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REPORT

**WORKSHOP ON THE LEGAL FRAMEWORK FOR SHARED
GROUNDWATER DEVELOPMENT AND MANAGEMENT
IN THE ESCWA REGION
BEIRUT, 10-13 JUNE 2003**

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Introduction

1. The Workshop on the Legal Framework for Shared Groundwater Development and Management in the ESCWA Region was organized by the Economic and Social Commission for Western Asia (ESCWA) with the cooperation of the International Hydrological Programme of the United Nations Educational, Scientific and Cultural Organization (UNESCO-IHP), the Cairo Office of UNESCO, the United Nations Environment Programme Regional Office for West Asia (UNEP/ROWA) and the Center for Environment and Development for the Arab Region and Europe (CEDARE), and with the support of the German Federal Institute for Geosciences and Natural Resources (BGR). The Workshop was held at United Nations House in Beirut from 10 to 13 June 2003 under the patronage of the Minister of Energy and Water Resources in Lebanon.

2. The overall aim of the Workshop was to promote knowledge and enhance the capacities of ESCWA members with regard to the following:

(a) The latest thinking and good practices in internationally accepted legal norms regarding shared groundwater resources;

(b) The issue of management of shared aquifers with the aim of achieving sustainable use and development of these resources;

(c) The identification of challenges and opportunities in shared groundwater resources by drawing lessons from the practical experiences in the Arab region.

3. The Workshop was aimed at mid- to high-level policymakers and policy analysts in governmental agencies and other public institutions; water experts; executives in the private sector; professionals in academic and training institutions; and staff of regional and international organizations involved in water issues. A total of 10 ESCWA members attended the Workshop, namely, Egypt, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arabia, Syrian Arab Republic, United Arab Emirates and Yemen (see annex I for the list of participants).

4. This report reviews the key issues in the field of shared groundwater development and presents the salient points of the substantive material prepared for the Workshop (see annex III for the Workshop papers).

I. MAIN TOPICS OF DISCUSSION

5. Three important inaugural speeches were delivered by the following:

(a) The Deputy Assistant of the Director-General of UNESCO-IHP, A. Szollosi-Nagy, who stressed on the importance of water resources and the value of managing shared groundwater;

(b) The Executive Secretary of ESCWA, Mervat Tallawy, who highlighted the supportive role of the secretariat towards ensuring water security in the region, and underscored the need for a sound legal framework aimed at improving the management of water, particularly of shared water resources, thereby promoting the sustainable development of scarce water resources in the Arab region;

(c) The Minister of Energy and Water Resources in Lebanon, A. Humeyed, who presented the national water policy of Lebanon, which include plans to construct dams and renovate existing water systems, in the light of the growing demand of water and the expected water shortages by 2020.

6. The opening ceremony was followed by a presentation of awards for the winners of the school competition, which was financed by Cairo Office of UNESCO and organized in cooperation with the Educational and Social Council for the West Bekaa and Rashaya and the al-Nahar newspaper. With a thematic reference to the International Year of Freshwater, the competition aimed at raising awareness on water issues among the young.

7. A total of 20 papers were presented and discussed during the five sessions of the Workshop on the following themes: (a) development of groundwater management guidelines; (b) shared groundwater in international law; and (c) international experiences in joint management of shared groundwater. The presentations are summarized below.

A. DEVELOPMENT OF GROUNDWATER MANAGEMENT GUIDELINES

1. *Overview of activities by the Water Issues Team of ESCWA*

8. This presentation reviewed the main focus areas and activities of the Water Issues Team of ESCWA for the current and following biennium in the field of legal framework for groundwater management. These activities include enhancing the management of aquifer systems in the ESCWA region by applying and adopting the concept of integrated water resource management (IWRM), organizing capacity-building activities for a wide cross-section of stakeholders involved in water management issues, and promoting regional and interregional cooperation regarding the management of shared water resources.

2. *General guidelines for groundwater management in the ESCWA region*

9. The application of IWRM was further expounded by this presentation, which concentrated on general guidelines to create an enabling environment for groundwater management, provide an analytical framework for assessing aquifer conditions and identify practical steps for managing the resource in an integrated manner.

10. The guidelines for groundwater management encourage the sustainable use of resources through improvements of the prevailing natural limitations, socio-economic constraints, and the legal and institutional set-up. However, they can pose a challenge in their implementation. Consequently, discussions revolved around the support system required for such guidelines and the extent to which member States are expected to implement them, particularly in terms of the constraints both at national and regional levels.

11. The presentation solicited a number of valuable responses from the participants, which were collected and further discussed during the fifth session of the Workshop that centred on finalizing the draft groundwater management guidelines (GMG).

The draft GMG

12. Benefiting from such feedback, the draft GMG was refined to assess the advantages of establishing national regulations and to discuss the regional framework approach aimed at managing shared groundwater and improving the management of water resources. Additionally, the participants made the following comments on the outline of the draft GMG:

- (i) While the guidelines are designed to offer guidance on national management of groundwater, they must equally acknowledge the financial and human aspects of the use of shared water resources. Governments need to be encouraged therefore to take note of the international nature of those resources and to use and manage groundwater in an equitable manner and in compliance with international obligations;
- (ii) The guidelines need to promote a legislative framework for groundwater that encompasses water laws and other related laws in the areas of environment, irrigation and land use. Such a framework involves revising or modernizing outdated laws in a way that takes into account environmental, social and economic concerns. Revised water laws, which need to be complemented by regulations or other subsidiary instruments, must deal with a number of issues, including, inter alia, basic rights; permit systems; priorities with regard to differing water uses; revocation and variation of rights; droughts, floods and other emergencies; liabilities for installations; and administrative set-ups;

- (iii) Water and environmental legislations need to be harmonized and linked. Ideally, quantity and quality control need to be performed by one agency given that quality is often a function of quantity. Where this control is split between a water allocation authority and a pollution control authority, the information flow and cooperation between the two authorities need to be ensured. Moreover, water laws must aim at promoting the efficient use of water through such mechanisms as pricing structures, which must be appropriate and take into account the needs of the poor;
- (iv) Governments must have ultimate control of policy decisions with regard to the specific location or use of permits. Moreover, those permits that lead to water transfers or improved tradability, which promotes efficiency, need to be monitored by the State with a view to ensuring beneficial use and fostering a seamless and well-implemented permit system. Within that context, permit systems must be stable, equitable, registered and issued by competent authorities in a transparent and accountable manner based on the rule-of-law. Recourse mechanisms need to be provided, including grace periods, to accommodate the rights and needs of users affected by revised legislations;
- (v) The implementation capacity of the water authorities must be strengthened, which implies allocating adequate resources and encouraging capacity-building initiatives;
- (vi) The guidelines must acknowledge the basic human right to water and encourage Governments to take this right into account.

B. SHARED GROUNDWATER IN INTERNATIONAL LAW

1. Principles of international water law and their adequacy for international groundwater

13. While there is a general understanding that international water law must provide for equitable use of groundwater, there is a need to develop this understanding into concrete principles that account for all aspects of groundwater. This paper highlighted the agenda of the International Law Commission (ILC), which remains seized on the issue of groundwater and is aiming to develop a new international law for groundwater with interdisciplinary expert support from the Internationally Shared Aquifer Resources Management (ISARM). Moreover, there is an opportunity to include bilateral or multilateral treaties on the management and use of shared groundwater.

2. The status of shared aquifers in international law: current rules – their contents and deficiencies

14. This paper reviewed the international water law and evaluated its current status. The international water law was first developed for surface water. In 1997, the Convention on the Law of the Non-navigational Uses of International Watercourses modified some important rules of the international water law and included groundwater linked to surface water and “normally flowing into a common terminus”.

15. Equally, the International Law Association adopted the Helsinki Rules on the Uses of the Waters of International Rivers in 1966, which was appended to include groundwater in 1986 following the Seoul Rules on International Groundwaters. Consequently, the Helsinki Rules currently apply to shared aquifers. Moreover, a model exists for sharing groundwater resources, namely, the Bellagio Draft Treaty, which is intended as a tool for solving border groundwater issues between neighbouring States.

16. However, while international laws covering shared aquifers exist, they are largely inadequate in addressing aquifers that are isolated from surface water, whether these are renewable or not. ILC addressed this issue in its resolution on Confined Transboundary Groundwater. There is therefore a vital need to formulate special regulatory laws that cover fossil or non-renewable shared aquifers.

17. There is a general consensus among water experts that existing international water laws, combined with other rules of international law, can offer guidance to countries with regard to good management of shared groundwater resources. However, the harmonization of national regulations dealing with

groundwater and the development of regional treaties, including those that have been developed in the ESCWA region, remain a challenge.

C. INTERNATIONAL EXPERIENCES IN JOINT MANAGEMENT OF SHARED GROUNDWATER

1. *Groundwater development and management implications*

18. This paper examined the continuous pressures on existing water resources, particularly in arid and semi-arid regions of the world, caused by a number of issues, including a growing demand for adequate and safe water supplies, ambitious goals for producing sufficient food for increasing populations, and activities aimed at improving health and development. According to a report by the United Nations World Summit on Sustainable Development (WSSD), some 40 per cent of the global population is facing water shortages. This is severely compromising the safety and quality of water, particularly in Africa and the Arab region. Moreover, unless new management practices are established, approximately half the global population is projected to suffer from water penuries by 2025. This deterioration is expected to have the strongest impact on the water resources of arid regions, particularly non-renewable groundwater sources, which could result in dangerously low depletions.

19. In the past three decades, Arab countries have generally focused their efforts on developing surface and groundwater resources to meet their water demands. These supplies were supplemented by various technologies, including desalination and waste water treatment. While Gulf States and Jordan depend on shallow and deep groundwater sources and desalination to meet their water demand, other Arab countries, including Egypt, Iraq, Lebanon and Syrian Arab Republic, depend mainly on surface water, supplemented with groundwater. A number of these countries are implementing water development programmes that emphasize the construction of hydraulic waterworks systems. However, there is a vital need to pay more attention to the issues of water management, water quality monitoring and the provision of water supplies for rural and urban centres from surface water sources.

20. Comparing the annual renewable ground and surface water resources in the Arab region, estimated at 161 billion cubic metres (bcm), to the annual water requirements for 2000 and 2025, at 171 bcm and a projected 228 bcm, respectively, raises serious questions with regard to the long-term economic and environmental sustainability of existing water resources. Specifically, a water deficit of some 67.1 bcm by 2025 is expected to cause extensive mining of non-renewable groundwater sources, given that such a substantial deficit cannot be met solely through desalination and waste water treatment processes, even when advances in these technologies are taken into account. Consequently, there is an urgent need to formulate and adopt effective policies and strategies aimed at promoting resource sustainability. Within that context, sound strategies need to improve water allocation and apply economic instruments that promote cost recovery while safeguarding the needs of society, particularly the poor.

2. *Shared groundwater resources in the Arab region*

21. This paper (in Arabic) presented a new assessment of water resources in the Arab region with emphasis on shared surface water and groundwater. The paper reviewed the importance, type, distribution, quality and quantity of shared groundwater resources, and stressed the need for sustainable management of these resources.

3. *Joint management of the Nubian Aquifer: an experience towards a legislative framework*

22. This presentation underscored the importance of groundwater in sustaining socio-economic development, particularly in non-renewable aquifers of the Arab region. Within that context, it provided a comprehensive analysis of the strategy relating to the Nubian Sandstone Aquifer System, which was executed by CEDARE and comprised a regional information system, geographic information system (GIS) and mathematical models to study the development of the Aquifer. A joint authority was established and capacity-building activities were undertaken. Moreover, as a model for sharing groundwater resources,

guidelines were developed for the formulation of a legal framework on shared aquifers with an emphasis on national legislations, harmonization and international law.

23. Differences between the Helsinki Rules and the Convention on the Law of the Non-navigational Uses of International Watercourses of 1997 were raised and explained, particularly on the terms “drainage basin” compared to “watercourse” and on the issue of “equitable utilization”. There was an equal focus on the need for a sound assessment of water resources at the river basin level, suggesting that those water resources which contributed to agriculture that was irrigated by rain and to natural vegetation needed to be included in the water balance of the river basin.

4. Groundwater in the context of development

24. This presentation explored the issues of availability and accessibility of water for development in Africa. Water resources are being threatened and depleted due to various factors, including transboundary water conflicts, climate variability, poor governance and low investments. This poses a major challenge to efforts aimed at ensuring the availability of drinking water, achieving food security, developing new water sources, sustaining ecosystems and effectively managing such emergencies as floods and droughts.

25. Water resources development was highlighted within the policy framework of the New Partnership for African Development (NEPAD), particularly in terms of set goals for reducing the proportion of people without access to water, increasing irrigated areas in Africa and establishing effective management of droughts. However, these goals face a number of constraints, including limited knowledge of spatial and quantitative distribution of groundwater resources, the lack of local wells in the development process, and limited access to groundwater information at national, sub-regional and regional levels.

5. From potential conflict to cooperation potential and internationally shared resources management

26. The Potential Conflict to Cooperation Potential (PCCP) was launched in 2001 to address the challenge of sharing water resources. The project aims to show that a situation with undeniable potential for conflict over shared water resources can be turned into a situation where cooperation can be initiated. During its first phase, PCCP developed tools for the prevention and resolution of water disputes. In the following phase, PCCP is set to continue to promote water as a catalyst for peace and cooperation by providing a number of services to countries that share common water resources.

27. This presentation reviewed the background, history, activities and partners of the ISARM Programme, which was launched in 2000 by UNESCO, the Food and Agriculture Organization of the United Nations (FAO), the International Association of Hydrogeologists (IAH) and the Economic Commission for Europe (ECE). Additionally, the presentation highlighted the updated list of cooperation and regional activities under ISARM and provided some perspectives towards the management of international hydrogeological risk.

6. Global International Waters Assessment

28. The main concerns and issues of Global International Waters Assessment (GIWA) were reviewed in this presentation, including the shortage of freshwater, pollution, changes to habitats and communities, and the unsustainable exploitation of fisheries and other living resources.

7. Shared groundwater cooperation: from vision to implementation

29. This presentation described the major shared aquifers in the ESCWA region and highlighted the growing water scarcity in the Arab region and the increasing dependence on groundwater resources. The main focus was on the benefits that can be reaped from intergovernmental cooperation in managing shared water resources and aquifers. Within that context and based on ESCWA resolutions 233 (XXI) and 244 (XXII) of 11 May 2001 and 17 April 2003, respectively, on strengthening cooperation between ESCWA members with regard to shared water resources, ESCWA and BGR have taken the initiative to improve and

foster such cooperation by promoting joint studies and facilitating the exchange of information. These activities are aimed at promoting a regional approach for the management of shared groundwater resources, thereby ensuring the long-term sustainability of water resources.

8. *Country papers*

30. Six country papers were presented at the Workshop to offer a review of the status and recent developments in the respective water sectors with regard to shared groundwater management. The presentations are summarized below.

(a) *Egypt: Joint management of shared aquifer systems*

31. This paper presented an overview of the experience in managing shared groundwater in the Nubian Sandstone Aquifer System from the perspective of Egypt. The Aquifer, which represents one of the major shared aquifers in the world, extends over the national territories of four countries, namely, Egypt, Chad, Libyan Arab Jamahiriya and Sudan. During the past three decades, these countries have made separate attempts to develop the Aquifer. Consequently, each country has specific experience, which can be shared to promote the sustainable development of the Aquifer. The mutual interest in studying and developing the shared resource goes back to the early 1970s. This regional cooperation resulted in the formulation of a regional strategy and the establishment of the Joint Authority for the Study and Development of the Nubian Sandstone Aquifer System. By focusing on sustainable development and continued cooperation for the shared management of the Aquifer, this Authority has succeeded in gaining the support of regional and international organizations. Such regional cooperation with regard to shared water resources represents a successful model that can assist the development of similar programmes in the other shared aquifer systems of the region.

(b) *Palestine: Legal framework for shared groundwater resources development and management*

32. This paper provided the technical details of shared groundwater aquifers in Palestine and provided analysis on such issues as recharge zones and use of wells and springs. Moreover, this paper delved in the current use of shared aquifers by Israel and concluded that over-pumping of shared resources by that Government was contravening international law. Within the political framework of the dispute between Palestinians and Israelis, there is an urgent need to address the legitimate Palestinian demands for use and control of shared aquifers, and to improve dramatically the poor management of shared water resources.

(c) *Syrian Arab Republic: International groundwater law*

33. Given the importance attached to water issues by the Government of the Syrian Arab Republic, the legislation on groundwater is currently being revised to take into account the distinction between sub-surface water and confined underground water, as defined by, respectively, the Convention on the Law of the Non-navigational Uses of International Watercourses of 1997 and the Seoul Rules of 1986. This paper (in Arabic) concluded that gaps exist within the international groundwater law, particularly in the case of groundwater that is not linked to surface water, and stressed the need to improve existing principles and rules.

(d) *Oman: Water resources constraints and management considerations*

34. Aside from their commonality in terms of water scarcity, arid regions represent a diverse and disparate group of areas with a variety of economic and environmental problems that are specific to each region. This paper warns of the danger of treating arid regions as a single geographical unit facing similar challenges that require equal and rubber-stamped solutions. The current water situation, constraints and management considerations for Wadi Musayliq Watershed in Oman were evaluated, particularly in the light of the water shortages across the country that have resulted from drought conditions and insufficient rainfall to recharge the aquifers since 1997. A number of wells are dry or have been severely affected, including areas of Oman bordering the United Arab Emirates. This is posing a serious threat to the public water supply of various towns and communities.

- (e) *Qatar: Groundwater system and drinking water fields in Qatar and the legislative framework for its protection*

35. This paper (in Arabic) reviewed the balance of groundwater of Qatar, which has been in deficit over the past four decades. The annual deficit currently stands at approximately 800 million cubic metres and arises from over-pumping of groundwater resources. Even if this rate is maintained, the quantity of extracted water is not expected to meet demand. Moreover, the quality of water has been severely affected with salinity levels rising from 500 parts per million (ppm) in 1970 to the current 900 ppm. The deterioration of groundwater is largely attributed to over extraction for agricultural uses. There is therefore a need to formulate and implement adequate laws aimed at preserving groundwater resources.

- (f) *Kuwait: The hydrological system of groundwater in Kuwait*

36. This presentation described and evaluated the status of groundwater and water resources in Kuwait by offering a comprehensive review of the following: the topographic features; the main stratigraphic and hydrogeologic systems; hydrochemical analysis; the quality and distribution of groundwater; and current and projected groundwater exploitation.

II. CONCLUSIONS AND RECOMMENDATIONS

37. The participants reviewed the efforts and achievements of ESCWA member States in the area of management of groundwater resources, and discussed the major challenges for the region in terms of the growing water deficit and hampered access to water, which constitute serious impediments to socio-economic development. Referring to ESCWA resolutions 233 (XXI) and 244 (XXII), the participants offered a number of recommendations that highlight the importance of developing a cooperation mechanism regarding shared aquifers and the need to optimize the meagre water resources of the region, thereby achieving the goals of the major international summits regarding water policies and integrated management of water resources.¹ These recommendations include the following:

(a) There is a need to support the initiative by ESCWA aimed at developing GMG as an appropriate approach for the management of groundwater resources in the region. All outstanding issues and measures with regard to GMG need to be clarified through a consultative meeting for high-level policymakers and water professionals. The finalized draft can subsequently be presented to the ESCWA Committee on Water Resources for ratification and adoption. Equally, ESCWA is encouraged to expand the use of GMG to all Arab countries and to support the development of the cooperation mechanism;

(b) Within the context of GMG, there is a further need to take stock of the findings and recommendations of the Expert Group Meeting on Legal Aspects of Management of Shared Water Resources in the ESCWA Region (Sharm el-Sheikh, Egypt, 8-11 June 2000), which called for the following actions:

- (i) Developing joint guidelines for groundwater management in the ESCWA countries by taking into account the management, use and international nature of some of these resources;
- (ii) Encouraging member States to collaborate for the development of legal and institutional cooperative frameworks aimed at managing shared aquifers in the ESCWA region;
- (iii) Reviewing and reporting on recent developments with respect to legal principles under the United Nations Water Convention (UNWC) and other written and customary international water law in order to secure equitable use and rights; and assessing the applicability of these conventions in national and regional contexts, including hydrogeological and other aspects of shared aquifers in the region;

¹ These summits include the United Nations Millennium Declaration (New York, 6-8 September 2000); the World Summit on Sustainable Development (Johannesburg, South Africa, 2-11 September 2002); and the 3rd World Water Forum (Kyoto, Japan, 16-23 March 2003).

- (iv) Compiling a regional inventory of the shared aquifers in the region and assessing issues, actual management arrangements and options for cooperation on future management of the resources;
- (v) Promoting and encouraging informal initiatives and consultations among countries sharing aquifers for the exchange of data and management experience, and initiating discussions on cooperative frameworks between these countries;
- (vi) Supporting efforts by ESCWA aimed at undertaking comprehensive case studies on selected shared aquifers in the region;
- (vii) Establishing a network of shared aquifers in the Arab region for the exchange of experience on shared aquifer management;
- (viii) Developing, in collaboration with partner organizations, common guiding principles for joint management of shared aquifers and non-renewable groundwater;
- (ix) Given that the region suffers from a considerable shortage of expertise on the legal aspects of water resources, particularly of shared water resources, member States, donors and regional funding agencies are urged to develop plans and allocate funds for building national capacities in this vital field, especially in the context of PCCP and ISARM initiatives in the management of shared aquifers;
- (x) Member States are strongly encouraged to address the issue of shared water resources in a frank and open manner with a view to assessing cooperation needs and developing relevant policies or improving existing policies. The mandate of the ESCWA Committee on Water Resources makes it a suitable forum for enhancing such cooperation;
- (xi) Water professionals and managers are strongly encouraged to assume a proactive role to raise awareness among decision makers in member States concerning the need for cooperation, thereby optimizing the sustainable yield of a shared aquifer. More importantly, water professionals must become involved in legislative efforts whenever water issues are discussed, both in domestic and international contexts;
- (xii) Regional and international organizations can help manage, conserve and protect shared water resources by making available to all cooperating agencies their knowledge and experience in the development of cooperation mechanisms, including legal, technical and institutional instruments. Within that context, the establishment of information bases for shared aquifers have been enhanced by the work of member States, the technical advisory projects of ESCWA and BGR, ACSAD, UNEP, CEDARE on the Nubian Sandstone Aquifer System, UNESCO-IHP through the ISARM programme, and the UNESCO Regional Office for Science and Technology for the Arab States (UNESCO/ROSTAS) through the Arab Water Resources Mapping Project and Assessment;
- (xiii) There is a strong need to assist the resolution of water disputes by developing the negotiating skills of water professionals, diplomats and high-level decision makers involved in the water sector through the technical and financial assistance of international and regional organizations, donors and Arab funds;
- (xiv) ESCWA members must follow up on the recommendations and reports by ILC regarding shared groundwater, and promote collaborative activities between organizations in the United Nations system and local and regional experts from Arab countries aimed at formulating an adequate convention on shared aquifers. Equally, these organizations can offer valuable capacity-building and training activities related to groundwater, which ESCWA members are actively encouraged to use to advantage;

- (xv) Moreover, ESCWA members are urged to undertake the following: update the assessment of groundwater resources, particularly of non-renewable and shared resources; moderate the depletion of aquifers and the deterioration of water quality by strengthening groundwater monitoring, protection and conservation programmes, which in turn enhances the development of institutional and human resources; formulate adequate strategies for sustainable management of groundwater resources and adopt appropriate methodology for harmonizing groundwater assessment, monitoring and protection within the framework of integrated groundwater management; and encourage and enhance data exchange among ESCWA member countries;
- (xvi) International and regional organizations concerned with water issues in the region, particularly ESCWA, UNESCO, UNEP, and donor and funding agencies, are urged to consider integrated groundwater management as a high priority and strategic component in their programmed activities aimed at enhancing national capacity building in the field of water resources management.

Annex I

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Annex II

WORKSHOP AGENDA

Day 1: Tuesday, 10 June 2003

- 9.00–10.00 Registration
- 10.00–11.30 Opening Session
- Statements by: A. Szollosi-Nagy, Deputy Assistant Director-General of UNESCO-IHP
M. Tallawy, Executive Secretary of ESCWA
A. Humeyed, Minister of Energy and Water in Lebanon
- 11.30–11.45 Launching the International Year of Freshwater:
- O. Kanaan, Cultural and Social Council for the Western Bekaa and Rashaya
Opening remarks on the International Year of Freshwater, H. Charif, Chief of SDPD
Presentation of awards to the winners of school competition
Walk through exhibition on Water with the Minister of Energy and Water, Deputy Assistant Secretary-General for the UNESCO and ESCWA Executive Secretary
Chairperson: H.E. Mr. Karim Pakradouni
- 11.45–12.15 Break
- 12.30–14.00 Session I: The Draft Groundwater Management Guidelines (GMG)
- Overview of activities by the Water Issues Team of ESCWA
Presentation and deliberation of the draft GMG with a view to refining it
Chairperson: A. Szollosi-Nagy
Rapporteur: A. Khater
- 14.00–15.00 Lunch
- 15.00–17.00 Discussion
- 15.45–16.00 Break

Day 2: Wednesday, 11 June 2003

- 09.00–10.00 Session II: Shared Groundwater in International Law
- FAO, “Principles of international water law and their adequacy of international groundwater”
ESCWA, “The status of shared aquifers in international law: current rules – their contents and deficiencies”
Chairperson: M. Abdulrazzak
Rapporteur: B. Appelgren
- 10.00–10.30 Discussion
- 10.30–11.00 Break

Day 2: Wednesday, 11 June 2003 (continued)

- 11.00–13.00 Session III: International Experiences in Joint Management of Shared Groundwater
UNESCO-ROSTAS, “Groundwater development and management implications”
ACSAD, “Shared groundwater resources in the Arab region” (in Arabic)
CEDARE, “Joint management of the Nubian Aquifer: an experience towards a legislative framework”
ECA, “Groundwater in the context of development”
- 13.00–14.00 Lunch
- 14.00–15.00 UNESCO-IHP, “From potential conflict to cooperation potential and internationally shared resources management”
Overview of the experience by UNEP on Global International Water Assessment (GIWA) Programme
- 15.00–16.30 Discussion

Day 3: Thursday, 12 June 2003

- 09.00–11.00 Session IV: International Experiences in Joint Management of Shared Groundwater (continued)
“Shared groundwater cooperation: from vision to implementation” by ESCWA
Country papers: Egypt, “Joint management of shared aquifer systems”; Palestine, “Legal framework for shared groundwater resources development and management”; and the Syrian Arab Republic, “International groundwater law” (in Arabic)
Chairperson: M.H. Al-Habr
Rapporteur: S.A. Al-Hattaly
- 11.00–11.30 Break
- 11.30–13.00 Country papers: Oman, “Water resources constraints and management considerations”; Qatar, “Groundwater system and drinking water fields in Qatar and the legislative framework for its protection” (in Arabic); and Kuwait, “The hydrological system of groundwater in Kuwait”
- 13.00–14.00 Lunch
- 14.00–16.00 Working Groups (Group I and Group II)
- 16.30–17.00 Presentation of results

Day 4: Friday, 13 June 2003

- 9.00–11.30 Session V
Working groups
Chairperson: B. Jaber
Rapporteur: K. Abu-Zeid
- 11.30–12.00 Break
- 12.00–13.00 Finalization of the draft Groundwater Management Guidelines
- 13.00–13.30 Conclusions and recommendations presented by H. Charif

Annex III

WORKSHOP PAPERS

Symbol	Title
E/ESCWA/SDPD/2003/WG.4/L.1	Proposed organization of work
E/ESCWA/SDPD/2003/WG.4/2	Water resources constrains and management considerations: Al-Buraimi area, Al-Dahira region
E/ESCWA/SDPD/2003/WG.4/3	Management of shared groundwater: international versus Islamic Law
E/ESCWA/SDPD/2003/WG.4/4	Legal framework for shared groundwater resources and management in Palestine
E/ESCWA/SDPD/2003/WG.4/5	قانون المياه الجوفية الدولية
E/ESCWA/SDPD/2003/WG.4/6	أنظمة المياه الجوفية وحقوق مياه الشرب في دولة قطر والأطر التشريعية لحمايتها
E/ESCWA/SDPD/2003/WG.4/7	إرشادات عامة لوضع دليل لإدارة موارد المياه الجوفية في دول إسكوا في إطار الإدارة المتكاملة للموارد المائية
E/ESCWA/SDPD/2003/WG.4/8	The status of shared aquifers in international law: current laws – their contents and deficiencies
E/ESCWA/SDPD/2003/WG.4/9	Joint management of shared aquifer systems
E/ESCWA/SDPD/2003/WG.4/10	Groundwater development and management implications
E/ESCWA/SDPD/2003/WG.4/11	Principles of international water law and their adequacy for international groundwater
E/ESCWA/SDPD/2003/WG.4/12	Major issues challenges and what Africa needs to do to develop its water resources for socio-economic progress
E/ESCWA/SDPD/2003/WG.4/13	الموارد المائية المشتركة في المنطقة العربية



