

Groundwater in international law

Compilation of treaties
and other legal instruments

FAO
LEGISLATIVE
STUDY

86

Stefano Burchi
Kerstin Mechlem

for the
Development Law Service
FAO Legal Office

The choice and the presentation of the facts contained in this publication and the opinions expressed therein are not necessarily those of the Food and Agriculture Organization of the United Nations and the United Nations Educational, Scientific and Cultural Organization and do not commit the organizations. The designations employed and the presentation of material in this information product do not imply the expression of any opinion whatsoever on the part of FAO and UNESCO concerning the legal or development status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Published jointly by:

Food and Agriculture
Organization of the United
Nations
Viale delle Terme di Caracalla
00100 Rome, Italy

United Nations
Educational, Scientific
and Cultural Organization
7, place de Fontenoy
75007 Paris, France

ISBN 92-5-105231-X

All rights reserved. No part of this publication may be reproduced in any form or by any means without the written permission of FAO and UNESCO. Applications for such permission should be addressed to the Chief, Publishing Management Service, Information Division, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy or by e-mail to copyright@fao.org

© FAO/UNESCO 2005

CONTENTS

ACKNOWLEDGEMENTS	ix
FOREWORD	xi
LIST OF SELECTED ACRONYMS AND ABBREVIATIONS	xiii
I. INTRODUCTION	1
II. GROUNDWATER AGREEMENTS	4
<i>Chad - Egypt - Libya - Sudan</i>	
1. Programme for the Development of a Regional Strategy for the Utilisation of the Nubian Sandstone Aquifer System (NSAS) -Terms of Reference for the Monitoring and Exchange of Groundwater Information of the Nubian Sandstone Aquifer System Agreement No 1 - Terms of Reference for the Monitoring and Exchange of Groundwater Information of the Nubian Sandstone Aquifer System Agreement No 2 - Terms of Reference for Monitoring and Data Sharing [Tripoli, 5 October 2000]	4
<i>Algeria - Libya - Tunisia</i>	
2. Establishment of a Consultation Mechanism for the Northwestern Sahara Aquifer System (SASS) [2002]	6
III. WATER RESOURCES AND ENVIRONMENTAL TREATIES CONTAINING PROVISIONS ON GROUNDWATER	9
i. <u>Global Conventions</u>	9
3. United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, particularly in Africa [Paris, 17 June 1994]	9

4.	United Nations Convention on the Law of the Non-navigational Uses of International Watercourses [New York, 21 May 1997]	19
ii.	<u>Multilateral Treaties</u>	35
a.	<u>Regional Treaties</u>	35
5.	ASEAN Agreement on the Conservation of Nature and Natural Resources [Kuala Lumpur, 9 July 1985]	35
6.	Convention on Environmental Impact Assessment in a Transboundary Context [Espoo, 25 February 1991]	47
7.	Convention on the Protection and Use of Transboundary Watercourses and International Lakes [Helsinki, 17 March 1992]	59
8.	Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters [Aarhus, 25 June 1998]	75
9.	Protocol on Water and Health to the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes [London, 17 June 1999]	88
10.	Revised Protocol on Shared Watercourses in the Southern African Development Community (SADC) [Windhoek, 7 August 2000]	102
11.	Framework Convention on the Protection and Sustainable Development of the Carpathians [Kiev, 22 May 2003]	119
12.	African Convention on the Conservation of Nature and Natural Resources [Maputo, 11 July 2003]	123
b.	<u>Treaties Concerning Specific River/Lake Basins</u>	136
13.	Convention on Cooperation for the Protection and Sustainable Use of the River Danube [Sofia, 29 June 1994]	136

14. Convention on the Protection of the Rhine [Berne, 12 April 1999]	152
15. Tripartite Interim Agreement Between the Republic of Mozambique, the Republic of South Africa and the Kingdom of Swaziland for Co-operation on the Protection and Sustainable Utilisation of the Water Resources of the Incomati and Maputo Watercourses [Johannesburg, 29 August 2002]	158
16. Framework Agreement on the Sava River Basin [Kranjska Gora, 3 December 2002]	170
17. The Convention on the Sustainable Development of Lake Tanganyika [Dar es Salaam, 12 June 2003]	178
18. Protocol for Sustainable Development of Lake Victoria Basin [Arusha, 29 November 2003]	198
iii. <u>Bilateral Treaties</u>	214
<i>Austria - Germany, EEC</i>	
19. Agreement Between the Federal Republic of Germany and the EEC, on the one hand, and the Republic of Austria, on the other, on Cooperation and Management of Water Resources in the Danube Basin [Regensburg, 1 December 1987]	214
<i>Canada - United States of America</i>	
20. Protocol Amending the 1978 Agreement Between the United States of America and Canada on Great Lakes Water Quality, as Amended on October 16, 1983 [Toledo, 18 November 1987]	219
21. Memorandum of Agreement Related to Referral of Water Right Applications [10 October 1996] - Appendix to British Columbia/Washington Memorandum of Understanding [12 April 1996]	230
<i>Israel - Jordan</i>	
22. Treaty of Peace Between the State of Israel and the Hashemite Kingdom of Jordan [Arava/Araba Crossing Point, 26 October 1994]	234

Israel - PLO

23. Israeli-Palestinian Interim Agreement on the West Bank and the Gaza Strip - Annex III - Protocol Concerning Civil Affairs [Washington D.C., 28 September 1995] 241

Mexico - United States of America

24. Agreement of Cooperation Between the United States of America and the United Mexican States Regarding Pollution of the Environment Along the Inland International Boundary by Discharges of Hazardous Substances [San Diego, 18 July 1985] 258

Niger - Nigeria

25. Agreement Between the Federal Republic of Nigeria and the Republic of Niger Concerning the Equitable Sharing in the Development, Conservation and Use of Their Common Water Resources [Maiduguri, 18 July 1990] 262

Spain - Portugal

26. Agreement on Cooperation for the Protection and Sustainable Use of the Waters of the Spanish-Portuguese Hydrographic Basins [Albufeira, 30 November 1998] 268

**IV. INTERSTATE AGREEMENTS ON
GROUNDWATER OR CONTAINING
PROVISIONS ON GROUNDWATER 285**

i. United States*Idaho - Washington*

27. Interagency Agreement in the Matter of the Coordinated Management of the Pullman-Moscow Ground Water Aquifer [20 April 1992] 285

ii. Australia*South Australia - Victoria*

28. Border Groundwaters Agreement [15 October 1985] 287

Commonwealth of Australia - New South Wales - South Australia - Victoria

29. Murray-Darling Basin Agreement [24 June 1992] 300

Commonwealth of Australia - Queensland - South Australia

30. Lake Eyre Basin Intergovernmental Agreement
[21 October 2000] 308

New South Wales - Queensland

31. Paroo River Intergovernmental Agreement
[18 July 2003] 316

Commonwealth of Australia - Australian Capital Territory - New South Wales - Northern Territory - Queensland - South Australia - Victoria

32. Intergovernmental Agreement on a National Water Initiative
[25 June 2004] 323

V. OTHER LEGAL INSTRUMENTS 383

i. European Community Law 383

33. Council Directive 91/676/EEC Concerning the Protection of Waters Against Pollution Caused by Nitrates from Agricultural Sources [12 December 1991] 383

34. Directive 2000/60/EC of the European Parliament and of the Council Establishing a Framework for Community Action in the Field of Water Policy [23 October 2000] 397

35. Proposal for a Directive of the European Parliament and of the Council on the Protection of Groundwater Against Pollution [19 September 2003] 458

ii. International Non-Binding Instruments 471

36. United Nations Water Conference - Mar del Plata Action Plan [1977] 471

37. United Nations Economic Commission for Europe - Charter on Groundwater Management [1989] 482

38. International Conference on Water and the Environment - The Dublin Statement on Water and Sustainable Development [1992] 498

39.	United Nations Conference on Environment and Development - Agenda 21 - Chapter 18, Protection of the Quality and Supply of Freshwater Resources: Application of Integrated Approaches to the Development, Management and Use of Water Resources [1992]	500
40.	United Nations International Law Commission - Resolution on Confined Transboundary Groundwater [1994]	520
41.	United Nations Economic Commission for Europe - Guidelines on Monitoring and Assessment of Transboundary Groundwaters [2000]	521
42.	Conference of the Contracting Parties to the Convention on Wetlands - Resolution VIII.40 - Guidelines for Rendering the Use of Groundwater Compatible with the Conservation of Wetlands [2002]	530
43.	World Summit on Sustainable Development - Plan of Implementation of the World Summit on Sustainable Development [2002]	532
iii.	<u>Non-Governmental Instruments</u>	534
44.	International Law Association (ILA) - The Seoul Rules on International Groundwaters [1986]	534
45.	Bellagio "Model Agreement Concerning the Use of Transboundary Groundwaters" [1989]	536
46.	International Law Association (ILA) - The Berlin Rules on Water Resources [2004]	551
APPENDIX		
List of treaties and other documents contained in: Ludwik A. Teclaff and Albert E. Utton (eds.), International Groundwater Law, London, Rome, New York: Oceana Publishers, Inc., 1981		
		559

ACKNOWLEDGEMENTS

The initial research and structuring of relevant material for this publication was carried out by Stefanie Rothenberger, working as a research assistant with the Development Law Service from July through December 2003. Charlotte Oliver took over from Stefanie Rothenberger, working under contract with UNESCO and FAO. The high calibre of Ms Rothenberger's and Ms Oliver's professional input to the project is gratefully acknowledged. In addition, the advice provided by Jacob J. Burke, Senior Officer in the Land and Water Development Division of FAO, on points of hydrogeology issues was highly appreciated.

This publication would not have been possible without the support of the Secretariat of UNESCO's International Hydrological Programme (IHP). Mention is also to be made of Raya Marina Stephan, UNESCO Consultant, for her help and advice.

FOREWORD

Despite the social, economic, environmental and political importance of groundwater, international law has paid relatively little attention to this resource. Groundwater represents about ninety-seven percent of the fresh water resources available, excluding the water locked in the polar ice. It serves the basic needs of more than one-half of the world's population and it is often the only source of water in arid and semi-arid countries. Improvements in pumping technology and growth in industry, agriculture, and global population are leading to ever increasing levels of use of this resource, and to growing reliance on it. Largely as a result of these phenomena, groundwater resources and the social, economic and environmental systems dependent on them have, over the last fifty years, come under pressure from over-abstraction and pollution, seriously threatening their sustainability.

International law has so far only rarely taken account of groundwater. While surface water treaties abound, groundwater is either nominally included in the scope of these instruments, mainly if it is "related" to surface waters, or it is not mentioned at all. Only few legal instruments contain groundwater-specific provisions, and even fewer address groundwater exclusively.

As groundwater quickly emerges from the limelight and gains strategic importance as a source of often high-quality freshwater in the face of the impending water crisis world-wide, the need for rules of international law addressing groundwater management and protection becomes ever more compelling. It is perhaps no coincidence that the United Nations International Law Commission (ILC) has the topic "Shared Natural Resources", comprising groundwater, oil and gas, in its programme of work. In addition, a trend can be detected to increasingly address groundwater in international agreements, non-binding instruments and interstate compacts, from a resource management as well as an environmental perspective.

It is against this backdrop that FAO and UNESCO have joined forces and embarked on this publication project. It brings together a variety of binding and non-binding international law instruments that, in varying degrees and from different angles, deal with groundwater. Its aim is to report developments in international law and to contribute to detecting law in-the-making in this important field.

The publication was prepared by FAO in connection with the UNESCO projects on international waters "Internationally Shared Aquifer Resources Management" (ISARM) and "From Potential Cooperation to Cooperation Potential" (PC–CP).

Stefano Burchi, Senior Legal Officer, and Kerstin Mechlem, Legal Officer, Development Law Service, FAO, are responsible for the scope and structure of the publication, for the selection of legal materials and their arrangement.

Giuliano Pucci
Legal Counsel
FAO

András Szöllösi-Nagy
Deputy Assistant
Director-General for
Natural Resources
Secretary International
Hydrological Programme
(IHP)
UNESCO

LIST OF SELECTED ACRONYMS AND ABBREVIATIONS

ASEAN	Association of Southeast Asian Nations
Doc.	Document
FAO	Food and Agriculture Organization of the United Nations
GEF	Global Environment Facility
ibid.	ibidem
ILA	International Law Association
ILM	International Legal Materials
IUCN	International Union for Conservation of Nature and Natural Resources
No.	Number
NSAS	Nubian Sandstone Aquifer System
OJ	Official Journal of the European Union
OSS	Observatoire du Sahara et du Sahel Sahara and Sahel Observatory
p.	page
para.	paragraph
(s)	signatory
SASS	Système Aquifère du Sahara Septentrional Northwestern Sahara Aquifer System
TIAS	Treaties and Other International Acts Series
UN	United Nations
UN/ECE	United Nations Economic Commission for Europe
UNTS	United Nations Treaty Series
UNESCO	United Nations Educational, Scientific and Cultural Organization
UN	United Nations
Vol.	Volume

I. INTRODUCTION

Scope

This publication contains a variety of international legal instruments on groundwater resources, both transboundary and domestic. The extent to which each instrument covers groundwater varies; some deal exclusively with this resource whereas others contain merely a passing reference to the subject.

Some instruments are binding, others are non-binding. Among the binding ones are global, multi- and bilateral international treaties and agreements, inter-state agreements of Australia and the United States of America and directives of the European Community. The non-binding legal instruments emanate from a variety of governmental and non-governmental sources. While some reflect binding law, others indicate law-in-the-making, or are pointers to the future direction of the international law and policy of groundwater resources.

A predecessor to the present collection is the book *International Groundwater Law* edited by Ludwik A. Teclaff and Albert E. Utton (London, Rome, New York: Oceana Publishers, Inc., 1981). The instruments included in that book have not been reproduced in this publication.

Arrangement of the Materials

The material included in this publication has been divided in four chapters. Chapter II covers all international agreements which deal exclusively with groundwater resources. Other than those featured in *International Groundwater Law*, by Ludwik A. Teclaff and Albert E. Utton, only three legal instruments – all multilateral – could be identified. Chapter III contains treaties which include provisions on groundwater within the larger scope of each instrument. These are set out according to their geographic scope from global to multilateral to bilateral. The multilateral instruments, in turn, have been subdivided by geographic scope into regional treaties and treaties concerning a specific river or lake basin. The bilateral treaties have been arranged in alphabetical order, by pairs of states parties. In all, twenty-four legal instruments can be found in this chapter. Chapter IV includes interstate agreements, i.e., legal instruments concluded between member states of a federal country, which either deal exclusively with groundwater or reflect attention to it within their broader scope. One of these was concluded

between states of the United States of America, and five by states of Australia. Finally, Chapter V contains other legal instruments: two European Community directives and a proposal for a directive, as well as a selection of eleven non-binding instruments, including three by non-governmental organizations. The proposed European Community Directive on the Protection of Groundwater Against Pollution has exceptionally been included in this publication in view of its apparent relevance, notwithstanding its draft status at the time of going to print.

With the exception already indicated as to bilateral treaties, the legal instruments within each chapter and sub-chapter have been arranged in chronological order.

Presentation of Selected Instruments

The instruments which deal exclusively with a specific aquifer have been reproduced in full. With respect to all other instruments, only those parts which directly or indirectly address groundwater have been retained. The selection of relevant parts inevitably reflects a degree of judgment. In their choice the editors have drawn upon FAO expertise in hydro-geological and related sciences.

As a general rule, provisions concerning institutional arrangements, the settlement of disputes, final clauses, and other matters of a strictly procedural nature have been systematically omitted from this publication. Maps and annexes of highly technical content have not been reproduced either. Whenever entire articles, sections, annexes and maps have been left out, their headings have been retained marked as [], so that the reader would have an overview of the full scope of the relevant instrument. Where only part of an article is omitted, it is replaced by an ellipsis (...).

Parties and Entry into Force

The states parties to the Groundwater Agreements (chapter II), to the Bilateral Treaties (chapter III.iii), and to the Interstate Agreements (chapter IV) are indicated immediately before the title of the relevant legal instrument. In view of their large numbers, the states parties and/or signatories to Global Conventions (chapter III.i) and to Multilateral Treaties (chapter III.ii) are listed in a footnote. A distinction is made between states parties and signatories (the latter being identified with an (s)), whenever the information

was available to the editors. If known, information on the entry into force of legally binding instruments is provided in a footnote.

Sources and References

FAOLEX, FAO's on-line database of domestic natural resources legislation and international freshwater treaties (<http://faolex.fao.org/faolex/index.htm>), the International Treaties & Compacts database hosted by Oregon State University (<http://mgd.nacse.org/cgi-bin/qml2.0/watertreaty/irealJS.qml>), other internet sources as well as published international legal materials, notably the United Nations Treaty Series (UNTS) and International Legal Materials (ILM), were used in the research phase of this project. Additional instruments have been obtained through the editors' informal network of resource persons.

Additional Information

The texts of the legal instruments reproduced here are faithful to the texts which have been retrieved from the referenced sources. Obvious spelling errors and other textual errors have not been corrected, but have been highlighted by the word [sic]. Footnotes indicated by an asterisk have been inserted by the editors and are not part of the original texts.

Disclaimer

For all the care and attention to detail the editors have invested in this publication, there can be no pretence of exhaustiveness or of definitiveness to it. Important legal instruments may have been missed in the search, errors of judgment may have been made in the selection of parts of any given legal instrument, or other mistakes may have crept in. The editors invite the readership to flag such errors and omissions to them, in view of a subsequent edition and update of this publication.

II. GROUNDWATER AGREEMENTS

Chad - Egypt - Libya - Sudan

1. Programme for the Development of a Regional Strategy for the Utilisation of the Nubian Sandstone Aquifer System (NSAS) - Terms of Reference For the Monitoring and Exchange of Groundwater Information of the Nubian Sandstone Aquifer System [Tripoli, 5 October 2000]*

For sustainable utilisation of the Nubian Sandstone Aquifer System, consolidation of the existing data and information in such a usable accessible manner and the continuous update of knowledge in the Aquifer Systems should be maintained. In order to accomplish this objective and to assure the exchange and flow of information between the four countries sharing the NSAS. It is herewith, the four countries namely, Chad, Egypt, Libya and Sudan represented by their National Coordinators formulated and signed the following agreements;

Agreement No. 1 – Terms of Reference for the Monitoring and Exchange of Groundwater Information of the Nubian Sandstone Aquifer System [Tripoli, 5 October 2000]†

Consolidated data throughout the implementation of the "Programme for the Development of a Regional Strategy for the utilisation of the Nubian Sandstone Aquifer System" was achieved through a Regional Information System called the Nubian Aquifer Regional Information System (NARIS). This integrated Information System is conceived to fulfill the following tasks:

- Storing and documenting the different data, covering all fields relevant to the Nubian Sandstone Aquifer System.
- Processing, analysis and display of basic data.

* FAOLEX (FAO legal database online). Reprinted in: Centre for Environment & Development for the Arab Region and Europe (CEDARE), Regional Strategy for the Utilisation of the Nubian Sandstone Aquifer System, Volume IV, Appendix II, Cairo, 2001.

† Ibid.

- Preparing the input parameters which are needed for the modeling at different scales and calibration of the groundwater model and comparison of the results of modeling with other data for planning and decision making.
- Provide an easy link between the participating countries through a system ensuring the exchange and flow of information.

Therefore it is herewith agreed that the four countries namely; Chad, Egypt, Libya and Sudan share the data that was consolidated throughout the implementation of the Programme mentioned above and included in the Nubian Aquifer Regional Information System (NARIS) in addition to information on developmental aspects including socio-economic data, management of harsh environment, drilling experiences, meteorological data, .. etc. and also agreed to update this system as specified in the Agreement on Terms of Reference for Monitoring and Data Sharing.

The sharing of this information will be accomplished according to the setup specified below;

Internet Environment - Server and access through internet.

In this protocol the data will be stored on a server and accessed through internet by the four countries through web-based Oracle. A level of security is maintained in this technique, so that access is enabled only to the four countries.

Agreement No. 2 – Terms of Reference for Monitoring and Data Sharing [Tripoli, 5 October 2000]*

For sustainable development and proper management of the Nubian Sandstone Aquifer System, continuous monitoring of the aquifer should be maintained. In order to observe the regional behaviour of the NSAS, monitored parameters of the aquifer should be shared between the concerned countries.

* Ibid.

Hence, it is herewith agreed between the four countries sharing the Nubian Sandstone Aquifer System, namely Chad, Egypt, Libya and Sudan, represented by their National Coordinators to monitor and share among them the following information:

- Yearly extraction in every extraction site, specifying geographical location and number of producing wells and springs in every site.
- Representative Electrical Conductivity measurements (EC), taken once a year in each extraction site, followed by a complete chemical analysis if drastic changes in salinity is [sic] observed.
- Water level measurements taken twice a year in the locations shown in the attached maps and tables. The proposed monitoring network is subject to changes upon the feedback of the National Coordinators of the concerned countries.

These measurements should be undertaken within the Nubian Aquifer System and the Post Nubian Aquifer System.

...

[Omitted: Proposed regional well monitoring network, Regional monitoring network in the Nubian Aquifer, Regional monitoring network in the Post Nubian Aquifer]

Algeria - Libya - Tunisia

2. Establishment of a Consultation Mechanism for the Northwestern Sahara Aquifer System (SASS) [2002]*

...

* Excerpts of the procès verbal (Minutes) of a meeting of representatives of Algeria, Libya and Tunisia held at the Headquarters of the Food and Agriculture Organization of the United Nations (FAO) in Rome, Italy, on 19 and 20 December 2002. The procès verbal was subsequently endorsed by Algeria on 6 January 2003, Tunisia on 15 February 2003 and Libya on 23 February 2003. The Minutes and the subsequent letters of endorsement signified an agreement to establish the Consultation Mechanism. The procès verbal is on file with the editors, in the English and French originals.

Consultation mechanism

...

A consensus has emerged on an *evolutionary approach* that, starting from a simple structure (phase 1), evolves into a more complex and autonomous structure charged with specific functions (phase 2).

[Omitted: Sketch of consultation mechanism - (phase 1)]

Features of consultation mechanism (phase 1)

The consultation mechanism presents the following features:

(i) Objective

To coordinate, promote and facilitate the rational management of the NWSAS water resources.

(ii) Structure

- *a steering committee* composed of representatives of the national agencies in charge of water resources, acting as national focal points; the committee meets in ordinary session once a year, and in extraordinary session upon the request of one of the three states; sessions are held alternatively in each country; the committee's chairmanship is held by the representative of the host country.
- *a coordination unit* directed by a coordinator designated by the OSS in consultation with the steering committee;
- *an ad hoc scientific committee* for evaluation and scientific guidance, to be convened when the need arises.

(iii) Legal status

The coordination unit is administered and hosted by the OSS.

(iv) Functions

- to manage the tools developed under the SASS project (hydrogeologic data base and simulation model);
- to develop and follow-up a reference observation network;
- to process, analyze and validate data relating to the knowledge of the resource;
- to develop databases on socio-economic activities in the region, in relation to water uses;
- to develop and publish indicators on the resource and its uses in the three countries;
- to promote and facilitate the conduct of joint or coordinated studies and research by experts from the three countries;
- to formulate and implement training programmes;
- to update the NWSAS model on a regular basis;
- to devise and formulate proposals relating to the evolution and functioning of the consultation mechanism, and to its operationalization during phase 2.

(v) Financing

Each state bears the operating costs of its own focal point. The functioning of the coordination unit is financed out of subventions and gifts granted to the OSS by the concerned states, cooperating countries, etc.

...