affected public utility facility is to be relocated or replaced.

2. Such power of condemnation shall be exercised in accordance with the provisions of any law applicable to the jurisdiction in which the property is located.

3. Any such condemnations shall be conducted by and through the signatory Parties in (within) whose jurisdiction the property lays (lies) (and shall conform to the Signatory Parties’ principles of project planning, compliance, and consultation, as enunciated in Sub-section 3.3.3, Intergovernmental Relations: Projects of the Signatory Parties and Their Subdivisions).

Commentary: Providing the Commission with the power of condemnation and eminent domain must be carefully considered. Without such power, the effectiveness of the comprehensive plan might be impaired. However, such power also provides the Commission with the capability of interfering with the inherent sovereignty of the Parties in ways that were unintended. To prevent this, internal laws should be crafted carefully to address condemnation and invocation of eminent domain. Another risk of conflict is applicable laws of the Parties. For example, one Party or government might have fewer restrictions associated with condemning by eminent domain land containing tribal historical or religious properties. The unevenness of laws and the potential for conflict if another Party too readily enters into agreement suggest the importance of negotiation of and agreement over such eminent domain issues (ASCE 2001a).

Cross-Referencing: 1.1 (purposes of agreement); 1.2 (joint exercise of sovereignty); 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.19 (riparian rights defined); 2.2.25 (waters of the ____ basin defined); 3.1.2 (jurisdiction of the commission).

3.2.10 Meetings, Hearings, and Records

1. All meetings of the Commission shall be open to the public.
2. The Commission shall conduct at least one public hearing prior to the adoption of the comprehensive plan, water resources program, annual capital, and current expense budgets. It shall also conduct hearings before the letting of any contract for the sale or other disposition by the Commission of hydroelectric energy or water resources to any person, corporation, or entity. Such hearing shall be held upon at least (10) day's public notice given by posting at the offices of the Commission. The Commission shall also provide forthwith for distribution of such notice to the press in all signatory governments and by the mailing of a copy thereof to any person who shall request such notices.
3. The minutes of the Commission shall be a public record open to inspection at its offices during regular business hours.

Commentary: The effectiveness of the comprehensive plan cannot be realized without full disclosure of its administration. Incorporation of this section memorializes the public nature of the enterprise. The U.S.-Canada International Joint Commission has recognized the need for "engaging public support" (IJC 1984). The Report of the United Nations Conference on Environment and Development (1993) recognizes the need for the widest cooperation between governmental and nongovernmental organizations. As these public notice provisions may not conform to the requirements of the specific jurisdictions involved or the jurisdictional requirement control, there should be negotiations among the Parties to ensure appropriate public notice.

Cross-Referencing: 1.1 (purposes of agreement); 1.2 (joint exercise of sovereignty); 1.5 (good faith implementation); 1.6 (coordination and cooperation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.19 (riparian rights defined); 2.2.25 (waters of the ____ basin defined); 3.1.2 (jurisdiction of the commission); 3.1.3 (commissioners); 3.2.2 (powers and duties reserved to the commission); 4.3 (conditions of comprehensive plan); 4.5 (withdrawals and diversions); 5.10 (annual independent audits).

3.3 INTERGOVERNMENTAL RELATIONS

3.3.1 Intergovernmental Coordination and Cooperation

The Commission shall promote and aid the coordination of the activities and programs of

governmental and private agencies concerned with water resources administration in the ____ Basin. To this end, but without limitation thereto, the Commission may:

- (a) advise, consult, contract, financially assist, or otherwise cooperate with any and all such agencies;
- (b) employ any other agency or instrumentality of any of the signatory Parties or of any political subdivision thereof, in the design, construction, operation, and maintenance of structures, and the installation and management of river control systems, or for any other purpose;
- (c) develop and adopt plans and specifications for particular water resources projects and facilities that, so far as consistent with the comprehensive plan, incorporate any separate plans of other public and private organizations operating in the ____ Basin, and permit the decentralized administration thereof; and
- (d) qualify as a sponsoring agency under any local, regional, or national legislation heretofore or hereafter enacted to provide financial or other assistance for the planning, conservation, utilization, development, management, or control of water resources.

Commentary: This provision is necessary to allow the Commission and its officers to coordinate directly with various political, economic, and social entities. The goal is to avoid needless delay caused by bureaucratic entanglement in the maze of administrative and legal institutions within the structure of the sovereign Parties.

Cross-Referencing: 1.1 (purposes of agreement); 1.6 (coordination and cooperation); 2.1.5 (existing agencies); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined).

3.3.2 Project Costs and Evaluation Standards

The Commission shall establish uniform standards and procedures for the evaluation, determination of benefits, and cost allocation of project(s) affecting the ____ Basin, and for the determination of project priorities, pursuant to the requirements of the comprehensive plan and its water resources program. The Commission shall develop equitable cost sharing and reimbursement formulas for the signatory Parties including:

- (a) uniform and consistent procedures for the allocation of project costs among purposes included in any multiple-purpose program;

- (b) **contracts and arrangements for sharing financial responsibility among and with signatory Parties, public bodies, groups, and private enterprise, and for the supervision of their performance;**
- (c) **establishment and supervision of a system of accounts for reimbursable purposes and directing the payments and charges to be made from such accounts; and**
- (d) **determining the basis and apportioning amounts of reimbursable revenues to be paid signatory Parties or their political subdivisions, and of payments in lieu of taxes to any of them.**

Commentary: This provision establishes bases for the implementation of Article 5.

Cross-Referencing: 1.1 (purposes of agreement); 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.6 (cost defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.19 (riparian rights defined); 2.2.25 (waters of the ____ basin defined).

3.3.3 Projects of the Signatory Parties and Their Subdivisions

For the purposes of avoiding conflicts of jurisdiction and of giving full effect to the Commission as an agency of the signatory Parties, the following rules shall govern projects of the individual Parties and their subdivisions that affect the waters within the ____ Basin:

- (a) **the planning of all projects related to powers delegated to the Commission by this Agreement should be undertaken in consultation with the Commission;**
- (b) **no Commission expenditure or commitment shall be made for or on account of the construction, acquisition, or operation of any project or facility nor shall it be deemed authorized, unless it shall have first been compliant with the Commission's Comprehensive Transboundary Water Quality Management Plan; and**
- (c) **each governmental agency otherwise authorized by law to plan, design, construct, operate, or maintain any project or facility in or for the ____ Basin shall continue to have, exercise, and discharge such authority, except as specifically provided by this section.**

Commentary: By this provision, the Parties agree to refrain from independently developing and operating water management facilities that may affect the Comprehensive Transboundary Water Quality Management Plan.

Cross-Referencing: 1.1 (purposes of agreement); 2.1 (general obligations); 2.2.1 (____ basin defined); 2.2.3 (commission defined); 2.2.4 (comprehensive transboundary water quality management plan); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined); 3.1 (administrative authority); 3.2.1 (general powers and duties); 3.2.2 (powers and duties reserved to the commission); 3.3 (intergovernmental relations); 4.3 (conditions of comprehensive plan); 4.5 (withdrawals and diversions); 6.6 (penal sanction).

3.3.4 Cooperative Services

The Commission shall furnish technical services, advice, and consultation to authorized agencies of the signatory Parties with respect to waters of the ____ Basin. Each of the signatory Parties pledges itself to provide technical and administrative services to the Commission upon request, within the limits of available appropriations, and to cooperate generally with the Commission for the purposes of this Agreement. The cost of such services may be reimbursable whenever the Parties deem appropriate.

Commentary: This provision requires and obliges the sovereign Parties and the Commission and its officers to provide exchange consultation and services to carry out the provisions of the Agreement.

Cross-Referencing: 1.1 (purposes of agreement); 1.4 (severance or material breach); 2.1.5 (existing agencies); 2.2.1 (____ basin defined); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.25 (waters of the ____ basin defined).

ARTICLE 4 TRANSBOUNDARY WATER QUALITY MANAGEMENT

4.1 COMPREHENSIVE TRANSBOUNDARY WATER QUALITY MANAGEMENT PLAN

The Commission shall develop and adopt a Comprehensive Transboundary Water Quality Management Plan for the immediate and long range development and use of the waters of the ____ Basin. The Commission shall review the Plan every [____] years and revise as needed. The Plan may be as general, or specific, as the Commission may deem appropriate for efficient and sustainable water use of the ____ Basin. At a minimum, the Plan shall include:

- (a) **a water allocation program to provide systematic allocation of a sufficient quantity of quality**

water resources to satisfy the needs of the _____ Basin for such reasonably foreseeable period as the Commission may determine. This allocation program may be balanced by existing and proposed projects required to satisfy such needs, including all public and private projects affecting the _____ Basin, together with a separate statement of the projects proposed to be undertaken by the Commission during such period; and

- (b) a program of water quality management that shall describe, at a minimum, appropriate water quality criteria such as total maximum daily load (TMDL) of particular constituents in the _____ Basin.**

Commentary: The Parties to this Agreement still retain the sovereign right, authority, and responsibility to plan and manage their own economic, social, and environmental development. Irrespective of whether the planning is the result of national, state, or other government planning or free-market processes, it is the obligation of the Parties to provide a baseline of existing and projected water demands. The Commission will integrate the input from the various Parties and develop a plan for equitable water use among the Parties for economic development within the _____ Basin. Sustainable development is a significant objective of the agreements establishing the BECC (1996), NADBank (1993), and North American Agreement on Environmental Cooperation (1994). These agreements are cited by Milich and Varady (1998) as the first time environmental sustainability and economic development are linked. The BECC is specifically cited as a model for managing transboundary water resources due to its openness, transparency, capacity building, and bottom-up design, all in the context of sustainable development. The absence of comprehensive management of a shared resource significantly reduces successful conflict resolution. For instance, the lack of coordinated management has been highlighted as a major hindrance to resolution of the water conflicts between India and Pakistan, and India and Bangladesh (Clarke 1993).

This section directs the Commission to develop and implement a plan to manage the waters of the _____ Basin, subject to certain restrictions, in an effort to maximize the efficiency of water use according to specific goals established by the Agreement. Management of the water allocation can be as detailed as necessary, according to the capabilities and limitations of the _____ Basin. Integration of water quality and quantity is essential. Appendix A is an example of a management plan to be used in conjunction with this Agreement.

The terms ensure that TMDLs or maximum daily pollutant loads to water bodies (lakes, reservoirs, or rivers) will be governed by a safe limit. For groundwater protection there should also be criteria, as necessary, for seepage and runoff, to protect ground water quality in recharge areas (ASCE/EWRI Standard 34-01). The Report of the United Nations Conference on Environment and Development (1993) proposed obligating all signatories to develop a program of sustainable water development.

Cross-Referencing: 2.2.1 (____ basin defined); 2.2.3 (commission defined); 2.2.4 (comprehensive transboundary water quality management plan defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.21 (sustainable water use defined); 2.2.22 (total maximum daily load defined); 2.2.25 (waters of the ____ basin defined); 3.2.6 (referral and review); 4.2 (purpose and objectives transboundary water quality management); 4.3 (conditions of comprehensive plan); 4.4 (water allocation); 4.5 (withdrawals and diversions); 4.6 (water quality).

4.2 PURPOSE AND OBJECTIVES

The purpose of the Comprehensive Transboundary Water Quality Management Plan is to equitably allocate the waters of the _____ Basin to meet both existing and potential needs and uses while providing for adequate environmental protection. A (____)-year planning horizon shall be established. The objectives of the Plan shall include the following:

- (a) to identify and assess the sources of water available to the users within the _____ Basin, and to coordinate public and private projects and facilities to augment water availability, which will allow for the optimum planning, development, conservation, utilization, management, and control of the water resources of the _____ Basin;**
- (b) to identify, quantify, and value where appropriate all existing and planned water uses within the _____ Basin by sub-Basin and by political jurisdiction; and**
- (c) to efficiently allocate the available basin waters according to the needs of the various categories of uses and in a manner that ensures reasonable and beneficial use of the water.**

Commentary: The Parties should agree on a common planning horizon for economic evaluation. In the United States, a 50-year horizon is used by some

states for water planning and/or permitting purposes. While the choice of horizon does not in any way limit the duration of the Agreement, an equitable partition of the water source requires a common time standard for the economic evaluation.

Surface and underground water resources are often managed as separate and distinct sources. However, such separate management does not provide an integrated understanding of either the water sources or their use. Prior to implementing transboundary water use, allocation, or transfer, participants should conduct a comprehensive water resources assessment. Certain parameters define the framework of the Agreement. The Parties should specify the extreme hydrologic events that the Agreement will cover. This means the Parties should clearly establish the quantitative measures of drought and flood conditions and establish the levels when the need for special management for drought or flood conditions arises. The Parties should also define the water quality standards they are willing to maintain as a result of meeting the needs and demands for the water. Appendix B describes Guidelines for the Development of Transboundary Water Quality Standards and Criteria.

The assessment team should identify and quantify the existing and planned water demands in the basin according to type of use, by sub-Basin or by reach, or within an aquifer, as appropriate. Within each category of use, the team should further classify uses as consumptive or nonconsumptive. Demands are classified as consumptive when they remove water from the water source for use, which will reduce the quantity of flow within the watercourse or aquifer. They may, however, return to the water source a portion of the water used, in which case the quality of the receiving waters may be affected. The volume of water consumption varies both by type of demand and within the general category of particular demands. It is the efficient allocation of water for consumptive use that presents the greatest challenge to the Commission.

Efficient allocation to reasonable and beneficial uses suggests that wherever possible the various water uses be compared by the benefit each use produces. One procedure for measuring benefits and costs, often articulated and almost never implemented, reflects the idea that the benefit from making an increment of water available for a particular use is measured by society's willingness to pay for the additional allocation of water. The notion is that a market price can represent the value from that water from the increase of production or other social benefit. No society has yet allocated water in practice based solely on water price or on its imputed economic value. It is unreasonable to

believe that transboundary water will ever be allocated without controversy based on a nominal price. No society has ever implemented in practice within its borders the principle of "optimal allocation" of water using one explicit operational objective. Therefore, the term "efficient allocation" really means "whatever system a society accepts as a principle for allocating water." Despite the theoretical and practical pitfalls of "optimum allocation," that objective is mentioned in international agreements (Council of European Communities Third Action Program on the Environment 1987). An alternative perspective is to relate efficient allocation to reasonable and beneficial uses to the opportunity costs or forgone opportunities created by an allocation of water to beneficial uses (ASCE 2001a; Dellapenna 2007).

Cross-Referencing: 2.1.2 (duration of agreement); 2.2.1 (____ basin defined); 2.2.2 (beneficial use defined); 2.2.3 (commission defined); 2.2.4 (comprehensive transboundary water quality management plan defined); 2.2.5 (consumptive use defined); 2.2.7 (drought conditions defined); 2.2.10 (flood conditions defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.21 (sustainable water use defined); 2.2.25 (waters of the ____ basin defined).

4.3 CONDITIONS OF COMPREHENSIVE PLAN

- (1) **The Commission shall adopt a Comprehensive Transboundary Water Quality Management Plan or any revision thereof in such part or parts as it may deem appropriate. The basis of the Plan may be the integration of economic development and environmental protection plans established and submitted by the signatory Parties. However, before the adoption of the Plan or any part or revision thereof, the Commission shall consult with water users and interested public bodies and public utilities. The Commission also shall consider and give due regard to the findings and recommendations of the various agencies of the signatory Parties and their political subdivisions.**
- (2) **The Plan shall allocate waters under various hydrologic conditions as defined herein.**
- (3) **The Plan shall include consideration of all public and private projects and facilities that are required, in the judgment of the Commission, for the optimum planning, development, conservation, utilization, management, and control of the waters of the _____ Basin. The Plan is designed to meet present and future needs within some time frame. The Plan shall include**

any projects that conform to any present or future decree or judgment of any court of competent jurisdiction.

- (4) The Commission shall conduct public hearings with respect to the Comprehensive Transboundary Water Quality Management Plan prior to the adoption of the plan or any part of the revision thereof.

Commentary: This section provides additional framework for the Comprehensive Management Plan. Certain provisions are optional, however. For instance, the Parties may wish the Comprehensive Plan to include procedures to be used in floods and droughts. Appendix A includes guidelines for a water quality management plan to complement these guidelines on standards and criteria.

Cross-referencing: 2.1.5 (existing agencies); 2.2.1 (____ basin defined); 2.2.3 (commission defined); 2.2.4 (comprehensive transboundary water quality management plan defined); 2.2.7 (drought conditions defined); 2.2.10 (flood conditions defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.21 (sustainable water use defined); 2.2.25 (waters of the ____ basin defined); 3.2.10 (meetings, hearings, and records); 3.3 (intergovernmental relations).

4.4 WATER ALLOCATION

- (1) It is beyond the scope of the Comprehensive Transboundary Water Quality Management Plan to allocate water resources equitably according to the needs of the various beneficial uses described below. If the Parties concur, the Commission can determine the water demands for each sub-Basin or reach. If the Parties concur, the Commission can compare the water available for that sub-Basin or reach to the needs of the various beneficial uses. If the Parties concur, the Commission or another institution can allocate water resources equitably according to the needs of the various beneficiaries.
- (2) Prior to entering upon the execution of any project authorized by this article, the Commission shall review and consider all existing rights, plans, and programs of each signatory Party. The Commission should also consider their political subdivisions, private parties, and water users that are pertinent to such project; and shall hold a public hearing on each proposed project.
- (3) If the available water in all sub-Basins exceeds the demand, all demands within the Basin shall be fully satisfied provided that conveyance losses are not a factor and that degradation of water quality and aquatic habitat do not occur.
- (4) If the water demands exceed the available water supply, allocation shall be first made to existing water rights that have been perfected under applicable law of the individual sovereign Parties prior to the creation of this Agreement. Allocation shall then be made to the needs of environmental protection according to individual environmental policies of the signatory Parties. Allocation on an equitable basis thereafter shall be made according to beneficial uses that provide benefit to the Parties or that enhance specific quality of life objectives of the Parties.
- (5) The Commission can exempt from consideration certain small water diversions. The small water diversion waivers shall be reviewed on a regular basis. New waivers could be allowed if and only if the cumulative effect of all waivers on the water allocation program and the program of water quality management is not significant.
- (6) The Commission may wish to explore the option that allocations, once made, may be freely marketed between and among the Parties, as long as such marketing does not adversely affect the availability of water resources within the ____ Basin, or contravene the goals or objectives of the Comprehensive Transboundary Water Quality Management Plan.
- (7) No allocation of waters hereafter made pursuant to this section shall constitute a prior appropriation of water resources of the ____ Basin or confer any superiority of right in respect to the use of those waters. Nor shall any such action be deemed to constitute an apportionment of the water resources of the ____ Basin among the Parties. This paragraph shall not be deemed to limit or restrict the power of the Commission to enter into covenants with respect to water supply. Covenants shall not exceed the life of this Agreement, as may be deemed necessary for a benefit or development of the waters of the ____ Basin.
- (8) No signatory Party shall permit any augmentation of flow to be diminished by the diversion of any water resources of the ____ Basin during any period in which waters are being released

from storage under the direction of the Commission for the purpose of augmenting such flow. The exceptions can be a diversion that is duly authorized by the Commission pursuant thereto, or by the judgment, order, or decree of a court of competent jurisdiction.

- (9) Available water in excess of demand will be reserved for use as the Commission may direct.

Commentary: This section describes the fundamental objective function of a water allocation management plan. If sufficient water is available to meet all beneficial uses, all demands will be met. If not, it is recommended that priority of allocation reflect the following priorities: vested water rights, minimum instream use for environmental protection purposes, followed by allocations that balance demands that provide maximum economic benefit with demands that have a direct influence on quality of life issues but cannot meet the economic threshold. For sustainable water development in both transitional and developing governments, there must be an appropriate legal structure and a set of institutions that define property rights (Stern 1994). As transboundary water allocation remains a political choice of sovereign governments under diverse existing laws, the Commission should not have its discretion undermined by principles that have never been accepted by any nation, let alone the Parties involved in this Agreement.

This provision directs the Commission to consider all water-related activities that may affect efficient and sustainable water development of the basin. It does, however, allow the Commission to exempt from consideration certain small water diversions that have only insignificant effects on the total water resources available for development.

Cross-referencing: 2.1.1 (effective date of execution); 2.2.1 (____ basin defined); 2.2.2 (beneficial use defined); 2.2.3 (commission defined); 2.2.4 (comprehensive transboundary water quality management plan defined); 2.2.11 (instream use defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.21 (sustainable water use defined); 2.2.25 (waters of the ____ basin defined); 3.2.6 (referral and review); 4.1 (comprehensive transboundary water quality management plan).

4.5 WITHDRAWALS AND DIVERSIONS

1. The Commission may regulate and control withdrawals and diversions from surface flows and underground water resources of the _____ Basin, as provided by this article. The Commission may enter into agreements with the

signatory Parties relating to the exercise of such power, regulation, or control and may delegate to any of them such powers of the Commission as it may deem necessary or desirable.

2. The Commission may from time to time, after due notice of a public hearing, determine and delineate such areas within the _____ Basin, wherein the demands made by water users have developed, or threaten to develop, to such a degree as to create a water shortage. These areas may impair or conflict with the requirements or effectuation of the Comprehensive Transboundary Water Quality Management Plan. In this case, these areas may be designated as protected areas. Whenever it determines that such shortage no longer exists, the Commission shall terminate the protected status of such area and shall give public notice of such termination.
3. In any protected areas so determined and delineated, no person, firm, corporation, or other entity shall waste, divert, or withdraw water for domestic, municipal, agricultural, or industrial uses in excess of such quantities as the Commission may prescribe by general regulation. The exceptions can be as follows: pursuant to a permit granted under this article, or pursuant to a permit or approval heretofore granted under the laws of any of the signatory Parties.
4. In the event of a drought or other condition, which may cause an actual and immediate shortage of available water supply within the _____ Basin, or within any part thereof, the Commission may, after public hearing, determine and delineate the area of such shortage and declare a water supply emergency therein. For the duration of such emergency as determined by the Commission, no person, firm, corporation, or other public or private entity shall divert or withdraw water for any purpose, in excess of such quantities as the Commission may prescribe by general regulation or authorize by special permit granted hereunder.
5. Permits and small diversion waivers may be granted, modified, or denied as the case may be, so as to avoid such depletion of the natural streamflows and underground waters in the protected area or in an emergency area as will adversely affect the Comprehensive Transboundary Water Quality Management Plan. Other permits may be for the just and equitable interests and rights of other lawful users of the same source, giving due regard to the need to balance and reconcile alternative and conflicting uses

in the event of an actual or threatened shortage of water of the quality required.

6. Each Party shall provide for the maintenance and preservation of such records of authorized diversions and withdrawals and the annual volume thereof as the Commission shall prescribe. Such records and supplementary reports shall be furnished to the Commission at its request.
7. The Commission may find it necessary or desirable to exercise the powers conferred by this article. It may determine that any diversion or withdrawal permits authorized or issued under the laws of any of the signatory Parties shall be superseded, to avoid or overcome any conflict with the control and regulation exercised by the Commission.

Commentary: Effective management of water resources requires that a central authority regulate withdrawals and diversions from surface waters and underground water resources of the _____ Basin. However, the Parties should recognize the significant impact this article has on the sovereign integrity of internal affairs (Treaty between the United States and Great Britain Relating to Boundary Waters 1990).

Conflict with a previously authorized diversion or withdrawal permit can arise from a situation or event in one Party, involving undersupply or drought, not anticipated or projected, and requiring immediate or emergency action by sovereign power of the Party and/or action by the Commission.

Cross-referencing: 2.1.2 (duration of agreement); 2.2.1 (____ basin defined); 2.2.3 (commission defined); 2.2.4 (comprehensive transboundary water quality management plan defined); 2.2.7 (drought conditions defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.21 (sustainable water use defined); 2.2.25 (waters of the _____ basin defined); 3.2.8 (reports); 3.2.10 (meetings, hearings, and records); 3.3.3 (projects of the signatory parties and their subdivisions).

4.6 WATER QUALITY

The Commission shall:

- (a) manage the waters of the _____ Basin to maintain ecosystem integrity, preserve aquatic ecosystems, and employ best management practices to protect them effectively from degradation;
- (b) publish biological, health, physical, and chemical quality criteria for all water bodies (surface and underground water), according to basin

capacities and needs, with a view to an ongoing improvement of water quality;

- (c) establish descriptive standards for the discharge of effluents and for the receiving waters, from point sources and non-point sources, and may include standards for land use management;
- (d) develop and implement a basin-wide water pollution prevention and control program for surface and underground water; and
- (e) develop and implement a basin-wide public and industrial outreach education program.

Commentary: The quality of the water allocated can impose risks that the Parties should consider. There can be a health risk to the population that uses the water for domestic purposes. If the available water will not meet the descriptive standards for certain industrial purposes, there is the risk that economic growth will be impaired. The term “descriptive standards” refers to terms such as “effluent standards,” “standards,” “criteria,” and others listed in Section 2.2 of this Agreement. There is the risk that quality degradation will have a severe impact on the ecology of the basin, resulting in long-term sustainability complications. Integration of water quality and quantity is essential. The Report of the United Nations Conference on Environment and Development (1993) proposed obligating all signatories to develop a program of sustainable water development.

Surface and underground water may be degraded by a variety of factors. Major problems affecting the quality of water resources arise in various degrees according to the specific situations. Some of the issues are inadequate domestic sewage treatment, inadequate controls on the discharge of industrial waste and effluent, and the diversion of waters resulting in insufficient water to assimilate waste or the discharge of waste from livestock wastes, particularly from feedlots. Other problems can be from the loss and destruction of catchment areas, the improper location of industrial plants, deforestation, and poor agricultural practices that cause leaching of nutrients and pesticides. Transboundary water sharing should include effective plans and programs that eliminate, or at least control possible sources of water quality degradation.

The complex interconnected nature of freshwater systems suggests that freshwater management should be systemically integrated taking a catchment management approach that balances the needs of people and the environment. The Parties should manage the water resources of the _____ Basin to maintain ecosystem integrity, preserve aquatic ecosystems, and protect them from any form of degradation on a drainage basin or sub-basin basis.

The Parties should establish biological, health, physical, and chemical quality criteria for all significant water bodies in the _____ Basin and seek to continually improve water quality. The Parties should establish minimum descriptive standards both for discharging effluents and for receiving waters. It is recommended that the Parties institute standards for land use management such as limits on agrochemical use, on land storage or application of domestic or industrial wastes in areas when these are indicated to pose risk to basin water quality, on deforestation, and on wasteful irrigation practices. Such rational land use standards should prevent land degradation, erosion, and siltation of lakes and other water bodies.

The Parties should implement a Basin-wide pollution prevention and control program within the Agreement to protect public health, including providing safe drinking water and controlling disease vectors in the aquatic environment. It is recommended that any water pollution prevention or control program be based on an appropriate mixture of the following:

- (a) pollution reduction-at-source strategies,
- (b) environmental impact assessments, (c) enforceable standards for major point-source discharges, and
- (d) mitigation of high-risk non-point sources.

Cross-Referencing: 1.1 (purposes of agreement); 2.2.1 (____ basin defined); 2.2.3 (commission defined); 2.2.4 (comprehensive transboundary water quality management plan defined); 2.2.11 (instream use defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 2.2.21 (sustainable water use defined); 2.2.23 (transboundary water defined); 2.2.25 (waters of the ____ basin defined); 3.1.1 (commission created); 3.1.2 (jurisdiction of the commission); 3.2.6 (referral and review); 3.3.3 (projects of the signatory parties and their subdivisions).

ARTICLE 5 FINANCING

5.1 ANNUAL CURRENT EXPENSE AND CAPITAL BUDGETS

The Commission shall annually adopt a capital budget that includes any and all projects it proposes to undertake or continue during the budget period. This budget shall contain a statement of the estimated cost of each project and the method of financing thereof. The Commission shall annually adopt a current expense budget for each fiscal year. Such budget shall include the Commission's estimated expenses for administration, operation, maintenance, and repairs. It shall include a

separate statement for each project, together with its cost allocation. The total of such expenses shall be balanced by the Commission's estimated revenues from all sources, including the cost allocations undertaken by any of the signatory Parties in connection with any project. Following the adoption of the annual current expense budget by the Commission, the Commission shall:

- (a) certify to the respective signatory Parties the amounts due in accordance with existing cost sharing established for each project;
- (b) transmit certified copies of such budget to the principal budget officer of the respective signatory Parties at such time and in such manner as may be required under their respective budgetary procedures. The amount required for balancing the current expense budget in addition to the aggregate amount of item (a) above and all other revenues available to the Commission shall be apportioned equitably among the signatory Parties by unanimous vote of the Commission. The amount of such apportionment to each signatory Party shall be certified together with the budget; and
- (c) include the amounts so apportioned for the support of the current expense budget in their respective budgets, subject to such review and approval that the respective budgetary processes may require. Such amounts shall be due and payable to the Commission in quarterly installments during its fiscal year, provided that the Commission may draw upon its working capital to finance its current expense budget pending remittances by the signatory Parties.

Commentary: If a program of financing is uncertain, or if the program is not sufficiently detailed to provide certainty, comprehensive planning and management will fail. The provisions of Article 5 are drawn, largely unmodified, from the Delaware River Basin Compact (DRBC 1961) and its amendments. They are not appropriate in all situations, being oriented towards a federal political system.

Cross-Referencing: 2.2.3 (commission defined); 2.2.6 (cost defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 3.1.4 (commission administration); 3.2.6 (referral and review).

5.2 CAPITAL FINANCING BY SIGNATORY PARTIES AND GUARANTIES

1. The signatory Parties will provide such capital funds required for projects of the Commission as

may be authorized by their respective statutes in accordance with the cost sharing plan prepared in this article. Nothing in this article shall be deemed to impose any mandatory obligation on any of the signatory Parties other than such obligations as may be assumed by a signatory Party in connection with a specific project or facility.

2. Bonds of the Commission, notwithstanding any other provision of this Agreement, may be executed and delivered to any duly authorized agency of any of the signatory Parties without public offering. The bonds may be sold and resold with or without the guaranty of such signatory Party, subject to and in accordance with the constitutions or statutes of the respective signatory Parties.

Commentary: This provision provides for the authorization of capital funds by the Parties for Commission projects based on the laws within their political boundaries, comparable to the process of the Delaware River Basin Commission (DRBC 1961). Plans to share responsibility for providing capital funds are commonly used to equitably develop capital. The dollar amount of capital funds to be contributed should be specified for each Party. When a plan is under development, equal financial contributions by all Parties may be a good option to ensure balance of influence, as was the case of funding by the United States and Mexico for the NADBank (Agreement Establishing the BECC and NADBank 1993). Alternatively, unequal contributions may be appropriate to avoid problems, such as those experienced by the Niger River Commission where Chad, with approximately 100,000 people living in the basin, and Nigeria, with more than 60 million people, were expected to provide equal contributions. Another case might occur when a party has political boundaries within the basin but does not have a significant impact on the waters of the basin.

Cross-Referencing: 1.1 (purposes of agreement); 1.2 (joint exercise of sovereignty); 2.1 (general obligations); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 3.1.1 (commission created); 3.2 (powers and duties); 3.3 (intergovernmental relations); 4 (transboundary water quality management); 5.10 (annual independent audits); 6.6 (penal sanction).

5.3 GRANTS, LOANS, OR PAYMENTS

1. The Commission may receive and accept and the signatory Parties may make loans, grants,

appropriations, advances, and payments of reimbursable or nonreimbursable funds or property in any form for the capital or operating purposes of the Commission.

2. Any funds, which may be loaned to the Commission by either a signatory Party or a political subdivision thereof, shall be repaid by the Commission through the issuance of bonds or out of other income of the Commission. Such repayment is to be made within such period and upon such terms as may be agreed upon between the Commission and the signatory Party or political subdivision making the loan.
3. Any or all of the signatory Parties or any political subdivision thereof may:
 - (a) appropriate to the Commission such funds as may be necessary to pay preliminary expenses in the preparation of contracts for the sale of water and in the preparation of detailed plans and estimates required for the financing of a project;
 - (b) advance to the Commission, either as grants or loans, such funds as may be necessary or convenient to finance the operation and management of or construction by the Commission of any facility or project; and
 - (c) make payments to the Commission for benefits received or to be received from the operation of any of the projects or facilities of the Commission.

Commentary: This provision outlines the types of financing the Commission may receive from the Parties and other interested entities and methods the Parties may utilize to provide the funding. It includes a provision designating how loans from the Parties are to be repaid by the Commission.

Cross-Referencing: 1.1 (purposes of agreement); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 5.2 (capital financing by signatory parties and guaranties).

5.4 RATES AND CHARGES

The Commission may, from time to time, after public notice and hearing, fix, alter, and revise rates, rentals, charges, and tolls, and classifications thereof, for the use of facilities. These facilities may be owned or operated, and for products and services rendered thereby, without regulation or control by any department, office, or agency of any signatory Party.

Commentary: This provision allows the Commission to receive reimbursement of expenses via

various mechanisms for the use of Commission facilities. The Commission may set and amend the rates, rentals, charges, tolls, and classifications, but only after public notice and hearing. This provision can be used to ensure that fees and charges are not raised without public knowledge and support. Furthermore, fees and charges are a fair way to pay for a public service, can make users aware of the social costs of the facility, and can contribute to equitable growth (Bahl and Linn 1992).

Cross-Referencing: 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 3.3.2 (project costs and evaluation standards); 5.7 (indebtedness); 5.9 (remedies for holders of bonds).

5.5 BORROWING POWER

The Commission may borrow money for any of the purposes of this Agreement, and may issue its negotiable bonds and other evidences of indebtedness in respect thereto. All such bonds and evidences of indebtedness shall be payable solely out of the properties and revenues of the Commission without recourse to taxation. The bonds and other obligations of the Commission, except as may be otherwise provided in the indenture that they were issued, shall be direct and general obligations of the Commission. The full faith and credit of the Commission are hereby pledged for the prompt payment of the debt service thereon and for the fulfillment of all other undertakings of the Commission assumed by it to or for the benefit of the holders thereof.

Commentary: This provision gives the Commission the authority to borrow money and requires the Commission to pay debts solely out of the properties and revenues of the Commission. Taxation under current international law is another approach to finance international projects (Mendez 1992), although there is limited experience with the implementation of cross-border taxation in venues other than the European Union. The North American Development Bank has developed procedures for joint financial allocation decisions among Parties and the use of paid-in capital and callable capital as the basis for borrowing by Parties for water infrastructure development (North American Agreement on Environment Cooperation 1994).

Cross-Referencing: 1.1 (purposes of agreement); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 3.2.3 (obligations of the commission).

5.6 CREDIT EXCLUDED

The Commission shall have no power to pledge the credit of any signatory Party or to impose any obligation for payment of the bonds upon any signatory Party or any county or municipality. Neither the Commission nor any person executing the bonds shall be liable personally for the bonds of the Commission, or be subject to any personal liability or accountability by reason of the issuance thereof.

Commentary: This provision indicates whether the Commission has access to the credit of the signatory Parties and the level of obligation the Parties and individuals have for payments of bonds (DRBC 1961).

Cross-Referencing: 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 5.5 (borrowing power).

5.7 INDEBTEDNESS

1. Bonds and other indebtedness of the Commission shall be authorized by resolution of the Commissioners. The validity of the authorization and issuance of any bonds by the Commission shall not be dependent upon or affected in any way by:
 - (a) the disposition of bond proceeds by the Commission or by contract, commitment, or action taken with respect to such proceeds; or
 - (b) the failure to complete any part of the project for which bonds are authorized to be issued.
2. The Commission may issue bonds in one or more series and may provide for one or more consolidated bond issues, in such principal amounts and with such terms and provisions as the Commission may deem necessary. The bonds may be secured by a pledge of all or any part of the property, revenues, and franchises under its control.
3. Bonds may be issued by the Commission in such amount, with such maturity, and in such denominations and form or forms, whether coupon or registered, as to both principal and interest, as may be determined by the Commission.
4. The Commission may provide for redemption of bonds prior to maturity on such notice and at such time or times and with such redemption provisions, including premiums, as the Commission may determine.

Commentary: Bonds provide the usual method for funding capital expenditures. The bonds are

normally backed by the value of the capital facilities and are normally repaid by the income from user fees. The provision authorizes the Commission to issue bonds.

Cross-referencing: 2.2.3 (commission defined); 2.2.15 (party and parties defined); 2.2.17 (project defined); 3.1.3 (commissioners); 5 (financing).

5.8 FUNDING AND REFUNDING

1. Whenever the Commission deems it necessary, it may fund and refund its bonds, and other obligations, whether or not such bonds and obligations have matured.
2. The Commission may provide for the issuance, sale, exchange, or refunding of bonds for the purpose of redeeming or retiring any bonds (including the payment of any premium, duplicate interest, or cash adjustment required in connection therewith) that it has issued. Bonds or other obligations could also be issued by any other issuing multilateral body, the proceeds of the sale of which have been applied to any facility acquired by the Commission or which are payable out of the revenues of any facility acquired by the Commission.
3. Bonds may be issued partly to refund bonds and other obligations then outstanding, and partly for any other purpose of the Commission. All provisions of this Agreement applicable to the issuance of bonds are applicable to refunding bonds and to the issuance, sale, or exchange thereof.

Commentary: This provision authorizes the Commission to fund and refund bonds and to redeem or retire bonds as necessary. Comprehensive planning and management requires dependable sources of finances. If a program of financing is uncertain, or if the program is not sufficiently detailed to provide certainty, comprehensive planning and management will fail. The provision allows the Parties and the Commissioners to generate funding for projects needed to carry out water quality management in the region.

Cross-Referencing: 2.2.3 (commission defined); 2.2.13 (multilateral body defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 3.1.3 (commissioners); 3.2.3 (obligations of the commission); 5 (financing).

5.9 REMEDIES FOR HOLDERS OF BONDS

1. The holder of any bond may for the equal benefit and protection of all holders of bonds

similarly situated, by mandamus or other appropriate proceedings, require and compel the performance of any of the duties imposed upon the Commission or assumed by the Commission, its officers, agents, or employees under the provisions of any indenture, in connection with the acquisition, construction, operation, maintenance, repair, reconstruction, or insurance of the facilities. It may also be in connection with the collection, deposit, investment, application, and disbursement of the rates, rents, tolls, fees, charges, and other revenues derived from the operation and use of the facilities. Likewise, it could be in connection with the deposit, investment, and disbursement of the proceeds received from the sale of bonds.

2. In the alternative, the holder of any bond may, by action or suit in a court of competent jurisdiction of any signatory Party, require the Commission to account as if it were the trustee of an express trust. They could also enjoin any acts that may be unlawful or in violation of the rights of the holders of the bonds. The enumeration of such rights and remedies does not, however, exclude the exercise or prosecution of any other rights or remedies available to the holders of bonds.

Commentary: This provision ensures remedies are available for holders of bonds.

Cross-Referencing: 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 3.1.2 (jurisdiction of the commission); 5.4 (rates and charges).

5.10 ANNUAL INDEPENDENT AUDITS

1. As soon as practical after the closing of the fiscal year, an audit shall be made for the Commission. The audit shall be made by qualified certified public accountants, selected by the Commissioners, who have no personal interest, direct or indirect, in the financial affairs of the Commission or any of its officers or employees. The report of audit shall be prepared in accordance with accepted accounting practices and shall be filed with the chairman and such other officers as the Commission shall direct. Copies of the report shall be made available for public distribution.
2. Each signatory Party by its duly authorized officers shall be entitled to examine and audit at any time all of the books, documents, records,

files, and accounts and all other papers, things, or property of the Commission. The representatives of the signatory Parties shall have access to all books, documents, records, accounts, reports, files, and all other papers, things, or property belonging to or in use by the Commission. These would be necessary to facilitate the audit and they shall be afforded full facilities for verifying transactions with the balances or securities held by depositaries, fiscal agents, and custodians.

3. Any officer or employee shall forfeit office if she or he refuses to give all required assistance and information to the accountants selected by the Commission or to the authorized officers of any signatory Party, or to submit to the accountants for examination such books, records, accounts, papers, things, or property as may be requested.

Commentary: Independent financial audits are standard procedure in most institutions and are generally prepared annually to determine whether the financial statements of the audited entity fairly presents the organization's financial position, operations results, and cash flows in accordance with generally accepted accounting principles. Parties with differing national accounting standards are likely to have difficulties in converting their accounting practices. The Basle Committee (the international bank supervisors of the Organization for Economic Cooperation and Development [OECD]) and the International Federation of Accountants International Auditing Practices Committee has begun working on this issue (Norton and Auerback 1993).

Performance-based audits should also be done in order to provide reasonable assurance that program goals and objectives are met; resources are adequately safeguarded and efficiently utilized; reliable data are obtained, maintained, and fairly disclosed in reports; and laws and regulations are complied with. Adequate internal controls should be developed and maintained and internal audits should be made on a regular basis.

Cross-Referencing: 2.2.3 (commission defined); 2.2.15 (party or parties defined); 2.2.17 (project defined); 3.2.8 (reports); 3.2.10 (meetings, hearings, and records); 5.2 (capital financing by signatory parties and guaranties).

ARTICLE 6 DISPUTE RESOLUTION

6.1 ALTERNATIVE DISPUTE RESOLUTION

1. Desiring that this Agreement be carried out in full, the Parties agree that disputes between the

Parties regarding interpretation, application, and implementation of this Agreement shall be settled by an alternative dispute resolution and agree to forswear litigation.

2. The dispute settlement provisions of this article shall apply with respect to the avoidance or settlement of all disputes between the Parties regarding the interpretation or application of this Agreement. The provisions would also cover wherever a Party considers that an actual or proposed measure of another Party is or would be inconsistent with the obligations of this Agreement or cause nullification or impairment of the application of the Agreement.

Commentary: Disputes will inevitably arise as the Agreement is implemented and enforced. They may involve differences in interpretation of the Agreement's provisions or noncompliance with the Agreement itself. The disputes may also arise because of changing conditions that alter the effectiveness of the Agreement for one or more of the Parties. Therefore, the institutional provisions should provide for a process to resolve disputes quickly, effectively, and permanently. The mechanism should emphasize a streamlined process of dispute resolution that minimizes costly, time-consuming litigation. Alternate dispute resolution (ADR) is a major force in the resolution of disputes about the terms of an international agreement (e.g., United Nations Convention on the Law of the Sea 1982; Convention on Early Notification of a Nuclear Accident 1986; NAAEC 1994). This is necessarily so because of the lack of effective supranational mechanisms for jurisprudence. Even where judicial remedies are available, however, ADR is a preferable way to resolve disputes.

Judicial conflict resolution may hold significant disadvantages. These could include: (a) Judges are generalists who are, in most cases, dependent on the testimony presented before them; (b) The judicial process, with its manifold procedural safeguards, is too slow for effective natural resources management; and (c) Judicial decrees are retrospective, geographically limited, and quite fact-specific. Unlike administrative agencies, courts are incapable of issuing prospective, uniform regulations of general applicability. Courts lack the ability to consistently monitor and evaluate solutions they have devised. Water is a public trust resource that should be managed by institutions that are politically responsive to the public (Goldfarb 1984).

ADR processes are designed to resolve disputes as quickly as possible and at the lowest cost to the Parties involved. The process consists of a successive

series of techniques that become increasingly time-consuming and expensive. These techniques are negotiation, mediation, arbitration, and litigation. With each successive step, the Parties spend more time and more money for a result over which the Parties have less and less control.

Cross-Referencing: 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 3.1.1 (commission created); 3.2.3 (obligations of the commission); 6 (dispute resolution).

6.2 NEGOTIATIONS AND CONSULTATIONS

1. If any Party believes another Party has violated or failed any provision of this Agreement, it shall notify such Party, and all other Parties, in writing, specifying the alleged violation or failure.
2. The complaining Party shall notify the Commission of the dispute and the intention to enter into negotiations and consultations.
3. Within (30) days of notice provided under paragraph (1), all Parties will meet to discuss the alleged violation or failure and to negotiate an appropriate settlement, including actions to correct such violation or failure. Such discussions and negotiations shall be pursued in good faith for not less than (90) days after original notice.
4. The Parties shall seek to avoid any resolution that adversely affects the interests under this Agreement of any other Party.

Commentary: Negotiation is a process in which the conflicting Parties engage in face-to-face discussions to develop a mutually satisfactory agreement on the issues or problems at hand. No outside, independent Party or individual is involved. If negotiations between the Parties themselves are not effective, the process evolves into mediation.

Cross-Referencing: 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 3.1.1 (commission created); 3.2.3 (obligations of the commission); 6 (dispute resolution).

6.3 CONCILIATION AND MEDIATION

1. If the Parties are unable to reach agreement on a settlement, after good faith discussions and negotiations within the period provided in the previous section, any aggrieved Party may request that the Commission institute measures of conciliation and mediation. The requesting Party shall state in the request the nature of the dispute and indicate the provisions of the

Agreement that it considers relevant, and shall deliver the request to the other Parties, and to the Commission. Unless it decides otherwise, the Commission shall convene within (10) days of delivery of the request and shall endeavor to resolve the dispute promptly.

2. The Commission may call on such technical advisers or create such working groups or expert groups as it deems necessary to act as mediators and assist in the resolution of the dispute and make recommendations as may assist the consulting Parties to reach a mutually satisfactory resolution of the dispute.

Commentary: The qualifications of the mediator require his or her knowledge, experience, and background in the water resource issues themselves as well as an understanding and background in the legal issues involved. The mediation moves through three stages:

1. The mediator identifies and develops a factual discussion of the disputed and undisputed issues with the Parties, both individually and collectively. The purpose is to ensure that all Parties understand the strengths and weaknesses of their case and the perceived weaknesses and strengths of the opposing party.
2. The mediator explores with the Parties their goals, objectives, and interests, attempting to create alternative solutions to their perceived concerns. This portion of the process also involves discussions with the Parties individually and collectively.
3. After the mediator intervenes, the Parties themselves may then reassume a negotiating posture and possibly agree on a mutually acceptable alternative solution, or they may proceed to arbitration.

Cross-Referencing: 1.4 (severance or material breach); 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 3.1.1 (commission created); 3.2.3 (obligations of the commission); 6 (dispute resolution).

6.4 BINDING ARBITRATION

1. If the Commission has instituted mediation efforts as described in the previous section and the matter has not been resolved within 60 days thereafter, any consulting Party may request in writing the establishment of an arbitral panel. The requesting Party shall deliver the request to the other Parties to the Commission.
2. On delivery of the request, the Commission may choose to establish an arbitral panel if the

Parties accept that the dispute shall be resolved through binding arbitration.

- 3. Unless otherwise agreed by the disputing Parties, the panel shall be established and perform its functions in a manner consistent with the provisions of this article.**

Commentary: Essentially arbitration is an informal trial, with the Parties choosing the judge in a process that has a less formal evidentiary process. Arbitration differs from mediation only in the rules of decision as to the solution chosen to resolve the dispute. Whereas the mediator seeks to persuade the Parties to agree on a mutually acceptable solution, the Parties agree to allow the arbitrator to make decisions that are binding on the Parties.

Cross-Referencing: 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 3.1.1 (commission created); 3.2.3 (obligations of the commission); 6 (dispute resolution).

6.5 ARBITRAL PANEL

- 1. The following rules shall be applied to the Arbitral Panel selection:**

- (a) The Panel shall be composed of (____) members.
- (b) Disputing Parties shall endeavor to agree on the chair of the panel within (15) days of the delivery of the request for the establishment of the panel. If the disputing Parties are unable to agree on the chair within this period, the disputing Party chosen by lot shall select within five days as chair an individual who is not a citizen of that Party.
- (c) Each disputing Party, within (15) days of selection of the chair, shall select an equal number of panelists who are citizens of the other disputing Party.
- (d) If a disputing Party fails to select its panelists within such period, lot from among the roster members who are citizens of the other disputing Party shall select such panelists.
- (e) Panelists shall normally be selected from the roster. Any disputing Party may exercise a challenge against any individual not on the roster who is proposed as a panelist by a disputing Party within (15) days after the individual has been proposed.
- (f) If a disputing Party believes that a panelist is in violation of the section below, the disputing Parties shall consult, and if they agree, the panelist shall be removed and a new

panelist shall be selected in accordance with this section.

- 2. The Roster and Qualifications of Panelists:**

- (a) The Commission establishes and maintains a roster of up to (30) individuals who are willing and able to serve as panelists. The Parties to this Agreement shall approve the roster membership. The roster members shall be appointed for terms of three years, and may be reappointed.
- (b) Roster members shall have expertise or experience in law and in water resources engineering or related discipline, environmental engineering or related ecological discipline or water resources economics, or other matters covered by this Agreement and shall be chosen strictly on the basis of objectivity, reliability, and sound judgment.
- (c) Panel members shall be independent of, and not be affiliated with or take instructions from, any Party; and shall comply with a code of conduct to be established by the Commission.

- 3. Initial Report of Panel Decisions:**

- (a) The panel shall base its report on the submissions and arguments of the Parties and its independent analysis of the dispute unless the disputing Parties otherwise agree.
- (b) The panel shall, within (90) days after the last panelist is selected, present to the disputing Parties its recommendations, if any, for resolution of the dispute, unless the disputing Parties otherwise agree.
- (c) Panelists may furnish separate opinions regarding the initial report on matters not unanimously agreed.
- (d) A disputing Party may submit written comments to the panel regarding the initial report within (14) days of presentation of the report.
- (e) The panel, on its own initiative or on the request of any disputing Party, may:
 - (i) request the views of any participating Party;
 - (ii) reconsider its report;
 - (iii) make any further examination that it considers appropriate.

- 4. Final Report of the Panel Decisions:**

- (a) The panel shall present to the disputing Parties a final report, including any separate opinions on matters not unanimously agreed upon, within (30) days of presentation of the initial report, unless the disputing Parties otherwise agree.

- (b) No panel, either in its initial report or its final report, discloses which panelists are associated with majority or minority opinions.
- (c) The disputing Parties shall transmit to the Commission the final report of the panel, including the independent analysis of the panel, as well as any written views that a disputing Party desires to be appended, within a reasonable period of time after it is presented to them.
- (d) The final report of the panel shall be published 15 days after it is transmitted to the Commission, unless the Commission decides otherwise.

5. Implementation of the Final Reports:

The disputing Parties shall be bound by the resolution of the dispute, which normally shall conform to the determinations and recommendations of the panel.

Commentary: Most dispute resolution will most likely be accomplished through Arbitral Panels. It should be recognized that implementation and enforcement of the Agreement is as important as the actual development. The procedures used by the Arbitral Panel are likely to be detailed, and it is recognized that the Parties may not wish to burden their Agreement with such detail. However, unless the Parties ensure effective dispute resolution, the Agreement may become meaningless. If the Parties decide to eliminate this detail, it is recommended that a side agreement be formed that describes the dispute resolution mechanism. The main Agreement should make reference to the side agreement. A useful example may be the Section 11 of the North American Free Trade Agreement regarding the use of Arbitral Panels (NAAEC 1994).

Cross-referencing: 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 3.1.1 (commission created); 3.2.3 (obligations of the commission); 6 (dispute resolution).

6.6 PENAL SANCTION (OPTIONAL)

Any person, association, or corporation who violates, attempts, or conspires to violate any provision of this Agreement or any rule, regulation, or order of the Commission duly made, promulgated, or issued pursuant to the Agreement in addition to any other remedy, penalty, or consequence provided by law shall be punishable. They would be punishable as may be provided by statute of any of

the signatory Parties within which the offense is committed. This would be provided that in the absence of such provision any such person, association, or corporation shall be liable to a penalty of not less than (____), nor more than (____), for each such offense to be fixed by the court. The Commission may recover in its own name in any court of competent jurisdiction, and in a summary proceeding where available under the practice and procedure of such court. For the purposes of this Article, in the event of a continuing offense, each day of such violation, attempt, or conspiracy shall constitute a separate offense.

Commentary: Incorporation of this provision is optional since it can take effect only by similar provisions in the national laws of the respective Parties.

Cross-Referencing: 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 3.1.1 (commission created); 3.1.2 (jurisdiction of the commission); 3.2.3 (obligations of the commission); 3.3.3 (projects of the signatory parties and their subdivisions); 5.2 (capital financing by signatory parties); 6 (dispute resolution).

6.7 TORT LIABILITY

The Commission shall be responsible for claims arising out of the negligent acts or omissions of its officers, agents, and employees only to the extent and subject to the procedures prescribed by law generally with respect to officers, agents, and employees of the government of the respective Parties.

Commentary: This provision provides accountability by the Commission for actions by its officers, agents, and employees. To take effect, similar provisions must exist in the national laws of the respective Parties.

Cross-Referencing: 1.5 (good faith implementation); 2.2.3 (commission defined); 2.2.15 (party or parties defined); 3.1.1 (commission created); 3.2.3 (obligations of the commission); 6 (dispute resolution).

ARTICLE 7 IMPLEMENTATION

IN WITNESS WHEREOF, and in evidence of the adoption and enactment into law of this Agreement by the signatory Parties, the representatives of the sovereign governments of _____, _____, and _____ do hereby, in accordance with authority conferred by law, sign this

Agreement in (____) duplicate original copies, as attested by the appropriate authorities of the respective sovereign Parties, and have caused the seals of the respective governments to be hereunto affixed this ____ day of ____.

ARTICLE 8 REFERENCES

8.1 CHARTERS, CONVENTIONS, AND TREATIES

The basis for this model Agreement was modified by analysis of relevant provisions existing in the following charters, conventions, treaties, compacts, and similar water sharing agreements:

Act Regarding Navigation and Economic Development between the States of the Niger Basin. (1963). UNEP.

Agreement between the Government of the United States of America and the Government of the United Mexican States Concerning the Establishment of a Border Environment Cooperation Commission and a North American Development Bank. (1993).

Agreement on the Action Plan for the Environmentally Sound Management of the Common Zambezi River System. (1987). UNEP.

Charter of Economic Rights and Duties of States. (1975). 29 UN GAOR, Supp. No. 31, 50.

Convention and Statute relating to the Development of the Chad Basin. (1974). UNEP.

Convention Establishing the Organization pour la Mise en Valeur du Fleuve Senegal (OMVS). (1974). UNEP.

Convention on Biological Diversity. (1992). Reprinted in 31 I.L.M. 818, Doc. UNEP/BIO.DIV./N7-INC.5/1992.

Convention on Early Notification of a Nuclear Accident. (1986). Vienna, September 26, 1986.

Convention on Environmental Impact Assessment in a Transboundary Context. (1993). UNEP.

Convention on Law of the Non-Navigational Uses of International Watercourses. (1997). UN.

Convention on Long-Range Transboundary Air Pollution. (1979). Reproduced in 18 I.L.M. 1442.

Convention on Wetlands of International Importance, Especially as Waterfowl Habitat, February 2, 1971, 996 UNTS 245, 11 I.L.M. 963. (1975).

Declaration on Principles of International Law Concerning Friendly Relations and Cooperation among States in Accordance with the Charter of the United Nations. (1970). 25 UN GAOR, Suppl. No. 28.

Delaware River Basin Compact (DRBC). (1961). Pub. L. No. 87-328, 75 Statute 688.

Helsinki Rules on the Issues of the Waters of International Rivers. (1966). International Law Association, Report of the fifty-second Conference, Helsinki, Finland.

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Report of the United Nations Conference on Environment and Development. (1993). Reprinted in Agenda 21: Earth's Action Plan, IUCN Environmental Policy & Law Paper 27, Nicholas A. Robinson, ed.

Rio Declaration on the Environment and Development—June 3, 1992. (1992). Reprinted 31 I.L.M. 874, UNCED Doc. A/CONF.151/Rev. 1.

Stockholm Declaration of the United Nations Conference on the Human Environment. (1972). UN Doc. A/CONF. 48/14, Reprinted in 11 I.L.M. 1416.

Susquehanna River Basin Compact (SRBC). (1970). Pub. L. No. 91-575, 84 Statute 1509.

Treaty between the United States and Great Britain Relating to Boundary Waters, and Questions Arising between the United States and Canada (Entered into Force May 5, 1910). (1990). Reprinted by the Bureau of National Affairs.

Treaty for Amazonian Cooperation, Brasilia, July 3, 1978. (1978). Reproduced in 17 I.L.M. 1045.

Treaty Respecting Utilization of Water in the Colorado and Tijuana Rivers, and of the Rio Grande, February 3, 1944, 59, Statute 1291, 3 U.N.T.S. 314 (Effective November 8, 1945), USGPO. (1946).

United Nations Convention on the Law of the Sea, Montego Bay, December 10, 1982. (1982).

Vienna Convention for the Protection of the Ozone Layer (1985). (1989). Published by The Bureau of National Affairs.

8.2 LEARNED TREATISES

Learned treatises pertinent to the development of this Agreement include the following:

American Society of Civil Engineers (ASCE). (2001a). *Comprehensive Transboundary International Water Quality Management Agreement*, ASCE Standard 33-01, ASCE, Reston, VA, 116 pp.

ASCE. (2001b). *Standard Guidelines for Artificial Recharge of Ground Water*, ASCE/EWRI Standard 34-01, ASCE, Reston, VA, 44 pp.

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Draper, S. E., ed. (2002). *Model Comprehensive Management Agreement Relating to the Shared Use of Transboundary Water Resources, Model Water Sharing Agreements for the Twenty-first Century*, EWRI of ASCE and its Laws and Institution Committee, ASCE, Reston, VA, 184 pp.

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APPENDIX A GUIDELINES FOR DEVELOPMENT OF A TRANSBOUNDARY WATER QUALITY MANAGEMENT PLAN

PREFACE

The purpose of Appendix A, “Guidelines for Development of a Transboundary Water Quality Management (TWQM) Plan,” is to provide a step-by-step water quality management plan that could be developed and implemented in response to the needs of a bilateral or multilateral commission. Appendix A was developed through the efforts of the Management Plan (MP) Subcommittee of the Border International Water Quality Standards Committee (BIWQ SC), Environmental and Water Resources Institute (EWRI) of the American Society of Civil Engineers (ASCE). The TWQM Plan was designed to augment the ASCE/EWRI Comprehensive TWQM Agreement (ASCE 2001) and to provide a plan to complement Appendix B, “Guidelines for the Development of Transboundary Water Quality Standards and Criteria,” by providing a plan for managing the water quality of shared water resources defining or traversing borders shared by different governments. The documents together are designed to form an integrated approach to addressing transboundary water quality issues. This document began as a document from Caroline E. Gerwe, Secretary of MP Subcommittee, drafted with the assistance of David J. Eaton, Chair of MP Subcommittee. This draft was revised by members of the BIWQ SC, as listed in alphabetical order: David J. Eaton, Chair; Conrad G. Keyes, Jr., Past Chair; Mark W. Killgore, Secretary; and April Lander.

A-1 STEPS TOWARD AN AGREEMENT

A-1.1 Introduction

Comprehensive transboundary water quality management encompasses not just the technical issues, such as implementing wastewater treatment plants and establishing water quality standards, but also the formation of appropriate and efficient policies and partnership agreements to improve water quality. This plan recognizes the many elements of successful water quality (WQ) management and provides a step-by-step approach to implementing agreements to improve water quality in a shared water body. The Guidelines for the Development of Transboundary Water Quality Standards and Criteria (Appendix B) alludes to four primary aspects in managing water quality along a shared border. Specifically, the ____ Basin Commission should:

Aspect (1) Recognize the need for WQ management and commit to action;

Aspect (2) Harmonize use designations and level of WQ standards and criteria;

Aspect (3) Plan actions to improve water quality to meet use designations; and

Aspect (4) Implement measures to improve and sustain water quality.

The Comprehensive Transboundary Water Quality Management Agreement (EWRI/ASCE Standard 33-01) provides a framework for bilateral or multilateral agreements that form the policy and regulatory structure for establishing a partnership for harmonizing water quality management (Aspect 1). Appendix B presents guidelines for establishing WQ standards and criteria (Aspect 2). These Guidelines for the Development of a Transboundary Water Quality Management Plan are designed to complement Appendix B by describing steps towards implementing measures to improve and maintain water quality (Aspects 3 and 4). The following section presents a general approach to water quality management, including a consideration of the geography of the water body. Later sections provide step-by-step guidelines to the four aspects of water quality management.

A-1.2 Geography of the Shared Water Body

The physical location of the water body can influence both the multilateral policy decisions and the treatment options for managing the water quality. Several geographic scenarios are possible for a shared water body, and those physical configurations can influence policy aspects of managing the water quality. The water body can define the border between two riparian states, such as the Río Bravo/Rio Grande along the border of Mexico and the United States. Rivers may also traverse a boundary at a particular point, as the Tijuana River crosses the Mexico–U.S. border at a point just north of Tijuana, Baja California, Mexico, and just south of San Diego, California, United States. Lakes may stretch across a border as with the Great Lakes between Canada and the United States. Aquifers can underlie a border, as in the case of the Hueco Bolson and Mesilla Bolson under the Paso del Norte region associated with New Mexico, Chihuahua, and Texas border area (www.pdnwc.org). For any of these circumstances (a river defining a border, a shared lake or aquifer, or a transboundary coastal zone), the riparian states sharing the border are affected by the quality of that water body. It is in the interest of all Parties to protect the quality of the water, as improved water quality benefits each riparian state. For a river traversing a border where one party is