Draft Protocol to the UN Convention on Aquifers and Aquifer Systems of Relevance to International Law

This document presents a draft protocol to the UN Convention that would regulate aquifers and aquifer systems of relevance to international law. The draft protocol is based on a thorough legal opinion proposing amendments that would strengthen the ILC Draft Articles, address concerns related to their shape and scope, eliminate redundancies, and outline the areas in which the draft articles and the convention supplement each other. That paper has been prepared by Prof. Joseph Dellapenna, from Villanova University School of Law, and Special Rapporteur for the International Law Association’s Berlin Rules on Water Resources Law, and Flavia Loures, Programme Officer at WWF, as part of WWF’s activities aiming to improve global freshwater governance. Please contact Flavia Loures, at Flavia.Loures@wwfus.org, for further information and details on WWF’s proposed amendments.

Part I. Introduction

Article 1. Scope

The present Protocol applies to:

(a) utilization of aquifers and aquifer systems of relevance to international law;
(b) other activities that have or are likely to have an impact upon those aquifers and aquifer systems; and
(c) measures for the protection, preservation, and management of those aquifers and aquifer systems.

Article 2. Use of terms

For the purposes of the present Protocol:

(a) “Aquifer” means a permeable water-bearing underground geological formation underlain by a less permeable layer and the water contained in the saturated zone of the formation;
(b) “Aquifer system” means an aquifer along with its recharge and discharge zones, or a series of two or more aquifers that are hydraulically connected, along with their recharge and discharge zones;
(c) “Transboundary aquifer” or “transboundary aquifer system” means, respectively, an aquifer or aquifer system, parts of which are situated in different states;
(d) “Aquifer or aquifer system of relevance to international law” means a transboundary aquifer, a transboundary aquifer system, or an aquifer or aquifer system connected to an international watercourse;
(e) “Aquifer state” means a state in whose territory any part of an aquifer or aquifer system of relevance to international law is situated;

(f) “Recharging aquifer” means an aquifer or aquifer system of relevance to international law that receives a non-negligible amount of contemporary water recharge;

(g) “Recharge zone” means the zone which contributes water to an aquifer, consisting of the catchment area of rainfall water and the area where such water flows to an aquifer by runoff on the ground and infiltration through soil;

(h) “Discharge zone” means the zone where water originating from an aquifer flows to its outlets, such as a watercourse, a lake, an oasis, a wetland or an ocean;

(i) “UN Convention” means the United Nations Convention to the Law of the Non-Navigational Uses of International Watercourses;

(j) “Watercourse state concerned” means a party to the present Protocol within the meaning of Article 2(c) of the UN Convention, in relation to an international watercourse connected to an aquifer or aquifer system of relevance to international law;

(k) “Connected international watercourse” means a system of surface waters and ground waters within the meaning of Article 2(b) of the UN Convention, connected to an aquifer or aquifer system of relevance to international law.

Part II. General Principles

Article 3. Sovereignty of aquifer states

Each aquifer state has sovereignty over its portion of an aquifer or aquifer system of relevance to international law and each watercourse state concerned over its portion of a connected international watercourse. They shall exercise their sovereignty in accordance with the present Protocol.

Article 4. Equitable and reasonable utilization and participation

1. In accordance with the principle of equitable and reasonable utilization and participation, aquifer states have the right to utilize and develop the portions of an aquifer or aquifer system of relevance to international law situated within their respective territories, and the obligation to participate in the protection, preservation and management of these aquifers and aquifer systems, as follows:

(a) they shall utilize these aquifers or aquifer systems in a manner that is consistent with the equitable and reasonable accrual of benefits therefrom to the aquifer states concerned;

(b) they shall aim at maximizing the long-term benefits derived from the use of water contained therein;

(c) they shall establish individually or jointly an overall utilization plan, taking into account present and future needs of, and alternative water sources for, the aquifer states; and
(d) in the case of recharging aquifers, aquifer states shall give full effect to the principle of sustainable utilization and management of aquifers and aquifer systems, taking into account natural and artificial recharge in relation to discharges and extraction rates. If exceptional circumstances justify exceeding recharge rates, aquifer states shall not utilize a recharging aquifer at a level that would prevent continuance of its effective functioning.

2. Aquifer states have the right to develop and utilize areas within their own territories, where recharge and discharge zones of aquifers and aquifer systems of relevance to international law are located, in a reasonable and equitable manner. In so doing, such states shall take into account the right of other aquifer states to the equitable and reasonable use of the portions of these aquifers and aquifer systems located within their own territories and associated to such discharge or recharge zones.

3. Watercourse states concerned have the right to protect, manage, and utilize areas within their own territories, where international watercourses connected to aquifers and aquifer systems of relevance to international law are located, in a reasonable and equitable manner within the meaning of Articles 5 and 6 of the UN Convention. In so doing, such states shall take into account the right of aquifer states to the equitable and reasonable use of the portions of these aquifers and aquifer systems located within their own territories and associated to such international watercourses.

Article 5. Factors relevant to equitable and reasonable utilization and participation

1. Utilization, management, and protection of an aquifer or aquifer system of relevance to international law in an equitable and reasonable manner within the meaning of Article 4 of this Protocol requires taking into account all relevant factors, including:

   (a) the population dependent on the aquifer or aquifer system in each aquifer state;
   (b) the social, economic and other needs, present and future, of the aquifer states concerned;
   (c) the natural characteristics of the aquifer or aquifer system;
   (d) the contribution to the formation and recharge of the aquifer or aquifer system;
   (e) the existing and potential utilization of the aquifer or aquifer system;
   (f) the actual and potential effects of the utilization of the aquifer or aquifer system in one aquifer state on other aquifer states concerned or on the watercourse states concerned;
   (g) the availability of alternatives to a particular existing and planned utilization of the aquifer or aquifer system;
   (h) the development, protection and conservation of the aquifer or aquifer system and the costs of measures to be taken to that effect;
   (i) the role of the aquifer or aquifer system in the related ecosystem;
   (j) the right of aquifer states to protect, develop and utilize areas within their own territories, where recharge and discharge zones of these aquifers and aquifer systems are located, in a reasonable and equitable manner; and
   (k) the right of the watercourse states concerned to the equitable and reasonable use and protection of the portions of a connected international watercourse located within their territories.
2. In weighing different factors and utilizations of an aquifer or aquifer system of relevance to international law for the application of Articles 4 and 5(1) of this Protocol, aquifer states shall follow Article 5(2) and (3) and Article 10(1) of the UN Convention, giving special regard to vital human needs.

**Article 6. Obligation not to cause harm to other states**

1. Aquifer states shall, in utilizing an aquifer or aquifer system of relevance to international law in their territories, take all appropriate measures to prevent the causing of significant harm to other aquifer states or to the watercourse states concerned.

2. Aquifer states and the watercourse states concerned shall, in undertaking activities other than utilization of an aquifer or aquifer system of relevance to international law that have, or are likely to have, an impact on that aquifer or aquifer system, take all appropriate measures to prevent the causing of significant harm through that aquifer or aquifer system to other states concerned.

3. Where significant harm nevertheless is caused to other aquifer states or to the watercourse states concerned, Article 7(2) of the UN Convention shall apply, having due regard for Articles 4 and 5 of this Protocol.

**Article 7. General obligation to cooperate**

1. Aquifer states and, as appropriate, the watercourse states concerned, shall cooperate on the basis of sovereign equality, territorial integrity, sustainable development, mutual benefit and good faith in order to attain equitable and reasonable utilization and appropriate protection of an aquifer or aquifer system of relevance to international law.

2. For the purpose of paragraph 1, aquifer states and, where appropriate, the watercourse states concerned, shall, at the request by any of them, enter into consultations concerning the adoption of bilateral or regional agreements or arrangements, in accordance with Article 17 of this Protocol, for the establishment of mechanisms of cooperation, which may include, *inter alia*:

   (a) formal and informal institutional arrangements;
   (b) joint monitoring and assessment, as established by Article 12 of this Protocol;
   (c) joint databases, as established by Article 8 of this Protocol;
   (d) mutual assistance and common or coordinated communication, warning and alarm systems, taking into account Article 16(3) of this Protocol;
   (e) common research and development;
   (f) joint management plans, as established by Article 13 of this Protocol; and
   (g) joint utilization plans, as established by Article 4(1)(c) of this Protocol.
Article 8. Regular exchange of data and information

1. Pursuant to Article 7, aquifer states and, where appropriate, the watercourse states concerned, shall, on a regular basis, exchange readily available data and information on the utilization of aquifers and aquifer systems of relevance to international law and of their connected international watercourses, on other activities that have or are likely to have an impact upon those aquifers and aquifer systems or on those watercourses, on measures of protection, preservation and management, and on the condition of these aquifers or aquifer systems and of their connected international watercourses, in particular of a geological, hydrogeological, hydrological, meteorological and ecological nature and related to the hydrochemistry of the aquifer or aquifer system, as well as related forecasts.

2. Where knowledge about the nature and extent of an aquifer or aquifer system of relevance to international law is inadequate, the aquifer states concerned shall employ their best efforts to collect and generate more complete data and information relating to such an aquifer or aquifer system, taking into account current practices and standards. They shall take such action individually or jointly and, where appropriate, together with or through international organizations.

3. If an aquifer state or a watercourse state concerned is requested by another aquifer state or watercourse state concerned to provide data and information relating to the aquifer or aquifer system or to connected international watercourses that are not readily available, Article 9(2) of the UN Convention shall apply.

4. Until agreed or harmonized monitoring standards and methodology are established, as required under Article 12(2) of this Protocol, aquifer states shall employ their best efforts to comply with Article 9(3) of the UN Convention.

5. Pursuant to their obligations under Articles 7, 8, 12, and 14 of this Protocol, aquifer states and, where appropriate, the watercourse states concerned, shall consult on the appropriateness of charging a joint institutional mechanism with data and information generation, processing, assessment and analysis, updating, and dissemination and publication, including the creation and maintenance of a comprehensive and unified database, as well as with the elaboration and implementation of joint monitoring and assessment programs and common research and development strategies.

Part III. Protection, preservation and management

Article 9. Protection and preservation of ecosystems

1. Aquifer states shall take all appropriate measures, in an equitable and reasonable manner, to protect and preserve ecosystems within, or dependent upon, aquifers or aquifer systems of relevance to international law, including measures to ensure that the quality and quantity of water retained in the aquifer or aquifer system, as well as that released in its discharge zones, are sufficient to protect and preserve such ecosystems.

2. Where appropriate, such measures shall be taken in cooperation with other aquifer states and the watercourse states concerned, in an equitable and reasonable manner.
Article 10. Recharge and discharge zones

1. Aquifer states shall identify recharge and discharge zones of aquifers or aquifer systems of relevance to international law and, within these zones located within their respective territories, shall take special measures to prevent, minimize, and control detrimental impacts on the recharge and discharge processes.

2. All aquifer states in whose territory a recharge or discharge zone is located, in whole or in part, shall cooperate with other aquifer states and, as appropriate, with the watercourse states concerned, in an equitable and reasonable manner, to protect an aquifer or aquifer system of relevance to international law.

Article 11. Prevention, reduction and control of pollution

1. Aquifer states shall, individually and, where appropriate, jointly, prevent, reduce, and control pollution of aquifers or aquifer systems of relevance to international law, including through the recharge process, that may cause significant harm to other states.

2. Where appropriate, aquifer states and the watercourse states concerned shall cooperate with each other in an equitable and reasonable manner to prevent, reduce, and control pollution of these aquifers and aquifer systems, when such pollution is likely to have an impact on, or have originated in, connected international watercourses.

3. In view of uncertainty about the nature and extent of these aquifers or aquifer systems and of their vulnerability to pollution, aquifer states and, where appropriate, the watercourse states concerned, shall take a precautionary approach.

Article 12. Monitoring

1. Aquifer states shall monitor the conditions of aquifers or aquifer systems of relevance to international law, the effects of measures of use, protection, preservation, and management of these aquifers and aquifer systems, as well as other activities that have or are likely to have an impact upon those aquifers and aquifer systems.

2. Aquifer states shall, wherever possible, carry out these monitoring activities jointly with other aquifer states concerned and, where appropriate, in collaboration with the competent international organizations. Where, however, monitoring activities are not carried out jointly, the aquifer states shall exchange the monitored data among themselves.

3. Aquifer states shall enter into consultations and negotiations for the establishment of agreed or harmonized standards and methodology for monitoring their aquifers or aquifer systems of relevance to international law. They should identify key parameters that they will monitor based on an agreed conceptual model of such aquifers or aquifer systems.

4. These parameters should include parameters on the condition of the aquifer or aquifer system of relevance to international law, as listed in Article 8(1), and also on the utilization, protection, preservation and management of these aquifers and aquifer systems and on other activities that have or are likely to have an impact upon those aquifers and aquifer systems.
5. The watercourse states concerned shall monitor activities within their territories that have or are likely to have an impact on connected international watercourses and, as appropriate, share this information with the aquifer states concerned.

Article 13. Management

1. Aquifer states shall establish and implement plans for the proper management of aquifers or aquifer systems of relevance to international law, in accordance with the provisions of the present Protocol.

2. They shall, at the request by any of them, enter into consultations to coordinate or jointly promote the management of these aquifers or aquifer systems, taking into account the joint mechanisms of cooperation listed under Article 7(2), as well as other mechanisms deemed appropriate by the aquifer states concerned.

3. Where appropriate, aquifer states and the watercourse states concerned shall enter into consultations regarding the integrated management of aquifers and aquifer systems of relevance to international law and their connected international watercourses, taking into account the relevant provisions of the UN Convention and of this Protocol.

Part IV. Activities affecting other states

Article 14. Planned activities

1. When a state has reasonable grounds for believing that a particular planned activity in its territory may affect an aquifer or aquifer system of relevance to international law and thereby may have a significant adverse effect upon another state, it shall, as far as possible, assess the possible effects of such activity.

2. Before a state implements or permits the implementation of the planned activities referred in Paragraph 1 of this Article, it shall provide that state with timely notification thereof. Such notification shall be accompanied by available technical data and information, including any environmental impact assessment, in order to enable the notified state to evaluate the possible effects of the planned activities.

3. Upon delivery of the notification, the notifying state shall refrain from implementing or permitting the implementation of such activities for a period of at least six months, unless agreed otherwise among the states concerned.

4. If the notifying and the notified states disagree on the possible effect of the planned activities, they shall enter into consultations and, if necessary, negotiations with a view to arriving at an equitable resolution of the situation, in conformity with Articles 4 to 6 of this Protocol. They may utilize an independent fact-finding body to make an impartial assessment of the effect of the planned activities.

5. In the course of consultations and negotiations carried out under Paragraph 4 of this Article, implementing activities shall remain suspended for a period of at least six months from the date the notifying state receives from the notified states the response to the notification under Paragraph 2 of this Article, unless otherwise agreed among the states concerned.
Part V. Miscellaneous Provisions

Article 15. Financial, scientific and technical cooperation with developing states

States shall, directly or through competent international organizations, afford financial assistance to and promote scientific, educational, technical and other cooperation with developing states for the protection and management of aquifers or aquifer systems of relevance to international law. Such cooperation shall include, \textit{inter alia}:

(a) training of their scientific and technical personnel;
(b) facilitating their participation in relevant international programmes;
(c) supplying them with necessary equipment and facilities;
(d) enhancing their capacity to manufacture such equipment;
(e) providing advice on and developing facilities for research, monitoring, educational and other programmes;
(f) providing advice on and developing facilities for minimizing the detrimental effects of major activities affecting aquifers or aquifer systems of relevance to international law;
(g) preparing environmental impact assessments;
(h) providing legal, institutional, and policy advice on the integrated management of water resources; and
(i) providing funding for a secretariat and a conference of the parties for the administration of the implementation of this Protocol.

Article 16. Emergency situations

1. For the purpose of the present article, “emergency” means a situation, resulting suddenly from natural causes or from human conduct, that poses an imminent threat of causing serious harm to aquifer states or other states.

2. Where an emergency affects or is likely to affect an aquifer or aquifer system of relevance to international law and thereby poses an imminent threat to states, Article 28(2) and (3) of the UN Convention shall apply.

3. States shall provide scientific, technical, logistical and other cooperation to other states experiencing an emergency. Cooperation may include joint contingency plans, coordination of international emergency actions and communications, making available trained emergency response personnel, emergency response equipments and supplies, scientific and technical expertise and humanitarian assistance.

4. Where an emergency poses a threat to vital human needs, aquifer states, notwithstanding Articles 4 and 6, may take measures that are strictly necessary to meet such needs.

Article 17. Bilateral and regional agreements or arrangements

1. For the purpose of managing a particular aquifer or aquifer system of relevance to international law, aquifer states and, where appropriate, the watercourse states concerned, are encouraged to enter into a bilateral or regional agreement or arrangement, provided that such an agreement or arrangement does not affect the application of the basic principles embodied in Part II of this Protocol.
2. Such agreement or arrangement may be entered into with respect to an entire aquifer or aquifer system or any part thereof or a particular project, programme or utilization, except insofar as the agreement or arrangement adversely affects, to a significant extent, either the utilization of that aquifer or aquifer system by one or more other aquifer states, or the use of connected international watercourses by one or more of the watercourse states concerned, without, respectively, their express consent.

Article 18. Relation with the UN Convention

The UN Convention is applicable to transboundary aquifers and aquifer systems of relevance to international law, taking into account the provisions of this Protocol.