

International Hydrological Programme (IHP)



**Ministry of Regional
Municipalities, Environment
and Water Resources**

UNESCO Cairo Office



**The Arab League
Educational, Cultural and
Scientific Organization**



Ninth Regional Meeting of The Arab IHP National Committees

**23-26 September 2001
Muscat- The Sultanate of Oman**

Final Report

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Preface

This report covers the details of the “Ninth Regional Meeting of the Arab IHP National Committees” that was held in Muscat, The Sultanate of Oman, during the period 23-26 September 2001.

This meeting was organized jointly by UNESCO and ALECSO each biennium as part of strengthening the Arab IHP Committees and involve them actively in implementation and planning of the IHP programme.

On the side of this meeting, two technical activities were organized and implemented successfully. The first is the “Regional Training Course on Numerical Groundwater Flow Modeling” and second is the “Steering Committee Meeting of the Network on Groundwater Protection in the Arab Region.” Both meetings were organized in joint cooperation with the Network on Groundwater Protection in the Arab Region.

This meeting, along with its side activities, has been a great success. The news coverage by local and regional media was overwhelming. Various Radio stations and T.V stations as well as press, all covered the activities of this meeting and highlighted its main recommendations. Special interviews were conducted by media with key water experts from the region.

The successful implementation of this meeting was due to joint cooperative efforts of UNESCO, ALECSO, Oman National IHP Committees and various stakeholders.

Thanks are due to Dr. Mohamed El Deek, the Director of UNESCO Cairo Office and to Dr. Bahlul Eliagoubi, Director of Science and Scientific Research in ALECSO for their continuous support and help. Special thanks are due to Dr. Abdin Salih, Deputy Secretary of IHP, Paris and one of the founders of the project.

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Report of the 9th Regional Meeting of the Arab National Committees

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GLOSSARY OF ACRONYMS AND SPECIAL TERMS USED IN THIS REPORT

ACSAD	The Arab Center For the Studies of Arid Zones and Dry Lands
ALECSO	The Arab League Educational, Cultural and Scientific Organization
AODA	The Arab Organization for Agricultural Development
ESCWA	Economic and Social Commission for Western Asia
FRIEND	Flow Regimes from International Experimental and Network Data
IAEA	International Atomic Energy Agency
ICARDA	International Center for Agricultural Research in the Dry Lands
IHP	International Hydrological Programme
IHP-V	The Fifth Phase (1996-2001) of IHP
IHP-VI	The Sixth phase(2002-2007) of IHP
IGRAC	International Groundwater Resources Assessment Center
ISESCO	Islamic Educational Scientific and Cultural Organization
ISARM	Internationally- Shared Aquifer Resources Management
JIIHP	IAEA/UNESCO Joint International Isotopes in Hydrology Programme
MRMEWR	Ministry of Regional Municipalities, Environment and Water Resources
ONCIHP	Omani National Committee for International Hydrological Programme
PCCP	From Potential Water Conflicts to Co-operation Potential project
TARM	Transboundary Aquifer Resources Management
UNESCO	United Nations Educational, Scientific and Cultural Organization
UCO	UNESCO Cairo Office
WWAP	World Water Assessment Programme
WWDR	World Water Development Report

1 Introduction

The Ninth Regional Meeting of the Arab National Committees of the International Hydrological Program of UNESCO was held in Muscat, Sultanate of Oman from 23-26 September 2001, jointly with a regional training course on "Numerical Groundwater Flow Modeling Using MODFLOW" and the Fifth Steering Committee Meeting of the Groundwater Protection Network.

In the framework of the UNESCO IHP activities and the decision 7.4 of the 14th session of the Intergovernmental Council of IHP to hold regional IHP, the UNESCO Cairo Office and its partners organized this biennium activity for the 9th time. It is organized jointly by UNESCO Cairo Office and ALECSO and hosted by the Oman National IHP Committee and Ministry of Regional Municipalities, Environment and Water Recourses. The meeting reviewed progress made in implementing the recommendations of the eighth regional meeting, especially these related to the selected priority themes (Groundwater Protection and Wadi Hydrology) and the institutionalization of a regional IHP Council; and review the IHP-V activities in the Arab region since the 8th IHP meeting (years 2000 and 2001). The meeting identified priorities within the framework of IHP-VI (2002.2007) and methods of integrating major regional priorities in this cycle; as well as adopting the Arab Water Action Plan document and the mechanism of implementation.

More time was devoted to defining a mechanism for enhancing the capability of the region in the areas of research and capacity building based on the successes achieved in the current regional networks

on Wadi Hydrology and Groundwater Protection. As foreseen in the Sharm El-Sheikh Statement, a new approach as well as a project document must be prepared to be submitted to all Arab Heads of States and decision makers to create a fund-in-trust to support research and studies in the water area in the Arab World. The host organizer of the ninth meeting (the National IHP Committee of Oman) played a leading role in the preparation of the meeting and the related technical and logistics arrangements, especially the training workshop on "Groundwater Hydrology and Modeling" in cooperation with UNESCO, ALECSO and ISESCO.

Part of the meeting was devoted to country papers. Each country paper covered the vision and strategy of the country related to Water Resources Sector and focusing on research, capacity building and training. Identification of priorities, outlining of recommendations and development of a mechanism for regional cooperation were approved in the closing session.

Short meetings of the steering committees of the Arab Network on Wadi Hydrology and Groundwater Protection was conducted on the evenings of the regular meeting days.

The Meeting Objectives:

a) Development Objective

The main development objective of this meeting is the establishment of an effective, sustained mechanism for regional cooperation and capacity building in Hydrological Sciences and Water Resources Management in the Arab Region within IHP framework.

b) Immediate Objectives

- a. Organize a regional IHP meeting where at least one representative of each national committee is present, preferably the Chairman of each Committee;
- b. Present country reports that outline the most outstanding hydrological problems in the respective countries and their future visions and strategies in the water area;
- c. Identify the Arab Region's contribution to various IHP-VI themes and the current and future activities of the Arab Network on Wadi Hydrology and Groundwater Protection;
- d. Convene an interactive training workshop to tackle important water themes in the region;
- e. Outline common programmes, in line with IHP's and ALECSO's priorities in coordination with other regional partners (ACSAD, ISESCO, IAEA, ICARDA, FAO, WHO, ESCWA, CEDARE, WMO, IOAD, UNDP, etc...);
- f. Agree upon a mechanism for sustainable regular meetings in a regional or sub-regional manner for cooperation/collaboration on priority areas to the region;
- g. Adopt the Arab Water Action Plan Project on sustainability of water resources in the Arab World. This project is intended to be addressed to head of states and decision makers in the Arab World to create a fund-in-trust to support research and capacity building and studies in the water area in the Arab World.

The meetings and training course were jointly organized by UNESCO Cairo Office, ALECSO, ISESCO, IHP Committee of Oman. Participants include representatives from 19 National Committees: Algeria, Bahrain, Egypt,

Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Qatar, Palestine, Saudi Arabia, Sudan, Syria, Tunisia, United Arab Emirates, Yemen. Representatives from many regional and international organizations (ALECSO, ACSAD, AOAD, ESCWA, WSTA and UNESCO) attended the meeting, as well as invited regional and international resource persons from Bahrain, Egypt, Jordan, Sudan, Syria and Yemen. A full list of the names and addresses of participants can be found in Annex 1.

2. Opening Session

The opening session of the meeting, started at 10:00 am on Sunday 23 September 2001 at Crown Plaza Hotel in Muscat- the Sultanate of Oman. The opening session was attended by key figures from the Sultanate of Oman, representative of regional and international organizations, delegates of IHP Committees, and key experts and resources people invited to attend meeting. The following distinguished representatives addressed the meeting: H. E. Hamad bin Suliman Al Gharibi, Undersecretary of the Ministry of Regional Municipalities, Environment and Water Resources, Dr. Radwan Al Weshah, Regional Hydrologist of the Arab Region (UNESCO Cairo Office), Dr. Bahlul Eliagoubi, Director of Science and Scientific Research (ALECSO) and Eng. Abdel Baqi Al Khaboui, Chairperson of Omani National Hydrological Committee. The full text of the opening addresses are found in annex 2, while the agenda of the meeting is reproduced in Annex 3.

3 Formal 9th Regional IHP Meeting

3.1 Introduction to the meeting

Dr. Salim Maksoud, chairperson of the ninth session of the Regional IHP Committee meeting for the Arab Region, addressed the meeting and welcomed the participants. He summarized the activities of the Arab IHP Committees for the past two years.

3.2 Election of Chairperson

Eng. Abdel Baqi Al Khabouri, Chairperson of the host IHP Committees was nominated to chair this meeting. All representatives seconded this nomination. No other nominations were received, and Eng. Al Khabouri was elected by acclamation. He then took up his function and continued to chair the 9th IHP meeting.

3.3 Election of three vice-chairpersons

The following vice-chairpersons were elected by acclamation: Eng. Omar Salem (Libya), Eng. Mohamed R. Almomani, (Jordan), Eng. Majed Benbiba (Morocco).

3.4 Adoption of the Agenda

The meeting adopted its agenda, as shown in Annex 3 of this report. Focusing on three main areas of concentrations: Wadi Hydrology, Groundwater Protection and the Arab Water Action Plan.

3.5 Determination of the method of work

The meeting adopted the proposed method of work. A drafting committee was elected to formulate recommendations for considerations in

the closing session of the meeting. Members of the drafting committee were: Dr. Abdallah Al Droubi (Syria), Dr. Madiha Moustafa (Egypt) and Dr. Rakad Ayed Ta'any (Jordan).

3.6 Secretariat Report of the IHP

Following the opening session, the Regional Hydrologist of UNESCO Cairo Office, Dr. Radwan Al-Weshah, reported on the progress achieved in UNESCO's IHP program since the 8th Regional Meeting of IHP covering the period (1999-2001). The participants reviewed and approved the execution of the recommendations of the 8th Regional Meeting (Annex 4).

Dr. Radwan Al Weshah presented an overview of IHP-V (1996-2001) activities within the reporting period. He also introduced the outline of the forthcoming IHP-VI (2002 – 2007) and the priorities for the Arab Region in this program. Dr. Radwan Al Weshah reported on the activities and development of UNESCO's Water Division in the Arab Region of the two regional networks on "Groundwater Protection" & "Wadi Hydrology". Through its hydrology programme, UCO is focusing its activities on the improvement of knowledge and capacity building in water resources management of arid and semi-arid zones in the Arab region. Groundwater Protection has been adopted by UCO as a concentration area. On the other hand, Wadi Hydrology has been incorporated into the workplan of the UNESCO's IHP as a global action under coordination of UCO. Consequently, two IHP-networks on Groundwater Protection and Wadi Hydrology have been established under the secretariat of the founding organizations: UCO, ALECSO, ACSAD and NWRC/RIGW. He gave the meeting a brief overview of UNESCO Cairo

Office's (UCO) publications during the last two years and explained UCO's activities in the preparation of extra-budgetary proposals and funding.

Dr. Radwan Al Weshah emphasized the cooperation achieved with many Regional Organizations during the past two years and expressed his thanks to all partners especially ALECSO and ACSAD.

His presentation was then discussed by the meeting and consequently approved the content of the Secretariat Report. The participants commended highly the outstanding performance of IHP Secretariat in Cairo and Paris.

3.7 Review of the report of the 14th Session of the IHP Intergovernmental Council and related follow-up actions

The 14th Session of the IHP Intergovernmental Council was held at the UNESCO Headquarter in Paris from 5 to 10 June 2000. The participants reviewed carefully the above-mentioned report and noted the follow-up actions required from their side. Specific inputs were given in the recommendation section, especially the actions to strengthen of the IHP National Committees. The participant adopted with appreciation the resolution no. XIV-4 concerning the "Establishment of a Regional Center for Water Studies and Training in Arid and Semiarid Zones" at the Training Center of the Ministry of Water Resources and Irrigation in Egypt. The participants stressed the importance of involving the Arab Region in all the UNESCO initiatives: FRIEND, PCCP, TRAM, IGRAC, JIHP, ISRAM, HELP And WWDR, and requested the IHP secretariat to take the necessary actions in this respect.

3.8 Review of the report of the 31st session of the IHP Bureau and follow-up actions

The 31st Session of the Bureau of the IHP Intergovernmental Council was held at UNESCO Headquarter in Paris from 19 to 21 September 2001. Eng. Majed Benbiba (Morocco), who had just arrived from this meeting, presented an overview of the interactions and recommendations of the meeting, among them:

- The Bureau confirmed the strong support of the IHP to establish the planned UNESCO-IHE institute for water education, and requested the secretariat to pursue the initiative in the sprite of council resolution XIV-10. It was also noted that the proposed institute would not place demands upon the regular IHP budget.
- The Regional Center for Water Studies and Training in Arid and Semiarid Zones (Egypt), will be formally considered by 162nd session of the executive board (October 2001).

He also mentioned views of some of the member states in the terms of reference related to IHP Governance Committees through the implementation of periodical regional meeting in different areas. In this respect, the participants raised that the Arab IHP National Committees are pioneer in these meetings, as they have a periodical regional meeting for the ninth time.

Eng. Benbiba also highlighted on the IHP-VI implementation plan and other activities, which were reviewed approved by the Bureau. He also mentioned that the coming 15th Session of the IHP Intergovernmental Council will be held in Paris from 17 to 22 June 2002.

3.9 Country reports and interventions

The representative of each country presented a report with specific emphasis on the activities of their committees. Country reports covered activities related to the three areas of concentration in the Arab region, namely Wadi Hydrology, Groundwater Protection and water resources management and policy issues.

3.10 Review of IHP-VI themes and regional priorities (2002-2007)

Dr. Radwan Al Weshah presented the details of the IHP-VI and the meeting discussed this subject at length. The meeting suggested priority areas and specific recommendations, which are summarized in the recommendation section (Annex 8).

3.11 Statements from UN and regional agencies

Representatives of ALECSO, ACSAD, AOAD, ISESCO and ESCWA gave a short statement on their organizations, and their current and forthcoming activities in the region. They have all confirmed their willingness and readiness to cooperate with IHP regional Networks and activities. They all thank the IHP Secretariat for their fruitful efforts.

3.12 Adoption of the recommendations

The meeting reviewed and adopted the recommendations shown in Annex 8 and they requested UNESCO Cairo Office to finalize the report and send the recommendations to the relevant targets.

3.13 Venue of the 10th regional IHP meeting

The Arab Republic of Egypt expressed

interest in hosting the forthcoming 10th Regional Meeting of the Arab IHP Committees in September 2003. UNESCO Cairo Office was requested to coordinate the organization of this meeting in coordination with the Egyptian IHP National Committee.

3.14 Closure of the meeting

The meeting closed its 9th Session on 26 September 2001. It expressed its appreciation to the Sultanate of Oman Government, IHP Committee and NATCOM for hosting the meeting. Thanks were also extended to UNESCO and ALECSO for supporting the meeting, the Chairperson for having conducted the sessions successfully and the Regional Hydrologist of IHP secretariat for the efficient preparations and running of the meeting.

4 Regional Training Course on: Numerical Groundwater Flow Modeling Using MODFLOW

As agreed by previous regional IHP meetings, a side activity was conducted during this meeting. A regional training course on groundwater modeling took place from Monday 24th to Sunday 30th of September 2001, at the training center of the Ministry of Regional Municipalities, Environment and Water Resources (MRMEWR), in Muscat-Oman. The organization is made by the coordinator of the Arab Groundwater Protection Network, in collaboration with representative of the Omani National Committee of IHP and the Arabian Gulf University in Bahrain.

The total number of participants were 23 trainees from ten Arab states (Egypt, Sudan, Syria, Yemen, Jordan, Bahrain Saudi Arabia, Morocco, Libya and Oman). Out of the total number of

participants, 12 trainees were fully sponsored by UNESCO, ALECSO, and ISESCO.

The training has been successfully carried out in a friendly atmosphere, the results obtained from the course evaluation questionnaire are found to be positive. The trainees had the opportunity to communicate and interact with the experts attending the 9th Regional Meeting of the Arab IHP National Committees and the Groundwater Protection Network meeting. (For more details about the course see annex 5).

5 Fifth Steering Committee Meeting of the “Network on Groundwater Protection in The Arab Region”

The fifth steering committee was held during the running activities of the 9th Regional IHP Meeting of the National Committees in the Arab Region and the Regional Training Course. Since the committee members were involved as resource persons in both activities, the sessions of the steering committee meeting were distributed over the afternoons and evenings from Sunday 23rd to Thursday 25th September 2001.

The main objectives of the steering committee meeting are:

- Follow-up on the Fourth Cairo meeting assignments.
- Review the technical publications under preparation.
- Plan for future activities in the framework of IHP-VI
- Prepare for the Network 3^{ed} Round Table Meeting.

A total number of 8 members have participated in the steering committee meeting (Egypt, Yemen, Sudan, Jordan,

Bahrain, Syria and Oman). The first issue of the Network Newsletter has been published and distributed during these events to all IHP participants. A copy of the news letter attached in Annex 6. It was agreed to hold the Third Round Table meeting in Cairo during September 2002. This activity will be a joint activity between the IHP-Networks, both “Wadi Hydrology” and “Groundwater Protection”. The TOR of this activity will be prepared jointly between the Regional Network Coordinators. The main theme will be “ Management of Wadi Aquifer Systems in the Arab Region” (For more details about the meeting see Annex 6).

6 The Arab Water Action Plan and Muscat Statement

A presentation was delivered by Dr. Radwan Al Weshah and Dr. Jean Khouri, Director of Water Studies of ACSAD, on the general framework of the Arab Water Action Plan for the 21st century to face the water scarcity and achieve the objective of the “sustainable” water development. This framework will be prepared in the form of technical project document. This document needs to be reviewed and approved by key decision makers in the Arab Region.

The framework document was distributed and consequently discussed by the participants, who raised many positive and good points. The meeting approved the framework of the Arab Water Action Plan and requested the IHP secretariat to prepare full technical project document. The framework is attached both in Arabic and English in Annex 7.

ANNEXES

ANNEX 1**List of Participants****The 9th Regional meeting of the Arab IHP National Committees
Muscat, Oman (23-26 September 2001)**

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60	Eng. Abulla Al-Rawahi	Ministry of Regional Municipalities, Environment and Water Resources (MRMEWR)	+ 968 9344547			Oman
61	Eng. Ali Mohsin	(MRMEWR)	+ 968 9454546		Abbnool@hotmail.com	Oman
62	Eng. Hassan Al Ajami	(MRMEWR)	+ 968 788853	+ 968 706782	hasajm@omantel.net.om	Oman
63	Eng. Mahaad Issa	(MRMEWR)	+968 226012	+ 968 9494772	Mahaad6@hotmail.com	Oman
64	Eng. Ahmed Al Malki	(MRMEWR)	Tel: 968 788853	+ 968 706782	alahmed@omantel.net.om	Oman
65	Eng. Ahmed Al Hinai	(MRMEWR)	+ 968 692411	+968 692462	Hinai75@ureach.com	Oman
66	Eng. Saleh Al Shoukri	(MRMEWR)	+968 701966	+ 968 702034	Saleh854@hotmail.com	Oman
67	Eng. Said Ahmed Al-Hattaly	(MRMEWR)	968 763305	968 575276		Oman

ANNEX 2

OPENING ADDRESSES

- **Dr. Abdel Baqi Al Khabouri**
Oman National IHP Committee Chairperson
- **Dr. Bahlul Eliagoubi**
Director of Science and Scientific Research, ALECSO
- **Dr. Radwan Al Weshah**
Regional Hydrologist, UNESCO Cairo Office
- **His Excellency Hamed bin Suliman Al Gharibi**
Undersecretary for The Ministry of Regional Municipalities Environment and Water Resources in Oman

OPENING ADDRESS

BY

Abdel Baqi Al Khabouri, the Chairman of Omani National Committee for International Hydrological Program (ONCIHP)

Your Excellency Hamed bin Suleiman Al Gharibi, Undersecretary for Regional Municipalities and Water Resources,

Your Excellency Dr. Bahlul Eliagoubi, Director of Science and Scientific Research, ALECSO,

Your Excellency Dr. Radwan Al Weshah, Regional Hydrologist, UNESCO Cairo Office,

Your Excellency Dr. Dongl Diallo, Representative of ISESCO Science program,

Distinguished representatives of the Arab Committees,

Distinguished representatives of the National, Regional and International Organization and Institutions,

Ladies and Gentlemen

On behalf of the Ministry of Regional Municipalities, Environment and Water Resources and ONCIHP, I would like to welcome you in your second country Oman. I would like also to thank H.E. Hamed bin Suleiman Al Garibi for sponsoring this significant event and his continuous encouragement to ONCIHP activities that resulted in the successful completion of these works.

In view of the Arabian Countries coming under increasing pressure as a result of

water demand increase during the present time and future due to human population growth (from 78 million in the year 1950 to 292 million in the year 2000 and expected to rise up to 500 million person in the year 2025), therefore, this water demand increase represents a challenge to the governments of the Arabian Countries in providing these requirements.

On the basis of the above, the water issue in the Arab World shall be one of the priorities during the 21st century as it is considered an essential element for the development operation.

For the attainment of the sustainable future vision, the efforts and cooperation should be doubled in order to implement the Arabian regional plans.

From this point and from Oman Government recognition of water significance and from over drafting and pollution in addition to the necessity from the spreading of water awareness among all people, the formation of ONCIHP, which I chaired, was approved in the year 1997. The committee includes (11) members from various governments bodies and private sectors having relations with water issues.

ONCIHP has contacts with Arabian and International Agencies and Organizations concerned with water issues for the objectives of data and experience exchange

in order to increase the technical information on the water resources field.

As this meeting is the first in type which , we therefore apologize for any inadequacy.

ONCIHP also thanks all the agencies participating in organizing this meeting and for the support they provided particularly the following:-

- ALESCO
-
- ACSAD
- ISESCO

The meeting shall discuss the works achieved by IHP since the 8th meeting in

addition to the challenges facing the Arabian Countries in regard to water resources.

This conference represents a chance for the Arab experts for showing the ideas and views about the water issues in the Arab World. From this point, the Arabian Network Committee for and the Regional Network Committee for Groundwater Protection shall hold their meeting during this conference. A training course in the field of groundwater modeling shall be held during the same time.

We hope all the success for the conference.

OPENING ADDRESS

BY

**Bahlul Eliagoubi, Director of Science and Scientific Research ,
ALECSO**

Your Excellency Hamed Bin Suliman Al Gharibi, Undersecretary of the Ministry of Regional Municipalities, Environment and Water Resources

Your Excellency Dr. Radwan Al Weshah, Regional Hydrologist, UNESCO Cairo Office

Your Excellency Dr. Dongl Diallo, Representative of ISESCO Science program

Your Excellency Eng. Abdel Baki Al Khabouri, Chairman of Oman National Committee of IHP

Distinguished representatives of the Arab IHP National Committees

Distinguished representatives of the National, Regional and International Organization and Institutions

Ladies and Gentlemen

Al Salam Alikom Wa Rahmat Allah Wa Barakatoh

On behalf of the Arab Organization for Education, Culture and Sciences, it is my honor to greet this respectable meeting and to convey the greeting of H.E. Dr.El Mongy Bosnena, General Director, and his wishes for a successful and fruitful meeting, aiming at reducing the stress of water shortage and the development of our

water resources in the Arab region.

Respectable meeting,

Here we are to meet again in the "9th Regional Meeting of the Arab IHP National Committee" which held in a close support and fruitful cooperation between the Arab Organization for Education, Culture and Sciences (ALECSO) and the United Nations Education, Scientific and Cultural Organization (UNESCO). This time we meet in another great location in our Arab World, Sultanate of Oman. A sincere greeting for His Majesty Al Sultan Qabous Bin Said and his government and the people for their kind invitation to host the meeting in Oman, and also for their hospitality and efforts in organizing this meeting.

Honorable guests, Ladies and Gentlemen:

There is no doubt about the importance of water and its fetal role in the development and establishment of civilizations. Water is life, this is clearly mentioned in the Holly Quran. I have no doubt that all of us, as experts and responsible for water resources in our countries, never forget this fact.

Ladies and Gentlemen

This 9th meeting is very important for many reasons, among them that water resources

in the Arab region have been decreased both quantitatively and qualitatively due to internal and external reasons. More efforts are needed to evaluate the present situation and prepare a specific program to overcome these crucial problems. New methodologies and means must be considered.

Ladies and Gentlemen

The Arab Organization for Education, Culture and Sciences is expecting a lot from this meeting. We hope to detect the role which we have to play in the next stage, specially that our 74th executing agency approved initially that the highest priority subjects for ALECSO will be water resources development and facing the stress of water scarcity in the Arab Region. We, as usual and as far as we can, are ready for more cooperation with our sincere partner UNESCO, ACSAD and the Arab IHP National Committees to achieve our goals.

Before concluding my speech, I reiterate my sincere appreciation to his Majesty Al Sultan Qabous Bin Said and the government and the people of Oman. Great thanks extends to His excellency Mr.

Saoud bin Ibrahim Al Bousaidy, chairman of the Omani National Committee for Education, Culture and Sciences and its general secretary, Dr. Ahmed bin Amer bin Mansour Al Rawas for their permanent support and cooperation. A great thanks also is a must for Dr. Abdel Kader Bki for his efforts in organizing this meeting. Great thanks and appreciation extends to Dr. Sazollosi Nagy, Director of International Hydrological Program and his Deputy Dr. Abdin Saleh as well as Dr. Radwan Al Weshah, the Regional Hydrologist in UNESCO Cairo Office for their continuous support and close cooperation to organize and implement this meeting.

Great thanks and appreciation extends also to our partners in Wadi Hydrology Network and Groundwater Protection Network, for their continuous cooperation with ALECSO and the implementation of several fruitful and successful activities in the field of water resources development in the Arab region. Also thanks extended to all representatives of the Arab IHP National Committees.

**Thank you & Al Salam Alikom Wa
Rahmat Allah Wa Barakatoh**

OPENING ADDRESS
BY
Dr. Radwan Al-Weshah, Regional Hydrologist,
UNESCO Cairo Office

Your Excellency Hamed Bin Suliman Al Gharibi, Undersecretary for Regional Municipalities and Water Resources

Honorables:

Dr. Bahlul Eliagoubi, Director of Science and Scientific Research, ALECSO

Dr. Diallo, Representative of ISESCO Science Programme

Mr. Abdel Baqi Al-Khabouri, Chairperson of the IHP Committee in Oman

Distinguished representatives of the Arab IHP Committees

Distinguished representatives of the National, Regional and International Organizations and Institutions

Honorable guests, Ladies and Gentlemen:

It is both a great honor and a pleasure for me to be among you today in the opening session of this ambitious and timely event, the 9th regional meeting of the IHP committees in the Arab States. I would like to welcome you all in the name of UNESCO, and I convey to you the greetings of the Director General, Dr. K. Matsuura, Dr. Andras SZOLLOSI-NAGY, Director of Water Science Division in UNESCO, Dr. Muhamed El-

Deek, Director of the UNESCO Cairo Office, and Dr. Abdin Salih the Deputy Secretary of the IHP. They all are assuring you of their full support and commitment to implement all relevant recommendations that would result from this important meeting.

I joined the IHP secretariat as the regional hydrologist in the Arab States about 15 months ago, as a successor to my colleague and friend Dr. Abdin Salih, who was promoted to a higher position as the Deputy secretary of IHP in Paris. I am sure that he will continue to be a valuable asset for the Arab region in his current post.

Please allow me first to extend my thanks and appreciations to the Omani authorities for kindly hosting this important meeting and providing all facilities to make our meeting fruitful and enjoyable. Special thanks are due to the National IHP committee and its chairperson in Oman for their great efforts and arrangements. I would like also to acknowledge the support and the efforts of ALECSO, a long-term partner of UNESCO in implementing this meeting and many other activities.

Our topic deserves all our interest and attention since water is one of the vital issues that affect everybody. Although the water issue is a priority to various regions in the world, it is one of the highest priorities for our region. About 75% of the Arab World area receives less than 200 mm

of rainfall annually. Furthermore, more than 80% of the Arab countries fall under the water poverty level on the per capita basis of 1000 cubic meter of freshwater per capita per year. Half of them are below the water stress level of the 500 cubic meter per capita per year.

Distinguished Participants and Honorable Guests,

At UNESCO, the water issue has been addressed more than 36 years ago. The International Hydrological Programme (IHP), UNESCO's intergovernmental scientific co-operative programme in water resources, is a vehicle through which Member States can upgrade their knowledge of the water cycle and thereby increase their capacity to better manage and develop their water resources.

It also aims at the improvement of the scientific and technological basis for the development of methods for the rational management of water resources. We are now at the end of the IHP-V Programme (1996-2001), which has been set out to stimulate stronger interaction between scientific research, applications and education. The emphasis has been on environmentally sound integrated water resources planning and management support through a scientifically proven methodology. The main theme of this programme

Resources Development in a Vulnerable

Ladies and Gentlemen,

In the development of its various phases, IHP has gone through a profound transformation from a single discipline to a multi-disciplinary programme. Recently, with the increased presence of the social

science component, IHP has become a truly inter-disciplinary programme, capitalizing on the recognition that the solution of the world water problems is not only a technical issue. The next phase of IHP, namely IHP-VI, covering the period 2002-2007, is therefore planned to be devoted to "Water Interactions : Systems at Risk and Social Challenges". Five themes have been adopted and two cross cutting programme components have been approved, significantly titled: FRIEND (Flow Regimes from International Experimental and Network Data) and HELP (Hydrology for Environment, Life, and Policy).

Further, UNESCO Cairo Office has striven to implement the recommendations of IHP-V, by focusing on two top concentration areas of Wadi Hydrology and Groundwater Protection (as well as post graduate training courses and capacity building). On the side of this meeting we are conducting a regional training course on groundwater modeling supported by ISESCO, ALECSO and UNESCO. More than twenty participants from the Arab World are participating in this training. The training is implemented by the UNESCO Cairo office and the Arab Network on Groundwater Protection with help from the Arabian Gulf University.

Distinguished Participants and Honorable Guests,

In this meeting we will address various important issues related to IHP in the Arab World. We will discuss IHP activities during the IHP-V phase and define the contribution of the Arab States to IHP-VI. Steering committee meetings of the GWPN and the Wadi Hydrology Network will be organized on the side of this meeting.

Another important and urgent issue that we will be discussed in this meeting is the frame work of the Arab Water Action Plan for the 21st Century to achieve the

development. There is a critical need for collaboration and well-focused regional efforts, for implementing a regional action plan, which supports national efforts. This plan is centered around three axes:

1. Adaptive research program for addressing water problems and developing appropriate solutions; technically, economically and socially.
2. Program for capacity building and technology transfer aiming at improving planning and management, building human and institutional capacities, education of the public and enhancing the effectiveness and role of the civil society for dealing appropriately with the precarious water situation.
3. Program for development of water-related information systems, aiming at improving the knowledge and information base pertaining to research and appropriate relevant technologies.

Pioneering work in this regard was started through the concerted efforts of the Arab

and international organizations, such as UNESCO Cairo Office, the Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), the Arab League Educational, Cultural and Scientific Organization (ALECSO). These efforts have led to the establishment of two Arab networks, one in the area of wadi hydrology and the other in the field of groundwater protection. The two regional networks have implemented important activities which include research, human resources development and exchange of experience at the Arab Region level. The achievements and experience gained within these networks could be shared and utilized as a model or a nucleus for future initiatives and action plans in the region.

In conclusion, I reiterate my sincere appreciation to our Omani host and to the respective delegates and sponsors of this important meeting, especially ALECSO.

I sincerely hope that our meeting will be beneficial and fruitful to all.

Thank you and God bless you all!

OPENING ADDRESS

BY

His Excellency, Hamed bin Suleiman Al Gharibi, Undersecretary for Regional Municipalities and Water Resources of Oman

Your Excellency
Experts of water issues
Representatives of Regional and
International Organizations
Our Distinguished Guests
Ladies and gentlemen

On behalf of MRMEWR and ONCIHP, I would like to welcome you in the opening ceremony of the 9th Meeting of Arabian National Committees for International Hydrological Program, which Oman is proud to host and organize in cooperation with UNESCO, ALESCO, ISESCO as well as ACSAD.

You are well aware of water significance progress and development particularly in the Arab World, which is located in the arid semiarid zone and characterized by limited and scarce water resources. Nevertheless, the Arabian States are experiencing an accelerated economical and social growth that necessitates water demand increase in all sectors.

Based on the above, the water resources management, demand management and the concern about all water issues and future under this situation of water scarcity and limitation, are all seems of utmost significance. Taking all this in account,

therefore, your meetings for discussing these issues and exchanging information and experiences in this field, are considered of prime importance and necessitate a comprehensive approach for addressing water related problems in order to reach a joint clear understanding of the problems facing the water resources in the Arab World and propose the appropriate recommendations and mechanisms for solving current and future water issues.

Certainly, we are confident that this meeting shall be plat form for constructive discussion where the considerable theoretical and practical experience and knowledge of the experts participating in the meeting shall be adequate for enriching the discussion and suggesting favorable proposals.

In the end, we wish all the success for your meeting and an enjoyable time for our guests in Oman. I would like also to express my thanks and appreciation to all participants for their positive response to the invitation for participation and to the representatives of Regional and International Organizations, whether those who cooperated with concerned in Oman in organizing this important event or those who participated in it.

ANNEX 3**Meeting Agenda****The 9th Regional Meeting of the Arab IHP National Committees
Muscat, Oman (23-26 September 2001)****Saturday 22/09/2001**

- Arrival of Participants to Muscat, Oman
- Early Registration to the Meetings and Welcome Reception

Sunday 23/09/2001**Opening Session**

- | | | | |
|-------|-------|---|---|
| 08:00 | 09:30 | ➤ | Registration |
| 09:30 | 10:30 | ➤ | Opening Session <ul style="list-style-type: none"> ▪ Chairperson of Omani IHP (Mr. Abdel Baqi Al Khabouri) ▪ Regional Hydrologist, UCO (Dr. Radwan Al Weshah) ▪ ALECSO (Dr. Bahloul Eliagoubi) ▪ IHP Paris (Dr. Abdin Salih) ▪ His Excellency, Patron of the Meeting |
| 10:30 | 11:00 | ➤ | <i>Coffee Break</i> |

Organizational Matters (Chairperson Dr. Salim Macksoud/Dr. Meshan Al Eteiby)

- | | | | |
|-------|-------|---|--|
| 11:00 | 11:30 | ➤ | Statement by Chairperson of the Eighth IHP Meeting (Dr. Salim Macksoud) |
| | | ➤ | Election of the Chairperson |
| | | ➤ | Election of three Vice-Chairpersons |
| | | ➤ | Adoption of the Agenda |
| | | ➤ | drafting group to formulate the major findings, criteria and discussions |
| 11:30 | 12:00 | ➤ | Report from the Secretariat on the IHP implementation since the 8 th IHP Meeting (Dr. Radwan Al Weshah) |
| 12:00 | 12:30 | ➤ | Report on the 31 st IHP Bureau Meeting and the 14 th IGC |

IHP (Dr. Radwan Al Weshah and Mr. M. Benbibba)

- Discussion of the Reports

12:30 14:00 ➤ ***Lunch Break***

Statements by Organizations (Chairpersons Dr. Bahloul Eliagoubi/Dr. Rawya Kansoh)

- 14:00 14:30 ➤ Statement by ALECSO (Dr. Bahloul Eliagoubi)
- 14:30 15:30 ➤ Statement by International Agencies ACSAD, AOAD,

15:30 16:00 ➤ ***Coffee Break***

UNESCO Cairo Office Activities (Chairpersons Mr. A. Al Khabouri/Dr. Jean Khouri)

- 16:00 16:30 ➤ Report on the regional extra budgetary Project (Palestine and FRIEND Nile) by Dr. Radwan Al Weshah
- 16:30 17:00 ➤ Groundwater Protection Network Activities (Dr. A. Khater)
- 17:30 18:30 ➤ Steering Committee Meeting of Groundwater Protection Network

20:00 ➤ ***Hosted Dinner***

Monday 24/09/2001

Arab Water Action Plan (Chairpersons Dr. Omar Salem/Dr. Abdel Aziz Al Kahlan)

- 09:00 10:00 ➤ Introduction (Regional Hydrologist)
- Keynote Presentation (Dr. Jean Khouri)
- 10:00 11:00 ➤ Floor Discussion
- 11:00 11:30** ➤ ***Coffee Break***

Country Action Plans (Chairpersons Dr. A. Salman Hussein /Eng. M. S. Taher)

- 11:30 12:30 ➤ Country Reports 1

12:30 14:00 ➤ ***Lunch Break***

Country Action Plans (Chairpersons Dr. A. El Haj Ismael/Dr. E.A Yousef)

- 14:00 15:00 ➤ Country Reports 2 (Strategies and Management)

15:00 15:30 ➤ ***Coffee Break***

Finalization Session (Chairperson Eng. Omar Salem/ Eng. A. Dorabi)

-
- | | | | |
|--------------|-------|---|--|
| 15:30 | 16:30 | ➤ | Floor Discussion and Finalization of the Statement |
| 16:30 | 17:00 | ➤ | Country Reports 3 (Managements) |
| 17:30 | 18:30 | ➤ | Steering Committee Meeting of Wadi Hydrology Network |
| 20:00 | | ➤ | <i>Hosted Dinner</i> |

Tuesday 25/09/2001

Session on Groundwater Protection (Chairperson Dr. Ahmed Khater/Dr. Djemili El Batti)

- | | | | |
|--------------|--------------|---|--|
| 09:00 | 10:00 | ➤ | Key Presentation (Dr. Ahmed Khater) |
| 10:00 | 11:00 | ➤ | Country Reports 4 (Groundwater Activities) |
| 11:00 | 11:30 | ➤ | <i>Coffee Break</i> |

Country Reports (Chairpersons Mr. M. Al Momani/ Dr. Madiha Hassan)

- | | | | |
|--------------|--------------|---|--|
| 11:30 | 12:30 | ➤ | Country Reports 5 (Groundwater Activities) |
| 12:30 | 14:00 | ➤ | <i>Lunch Break</i> |

Session on Wadi Hydrology Network (Chairpersons Dr. Mosbah Mohamed /Dr. M. Nuseibeh)

- | | | | |
|--------------|--------------|---|---|
| 14:00 | 14:30 | ➤ | Wadi Hydrology Activities (Dr. Jean Khouri) |
| 14:30 | 15:30 | ➤ | Country Reports 6 (Wadi Hydrology) |
| 15:30 | 16:00 | ➤ | <i>Coffee Break</i> |

Country Reports Session (Eng. A. F. Al Ansary/Mr. S. A. Al Hassan)

- | | | | |
|--------------|-------|---|--|
| 16:00 | 17:00 | ➤ | Country Reports 7 (Wadi Hydrology) |
| 17:00 | 18:00 | ➤ | Joint Meeting of Steering Committees of Wadi Hydrology and Groundwater Protection Networks |
| 20:00 | | ➤ | <i>Hosted Dinner</i> |

Wednesday 26/09/2001

Concluding Sessions (Chairpersons Dr. M. Benbiba /E. A. Yousef)

- | | | | |
|--------------|--------------|---|--|
| 09:00 | 09:30 | ➤ | Review of IHP-VI Themes and priorities |
| 09:30 | 10:30 | ➤ | Floor Discussion to Identifying Regional Priorities, Criteria for Evaluation, and Issues of IHP Governance |
| 10:30 | 11:00 | ➤ | <i>Coffee Break</i> |

Final Session (Chairpersons Mr. Abdel Baqi Al Khabouri/Dr. Salim Macksoud)

- | | | | |
|--------------|--------------|---|--|
| 11:00 | 11:30 | ➤ | Statement on the Arab Water Action Plan |
| 11:30 | 12:30 | ➤ | Adoption of Final Report and Recommendations |
| | | ➤ | Selection of Place and Time for the 10 th IHP Meeting |
| | | ➤ | Closure of the Meeting |
| 12:30 | 14:00 | ➤ | <i>Lunch Break</i> |
| 14:00 | | ➤ | <i>Field Trip / Free Time in Muscat</i> |

ANNEX 4**Summary Report from the Secretariat to 9th Regional Meeting of the IHP (1999-2001)****UCO/HYDROLOGY PROGRAMME ACTIVITIES
(September 1999 1999)**

Event	Theme	Participants	Date	Country
Three-month International Course on Hydraulic Engineering and River Basins"	2&5	17	Sept.	Egypt
Eighth Regional Meeting of the Arab National Committees of the International Hydrological Programme (IHP) of UNESCO.	3&5	19	Sept.	Lebanon
International Conference on "Regional Aquifer Systems in Arid Zones, Managing Non-renewable Resources"	5	More than 600	Nov.	Libya

UCO/ HYDROLOGY PROGRAMME ACTIVITIES IN YEAR 2000

Event	Theme	Participants	Date	Country
Regional Training course on "Policy Issues in water Demand Management and their Implementation"	5	13	May	Leb.
"Joint Harmonization Meeting of Groundwater Protection and Wadi Hydrology"	3&5	5 Arab Countries	May	Jordan
International Course on Wadi Hydrology: "Water Harvesting and Artificial Recharge"	5	12 from 6 Arab Countries	May	Jordan
Fourth Short-term training Course on "Groundwater Hydrology and Pollution"	3	18 from the Arab Region	May/ June	Bahrain
20 th International Post Graduate training course on "Environmental Hydrology for Arid and Semi-Arid Regions"	5	21	May/ July	Egypt
14 th Session of intergovernmental Council of IHP	IHP	6 Delegates from Arab states	June	HQ-Paris
The "Fourth Steering Committee meeting of the FRIND- Nile project"	1	19	Aug.	Egypt
"Annual Steering Committee meeting of the groundwater Protection Network in the Arab Region"	3	10	Sept.	Egypt
"4 th Training Course on Groundwater Protection"	3	29	Sept.	Egypt

UCO/ HYDROLOGY PROGRAMME ACTIVITIES IN YEAR 2000

Event	Theme	Participants	Date	Country
Seminar on "Water and Environment"	2	100	Oct.	Yemen
Training Course on " Watershed Modelling System"	5	20	Nov.	Iraq
"The International conference on Wadi Hydrology"	5	More than 230 participants	Nov.	Egypt
Annual Steering Committee Meeting of the Wadi Hydrology Network"	5	10	Nov.	Egypt
"Advisory Group Meeting (AGM) on Isotope Hydrology"	3	IAEA and Various Unorg.	Dec.	Austria

HYDROLOGY PROGRAMME ACTIVITIES IN YEAR 2001

Event	Theme	Participants	Date	Country
Workshop on "Water Resources Pollution and its Control Strategy"	Thematic	60	Feb.	Egypt
Study on "Sand Dunes movement and Mitigating their effect of human settlements and River Nile course in Northern Sudan"	2 (Interdiscip IHP/MAB/G EO)	Advisory Mission	Feb.	Egypt and Sudan
Sudan and Egypt consultancy mission on the interdisciplinarity Project on Sand Dunes Encroachment on the Nile river.	2 (Interdiscip IHP/MAB/G EO)	Advisory Mission	Mar/April	Egypt and Sudan
The First International Workshop and Conference on "Salt Water Intrusion and Coastal Aquifer"	3	More than 100 Experts	April	Morocco
Workshop on "Engineering Aspects of Water Harvesting in Arid and Semiarid Environments"	5	28	May	Egypt
Training on "Environmental Hydrology for Arid and Semi Arid Regions"	5	13	May	Egypt
Preparatory Mission for the 9 th IHP Meeting planned in Oman in September 2001, Muscat, Oman. The profile, agenda and venue of the meeting has been finalized.	3&5	3	June	Oman
Training Course on "Watershed modelling system (WMS)" Amman, Jordan	5	22	June	Jordan
International Annual 3-month training course "Hydraulic Engineering in River Basins"	5	20 (14 from countries)	Sept.	Egypt

Annex 5

Regional Training Course on: Numerical Groundwater Flow Modeling Using MODFLOW (24-30 September 2001, Muscat, Oman)

IHP- Regional Network on Groundwater Protection in the Arab Region

Upon an initiative of the sixth Regional meeting of the International Hydrological program (IHP) Committees of the Arab countries held in Jordan in December 1995, groundwater protection has been endorsed as a priority subject. This is manifested by the issues addressed in the fifth cycle of the international hydrological program of UNESCO (IHP-V). Groundwater Protection has been adopted by UNESCO Cairo Office as a concentration area of its 1996/97 program in hydrology. Consequently, the IHP-Network on GroundWater Protection in the Arab Region (NGWP) has been established under the secretariat of the founding organizations: UCO, ALECSO, ACSAD and NWRC/RIGW. The Research Institute for Groundwater (RIGW) serves as the regional coordinator of NGWP. The Network is aiming to achieve the following overall objectives:

- Assist in strengthening and coordinating research activities in related areas within the Arab region.
- Assist in technology transfer, dissemination and exchange of information on the state-of-the-art in related areas.
- Strengthening human resources and institutions in the Arab region through training and capacity building activities at various levels.

2. Actions for Implementation of The Training Course

The training course took place from Monday 24th to Sunday 30th of September 2001, at the training center of the Ministry of Regional Municipalities, Environment and Water Resources, in Muscat-Oman. The organization is made by the Regional coordinator of the Groundwater Protection Network in collaboration with Eng. Abdel Baki Al-Khabouri, representative of IHP National Oman Committee. Two committees were responsible for the implementation of the training course, an advisory committee and an executive committee; as follows:

The advisory committee:

- | | |
|-------------------------|-----------------------------|
| 1. Dr. Radwan Al Weshah | UNESCO Cairo Office |
| 2. Dr. Bahlul Eliagoubi | Director of science, ALECSO |
| 3. Dr. Faiq Bilal | ISESCO Science programe |
| 4. Dr. Ahmed Khater | Network Coordinator |

The executive committee:

1. Dr. Waleed Al Zubari	Principal instructor
2. Dr. Gamal Abdo	Assistant instructor
3. Dr. Akram Fekry	General Secretariat

2.1. Training Objectives

- To contribute to rational development and management of groundwater resources
- To promote national, sub-regional, and regional cooperation in groundwater studies and capacity building.

Short-term objectives

- To upgrade the practical capabilities of the young professionals on the use of groundwater flow modeling as a tool for groundwater planning and management.
- To provide an extensive hands-on training on one of the most popular groundwater modeling software packages known as MODFLOW.

2.2 Main Training Topics

The main training topics covered during the course are as follows:

- Review of groundwater hydrology principals.
- Groundwater flow modeling overview.
- Groundwater flow equation / The finite difference method
- Groundwater flow modeling application (2 case studies from Sudan).
- Groundwater flow modeling applications (about 15 exercises).
- Closing remarks and discussions (including Certificates).

2.3 Participants

Application for the training course was announced and circulated to all national committees by the UNESCO Cairo Office (UCO). Applications were also received through the sister sponsoring organizations ALECSO and ISESCO. In the selection of accepted applications, academic qualifications and professional background, as well as geographical distribution were considered (this was done by UCO/RIGW joint committee). The Oman Ministry of Regional Municipalities, Environment and Water Resources nominated participants from Oman. The selected participants (see Annex III) are professionals directly or indirectly involved in research

and implementation of aspects related to groundwater modeling. The total number of participants reached 23 trainees from the Arab region (Egypt, Sudan, Syria, Yemen, Jordan, Bahrain Saudi Arabia, Morocco, Libya and Oman). Out of the total number of participants, 12 trainees were fully sponsored by UNESCO/ALECSO/ISESCO.



Figure 1. Group of Participants in The Training Center

2.4 Conclusions and Recommendations

Conclusions:

General Remarks

The training has been successfully carried out in a friendly atmosphere. It was found very useful in many ways:

- 1) It has brought together professionals from all over the Arab Region to discuss, exchange and understand issues facing the region related to groundwater resources planning and management and the role of modeling in this respect.
- 2) Facilities provided by the hosting Omani side were a major contribution to the healthy atmosphere and trainees enthusiasm throughout the course, irrespective of the heavy workload and long working days.
- 3) The trainees had the opportunity to communicate and interact with the experts attending the 9th Regional Meeting of the IHP National Committees and the Groundwater Protection Network meeting.

Evaluation of the Training

Evaluation of the training course in terms of meeting objectives and fulfilling needs and requirements is based on systematic assessment and ranking of the various elements of the training by the trainees. This has been achieved through a questionnaire filled by the trainees

upon completion of the course. Results obtained from the course evaluation questionnaire are found to be positive. Major conclusions drawn from the trainees-based evaluation are summarized below:

- 1) Course organization and provided training facilities were highly appreciated by all participants.
- 2) The general opinion is that the course coverage met the training needs of the majority of the participants. On the other hand, no difficulties with the course contents have been encountered.
- 3) The training procedures and implementation have been judged compatible with the
- 4) The supplied course material is classified as highly satisfactory and comprehensive. The presentation style of the lectures varied in ranking from excellent to good, in general.
- 5) The majority of participants demanded extra time to be allocated for the extensive hands-on exercises and applications.
- 6) Applied case studies presented by the resource persons were in the major interest to the majority of the participants.
- 7) All trainees participating in the course have completed the training course successfully. An example of the awarded certificate is shown in Annex V.

Recommendations:

The trainees in the evaluation questionnaire express the following main recommendations:

- 1) The course duration could be extended to include training modules on the modeling of solute transport and well field protection zones.
- 2) The training should proceed to further advanced levels in order to acquire a better command of modeling skills.
- 3) Future training should spare extra time to include applications of the modeling techniques to real groundwater field problems in the Arab Region.

ANNEX 6

Groundwater Protection in The Arab Region

1. Introduction

The fifth steering committee was held during the running activities of the 9th Regional Meeting of the National Committees in The Arab Region and The Regional Training committee members were involved as resource persons in both running activities, the steering committee meeting was distributed over the afternoons and evenings from Sunday 23rd to Thursday 25th September 2001.

The main objectives of the meeting are as follows :

- Follow-up on the fourth Cairo meeting assignments.
- Discussion the technical documents under preparation.
- Planning for future activities in the framework of IHP-VI
- Preparation for the Network 3^{ed} Round Table Meeting.

2. Participation

The steering committee members, nominated previously on regional basis, are maintained for continuity. For specific reasons only one member could not attend this 8 members have participated in the meeting (Egypt, Yemen, Sudan, Jordan, Bahrain, Syria and Oman).

2.1 Actions

According to the meeting agenda and the schedule of activities, the following actions have been adopted:

Day One:

Follow up on Technical publications



printing action.



has been finalized by Dr. Adballah Al Droubi (Syria). Still some figures are missed (action: Dr. Yussef Al-Muji). After discussion with Dr. Bahlul Al-yagubi, Both the

UNESCO Cairo Office and ALECSO will share the printing cost. The printing process will be in Egypt under the direct supervision of the Network Coordinator.

Network Training Programs

Efforts of the Groundwater Protection Network for the organization and implementation : Numerical Groundwater Flow Modeling using

representative of the IHP National Oman Committee, for his efforts in the organization of the training course.

After discussions, it agreed with Dr. Radwan Al Weshah to re-schedule the Official Network training courses as follow:

- The fifth regional training course on Groundwater Protection will be held in Cairo during February 2002 (organized by the Research Institute for Groundwater).
- 2002 (organized by the Arabian Gulf University).

Network Data Base

The database is ready to be housed with the countries information. Extended discussions on the mechanism to acquire the required information took place. It was agreed that the UNESCO Cairo Office will indicate supply of the required information on the publications and the professionals working in the field of

It is agreed also that Dr. Waleed Al Zubari, will provide all the available information for the Gulf Countries from the proceedings of the past five Gulf Water Conferences. RIGW will start with the available information for Egypt. The Network Regional Coordinator will supervise these efforts.

Network Newsletter

The first issue of the Network Newsletter has been published and distributed during these events. The Network founding organizations (UCO/ ALECSO/ACSAD) appreciated the efforts of Dr. Khater in editing and publishing the Newsletter. The newsletter is open for the contribution from all the network members. New Arabic version is requested. The long-term plans are to provide the newsletter in three issues per year on January, May and September. (see Annex VII)



Figure 2. Network Steering Committee Group

Technical Documents under Preparation

The technical documents under preparation are:

- Systematic Approach to Modeling
- Systematic Approach to Monitoring
- Manual on Monitoring Procedures

After a detailed technical discussions of all the above mentioned documents, it was agreed that:

- Dr. Waleed Al Zubari and Dr. Ahmed Khater will prepare a zero draft for again by e-mail.
- 2001.
- Dr. Yussef Al Muji will take the responsibility of compilation of the document.

Day Two:

Planning for Future Activities

Dr. Radawan Al Weshah presented the framework of the IHP-VI. Dr. Khater also mentioned that he was invited by the UNESCO Headquarter in Paris to contribute in an Expert Working Group meeting, which was organized to discuss, review and

The experts group meeting was held during 17-19 May, 2001 at UNESCO Headquarters in Paris, with participation of the invited experts as well as representatives of related international non-governmental scientific organizations (IHP-Network on Groundwater Protection in the Arab Region, IAH, IAHS). The meeting, in consideration of the present issues related to groundwater resources assessment and management, role of groundwater as a source in meeting the steadily increasing demand for water as well as future scientific and research needs in this specific field, had the main objectives of reviewing and discussing the Draft Plan and to identify specific activities, tasks and priorities in the field of groundwater that would fit into the overall vision and mandate of the IHP-VI.

Against the above given background and vision, the meeting reviewed in detail the draft plan to identify the activities that would be most relevant and desirable for

A Total of 45 activities distributed ov

the IHP-VI (for more details, see annex VIII).

The meeting agreed that future activities for the Network would be in the framework of the IHP-VI proposed activities.

Preparation for the 3rd Round Table Meeting

It was agreed to hold the Third Round Table meeting in Cairo during September 2002.

between the Regional Network Coordinator and Dr. Fatma Attia. The main theme will office will provide partial financial support, and will assist the Network coordinator to seek the support of other agencies.

Day Three:

Meeting Concluding Remarks

1. The technical documents under preparation will be completed, revised and made ready for publishing by mid next year 2002. However, financial support to cover the cost of printing should be sought.
2. The two regional training courses of the training programs under the UNESCO umbrella are major achievements of the network and will be implemented in Cairo and Bahrain in February and May 2002, respectively.
3. It was agreed that the UNESCO Cairo Office will indicate supply of the data base required information, on the publications and the professionals working in the field
the art: Case Studies in the
4. A Third Roundtable Meeting is approved to be held as a joint activity between the

agreed to hold the round table in Cairo during September 2002. The Network Coordinator will prepare the TOR. This meeting will also discuss and evaluate the last 5 years activities of the IHP networks.
5. The next Steering Committee Meeting will be within the framework of the third roundtable meeting, with the focus on anticipated contribution of the Network in the coming activities of the IHP-VI.

ANNEX 7**Arab Water Action Plan (AWAP)
Draft Proposal****MUSCAT STATEMENT****(Working Paper Summary)**

Representatives of the national committees of the Arab Countries participating in the 9th Regional Meeting of the Arab National Committees of the International Hydrological Programme, convened in Muscat 23-26 September 2001, reviewed the current water situation and the future of water resources in the 21st Century. The participant

Noting that the high population growth rate during the period 1995-2000 has resulted in doubling of Arab population every 26 years. The population in the Arab World increased from 78 million inhabitants in 1950 to 292 million in 2000, and according to Arab and International sources the Arab population will reach about 500 million in the year 2025, in spite of expected decreasing growth rates.

Considering the Increased withdrawal from surface and groundwater sources to meet growing demand commenced in the 1960s, and during the last two decades of the 20th century mounting pressure on groundwater in the Arabian Peninsula has lead to the depletion of a significant part of the strategic reserves of non-renewable water resources.

Recognizing, that the provision of water supplies to the human population and development, has been one of the fundamental factors for achieving an important social and economic development in the Arab Region. Provision of safe water supplies has also improved health status and enhanced the standard of living of the rural communities involved in agricultural activities.

Recalling that the accelerated economic development was based, in the first rank, on intensive development of the water resources. The balance between availability and demand has not received adequate attention. The discharge of increasing quantities of polluted agricultural drainage water and domestic or industrial wastewater without adequate treatment, has caused severe damage to the environment and health, including extensive salinization and widespread pollution.

Expressing Concern that the problem resulting from misuse of water resources in the past century will persists in the first decade of the 21st century, and the severe damage to the environment and health may be sustained by increased pressure, unless effective measures are taken to address them. There is a growing recognition that water

resources in the Arab region are finite and water scarcity has increased considerably as a result of population growth to levels, unprecedented in the history of the Arab World. This has led to a decrease of renewable water resources. The per capita water availability dropped from about 3000 m³ in 1950 to about 850 m³ in 2000. The global criteria for water scarcity or adequate level of availability describes the water situation as critical if the per-capita availability is less than 1000 m³/year and crisis or severe scarcity conditions occur when per-capita availability becomes less than 500 m³/year. Considering such a criteria we find that, of the 22 Arab countries, 17 countries have reached a critical stage, with less than 1000 m³/year and 12 Arab countries face conditions of severe scarcity. 7 countries with per capita water availability less than 200 m³ have moved to a position of higher water stress.

If water quality is taken into consideration, the complex dimensions of the region freshwater becomes apparent. Pollution levels are high in most perennial streams and the quality of the waters of international rivers, which constitute over 50% the Arab Region total resources, is threatened by return water from increased water use upstream, in their higher reaches. Beside these impacts on water quality, water resources in the Arab region are affected by the increase of pollution loads from agricultural and industrial sources. Groundwater is also affected by over-exploitation. The increase of salinity levels is mainly due to intrusion of salt water from the sea or from saline aquifers into over-developed aquifer systems.

Considering that the large scale development of different water sources has only partly achieved the objectives of food security and social development. The Arab Region imports more than 50 percent of its food requirements now, and some 70 million of its population do not have access to safe drinking water.

Emphasizing that water in the Arab Region has become a priority area in the 21st century. Arab visions foresee a looming crisis unless effective measures are taken to address the root causes. Any delay to take action will shift the crisis to a nearby horizon.

Examining the causes of the critical water situation and its impacts on the environment and human activities in different regions of the Arab World. They also reviewed the driving forces-internal and external-which form a complex system of economic, social, political, institutional and demographic factors. They recognize that the most important emerging forces, which will have impact in the long-term, are globalization, liberalization of international trade, developments in information and communication technology and climate change. Driving forces, which impact now or, in the immediate future, include unsustainable water use, low efficiency growing demand and the cost of water production from marginal sources. In addition to these major driving forces, there is a wide spectrum of general and local water problems, comprising institutional, financial, technical and environmental problems.

Exploring ways and means of facing these challenges, taking into consideration emerging issues at the Arab and International level, and the influence of external and internal driving forces. They reviewed different scenarios of Arab water vision, which demonstrated that if current practices and trends continue, it will lead to crises, the impacts of which on development and progress in the Arab region cannot be foreseen.

Escalating water deficit will reach a colossal size estimated at 150 billion cubic meter in 2025. This will be accompanied by an increase in pollution levels in fertile soils, surface and groundwater, rendering the polluted sources unfit for human use.

The more optimistic scenario which aims to achieve sustainable development, is based on principles of sustainable development. It depends upon demand management and augmentation of supplies by controlling waste, improving water use efficiency, reuse and re-cycling in industry, broader application of technology in the water sector, industry and agriculture. Such a scenario will achieve water and environmental balance and would minimize the food gap.

Strongly recommends that vision, there is a critical need for collaboration and concerted regional efforts, for implementing a regional action plan, which supports national efforts. It is centered around three axes:

1. **Adaptive research programme** for addressing water problems and developing appropriate solutions; technically, economically and socially. It comprises development and adaptation of alternative technologies for water production, conservation and protection. It aims also to control pollution, aquifer depletion, and maximize productivity per cubic meter of water.
2. **Programme for capacity building and technology transfer** aiming at improving planning and management, building human and institutional capacities, education of the public and enhancing the effectiveness and role of the civil society for dealing appropriately with the precarious water situation. This would be achieved through participation in the formulation and implementation of water policies, raising awareness, changing human attitudes to water, current practices and habits that impede the achievement of sustainable water resources development.
3. **Programme for development of water-related information systems**, aiming at improving the knowledge and information base pertaining to research and appropriate technologies which proved to be successful and viable technologies upon application in the area of development and sustainable management of water resources. Activities of these programmes are coordinated and integrated to complement each other. Training and awareness raising would be carried in areas focussing on the results of research programme, technology and know-how transfer and exchange of information between institutions and individuals.

Pioneering work in this regard was started through the concerted efforts of the Arab and international organizations, such as UNESCO Cairo Office, the Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD), the Arab League Educational, Cultural and Scientific Organization (ALECSO). These efforts have led to the establishment, during the past few years, of two Arab networks, one in the area of **wadi hydrology** and the other in the field of **groundwater protection**. The two regional networks have implemented important activities which include research, human resources development and exchange of experience at the Arab Region level. The achievements and experience

gained within these networks could be shared and utilized as a model or a nucleus for future initiatives in the region.

The representatives of the Arab National Committees urge all Arab States, Communities and individuals to exert concerted efforts to face the present challenges through a co-ordinated and joint Arab action and close co-operation with Arab organization and the United Nations System.

The participants: representatives of the Arab Countries, Arab and international organizations, appreciate highly the interest shown by Arab leaders in the Arab water situation, and in transmitting this Muscat Statements urge them to support and contribute to the action required to deal with the precarious Arab Water situation in order to avoid a looming crisis concerning the provision of water to present and future generations, and ensure that the water does not become a limiting factor to development and progress. Addressing the water issues in the Arab region would protect Arab water security, ensuring stability of Arab communities and limit immigration of rural population to urban areas.

The desired objectives could be achieved by supporting the following operational arrangements;

1. **Establishment of a Fund-in-trust at UNESCO** for financing the Arab Water Action Plan.
2. **Establishment of a mechanism** within the framework of the two Arab networks: Wadi Hydrology network and Groundwater Protection Network. Within these networks the founding organizations UNESCO, ALECSO and ACSAD will co-operate for implementing the recommended programmes of the Arab Water Action Plan in the area of research, capacity building information exchange, and will provide of support to Arab water institution, organizations, universities and concerned research centres.
3. **Setting up of an Arab steering committee** for follow-up, guiding and formulating in broad lines programmes for research and training.

ANNEX 8***PRIORITIES AND RECOMMENDATIONS***

Four sets of recommendations have been resulted from this meeting addressing the followings bodies: The IHP Secretariat, IHP Regional National Committees, Chairperson of the Council of the Arab IHP Committees and recommendation related to the final reports of the 14th Session of the Intergovernmental Council and the 31st Session of the IHP Bureau.

First: Recommendations directed to the IHP Secretariat

1. The continuation of considering priorities and the concentration areas recommended by the eighth Regional IHP Committees Meeting and identifying new priorities areas within IHP-VI, such as:

Priorities:

- a) Groundwater Resources at Risk.
- b) Integrated Water Resources Management in Arid and Semi-arid Zones.
- c) Knowledge, Information, and Exchange of Technology
- d) Capacity Building and Human Resources Development.

Areas of Concentration:

- a) Groundwater Protection
 - b) Wadi Hydrology
 - c) Arab Water Assessment Project in coordination with the World Water Assessment Programme.
 - d) Sustainable mechanism to implement the Arab Water Action Plan.
2. The continuation of connecting the regional IHP meeting with a side scientific activity related to a priority topic relevant to the region.
 3. The continuation and enhancement of current cooperation, in the implementation of the program's priorities, with regional and international organizations, especially ACSAD, ALECSO, ESCWA, IAEA, ISESCO, ICARDA, AOAD and others.
 4. Emphasizing the role of women in IHP and social interactions in the IHP activities.
 5. Approve the recommended plan, submitted by the IHP Secretariat, for the implementation of the IHP-VI, with special emphasize on the sustainable development of the non-conventional water resources, (desalination, reuse and water transportation), and its safe integration in the local hydrological cycle.
 6. The necessity to secure and enhance human and financial resources at the Cairo Office in order to continue and improve the current high performance level which has

recently expanded, especially in the implementation of the priority activities referred to above. This includes providing at least one associate expert in the water area.

7. The participants appreciated highly the distinguished performance of the UNESCO Cairo Office in the area of water science in the Arab region. They also appreciated greatly the efforts of the IHP Secretariat in Paris.
8. Encourage active participation by the Arab region in both HELP and FRIEND programs, as well as other initiatives like TARM, IGRAC, JIHP, ISARM, PCCP, and invite the coordinators of the Wadi Hydrology and Groundwater Protection Networks to these activities and to present a paper at the 6th Kovacs Colloquium, which will be held in Paris, June 2002.
9. Stress on the importance of using the Arabic Language at IGC of IHP meetings.

Second: Recommendations addressed to the National Committees for IHP

1. Continue to intensify efforts at the national level, especially in the field of public awareness raising, taking advantage of regional and international occasions such as the World Day for Water, and intensify these efforts in year 2003 as a fresh water year, in which the UNESCO plays a specific role.
2. Continue to disseminate information on specialized networks in the field of water sciences, especially those related to the IHP priorities.
3. Call upon the National Committees for IHP to intensify co-ordination among themselves by disseminating information on their activities in the period between their biennium meetings, as well as implementing joint activities and programs.
4. Call upon the National Committees for IHP to continue participating in the priorities of IHP-VI expert committees and themes advisors, working groups and especially which have close relation with national or sub-regional activities.
5. Increase the participation of countries in the Arab region in the FRIEND project, especially in eastern parts (Euphrates and Tigris Rivers for example). As the FRIEND has a fruitful and successful outputs within the Nile Basin Countries.
6. Intensify efforts to benefit from participation program in sub-regional and regional activities and conferences of particular importance in the field of water.
7. Stress on the importance of co-ordination and communication with the National Commissions of UNESCO by delegating directly with UNESCO and ALECSO, as well as informing them regularly of their activities and their participation.

8. Enlarge the composition of IHP Committees to include other water related sectors and fields, such as academic research bodies and partners from the public and private sectors.

Third: Recommendations Directed to the Chairperson of the Regional Council of Arab IHP Committee

Address the key water officials in the Arab countries who did not yet form their National IHP Committees, the importance of establishment of these Committees. Urging them to form their National IHP Committees.

Fourth: General Recommendations Based on the Final Reports of the 14th Session of the IHP Intergovernmental Council and the 31st Session of the IHP Bureau

1. The participants have approved all the related recommendations of those two meetings and agreed to disseminate them to the National Committees for IHP in the Arab Region and other relevant authorities to take actions, where appropriate. Special emphasis was given to the points related to the Arid and Semi-arid region, which is of high importance to the Arab region.
2. The participants commended the great efforts done by the IHP Secretariat to complete and implement the resolution XIV-4 concerning the "Establishment of a Regional Center for Water Studies and Training of Arid and Semiarid Zones in Egypt". The participants are confident that this center will be of a great help to the Arab region under the auspices of UNESCO.
3. The participant adopted the governance mechanism of IHP by forming of councils as sub-councils chapters of the Intergovernmental Council of the IHP and held a periodical regional meeting for the IHP regions as a tool for management of this program on a regional level. In this respect, the IHP National Committees in the Arab region are pioneers where they have a periodical regional meeting for the ninth time till now.
4. The participants agreed on the IHP-VI implementation plan, with special consideration to the regional priority areas: Wadi Hydrology, Groundwater Protection, capacity Building and Institutional and Human Resources Development.
5. The participants recommended the participation of the Arab countries in a regional program for Arab Water Assessment under the umbrella of the World Water Assessment Program (WWAP), which is hosted by UNESCO.
6. The participants recommended The dissemination of all the IHP Secretariat activities to the IHP National Committees in the Arab region specially which concern with interaction programs (as HELP and FRIEND), and all the related initiatives to the groundwater and mitigation of risk of water conflicts (TARM, IGRAC, JIHP, ISRAM, PCCP).

وزير البلديات يلتقي بالوفود المشاركة في الاجتماع الاقليمي للجان العربية للبرنامج الهيدرولوجي مناقشة المشاكل الخاصة بعجز الموارد المائية وجودتها بالوطن العربي

الاقليمي لمنظمة اليونسكو بالقاهرة باستعراض خطة العمل العربية للقرن الحادي والعشرين ثم استعرض مصطلحي فؤاد نصيبه كبير الهيدرولوجيين في سلطة المياه الفلسطينية ورقة العمل التي كانت تحت اطار الانشطة الوظيفية لحماية المياه الجوفية حيث ذكر ان سلطة المياه الفلسطينية تقوم باعداد برامج خاص لحماية موارد المياه الجوفية في الضفة الغربية والنطاق الآخري فلسطين بهدف حمايتها من شتى انواع التلوث. كما طرحت الورقة التركيبية الهيدرولوجية للمناطق الفلسطينية والنزاعات الجوفية المتواجدة بها ومدى استيعابها حتى تتلاءم مع الخطط التفتوية المستقبلية.

تجدر الإشارة الى ان هذا الاجتماع الذي يستمر حتى يوم غد بهدف الى معالجة الشارة الرئيسية المتمثلة في عجز الورد المائية وجودتها. وتلوث المياه السطحية والجوفية. وتأتي استضافة السلطة لهذا الاجتماع تزامناً مع احتفالها بعام البيئة الذي يجسد مضمون العمل البيئي العائلي متجاوزاً حدود السلطة الجغرافية حرصاً على مد جسور التعاون والعمل المشترك مع مختلف المنظمات الدولية.

دايرة نقل المياه بدولة البحرين الشقيق باستعراض تجربة دولة البحرين في مجال وضع استراتيجيات خاصة بحماية المياه الجوفية وكيفية التعامل مع استنزافها بما يتوافق مع الكميات الغذائية للمياه الجوفية في البحرين. و طرح أمين عباس عددا من الاقتراحات تمثلت في اهمية زيادة محطات التحلية وتوسعتها بما يتوافق مع النمو السكاني المطرد، والتزهد بأهمية استخدام مياه الصرف الصحي في مجالات الزراعة والاستخدامات الصناعية مع ضرورة إدارة شبكات التوزيع بكفاءة عالية لتقليل من كميات تسرب المياه في شبكة التوزيع، وحث في ورقة العمل التي قدمها على اهمية اصدار التشريعات الملزمة من اجل المحافظة على المياه الجوفية بالإضافة الى ايجاد آلية لتفتيش هذه التشريعات ثم قام المهندس محمود سلطان طاهر ممثل الهيئة العامة للورد المائية بقطاع السياسات المائية والبرمجة بالجمهورية اليمنية، بطرح ورقة العمل التي تضمنت التعريف بالاستراتيجيات والتشريعات للمياه في الجمهورية اليمنية للقرن الواحد والعشرين، وتطرق خلالها الى المراحل التنفيذية التي تترتب عليها هذه الاستراتيجية واستراتيجياتها في مجال تأمين الورد المائية بالجمهورية اليمنية.

خطة عمل تنفيذية لساهمة العلوم والتكنولوجيا في التخفيف من الآثار السلبية لهذه المشكلة. وقد حضر هذا اللقاء سعادة حمد بن سليمان الغربي وكيل وزارة البلديات الاقليمية والبيئة لشؤون البلديات الاقليمية والمهندس عبدالقاي من على الخابوري رئيس اللجنة الوطنية للبرنامج الهيدرولوجي من جانب آخر واصل المشاركون في هذا الاجتماع جلساتهم بفتح الكراون بلازا حيث تم استعراض عدد من اوراق العمل المتصلة اتصالاً مباشراً بقضايا المياه وكيفية حمايتها باعتبارها أحد الورد الطبيعية الحيوية. وخلال هذه الجلسات تحدث المهندس احمد حاج اسماعيل مدير دائرة الري والورد المائية بالجمهورية السورية حيث عرف بالسياسات والاجراءات المستقبلية لتخمية الورد المائية وإدارتها واستعرض المهام الموكلة لوزارة الري السورية والتي تشمل في دراسة الورد المائية ومتابعة قياسها وتنميتها وحمايتها ومنع تلوثها وتحديد اوجه الاستفادة منها واقتراح مشاريع المصوك التشريعية والفانونية المتعلقة بها، ودراسة وتصميم مشاريع الري واستصلاح الاراضي واقتراح الخطط والسياسات الاقتصادية والزراعية مشاريع الري والاستصلاح بالجمهورية السورية. ثم قام أمين عباس خميس رئيس

استقبل معالي الدكتور خميس بن مبارك بن عيسى الطوي وزير البلديات الاقليمية والبيئة وموارد المياه بمكتبه صباح أمس اعضاء الوفود المشاركة في الاجتماع الاقليمي التاسع للجان العربية للبرنامج الهيدرولوجي الدولي الذي تنظمه وزارة البلديات الاقليمية والبيئة وموارد المياه بالتعاون مع كل من منظمة اليونسكو ومكتب اليونسكو الاقليمي بالقاهرة والمنظمة العربية للريية والثقافة والعلوم والابنيسكو والمنظمة الاسلامية للعلوم والثقافة والابنيسكو، والركز العربي لدراسات المناطق الجافة والاراضي القاحلة، الاصاوم، وخلال اللقاء، قام كل من الدكتور بهلول البعقوبي مدير برنامج العلوم والبحث العلمي بالمنظمة العربية للريية والثقافة والعلوم، والدكتور رضوان الوشاح المستنفر الاقليمي للمياه في منظمة اليونسكو بعرض اهم نشاطات الاجتماع ومحاورة الرئيسية التي تنفذ مساهمات في مجالات حسابية المياه الجوفية وهيدرولوجيا الوردية ومساعي المنظمات والهيئات في تنمية القدرات الوردية، والشريية بمقاعلة المياه في الدول العربية، واوضاعها الحالية اهم المواضيع التي درجت باولى جلسات النقاش وهي وضع خطة عمل عربية شاملة لمواجهة التبع المتزايد في الورد المائية في المنطقة العربية وتقديم

ختم فعاليات الاجتماع الاقليمي التاسع للجان التريبية لبرنامج الهيدرولوجي الدولي بيان مسقط أوصى بضرورة الاهتمام بالإدارة الكاملة للموارد المائية وتدريب الكوادر البشرية

واجتماعيا تشمل استنباط او تطوير تقانات بديلة لاتحاج حفظ المياه وحمايتها من التلوث والاستنزاف وترشيد استهلاكها بهدف الوصول الى الانجازة المصوى للبحر المتكبر من المياه.

ب - برنامج لبناء القدرات ونقل القادة برتكز على تحسين الادارة والتخطيط والبنية الأساسية وتضمين الورد البشرية ونشر الوعي وتقليل الجهور وسبل زيادة فعالية ودور المجتمع المدني في معالجة الوضع الراهن من خلال الشارة في سيطرة وتضمين السياسات المائية وتحسين الوصي القومي للاسنان وتضمين الوردية هم تحقيق الاستدامة للورد المائية، والاساليب التي تعرضت سبل المعلومات لتحسين الفاعلة حول البحوث والتقنيات الالامه نجاحاً وبقاها في مجال التنمية والادارة المستدامة للمعاصر الالامه.

وفي نهاية الاجتماع اوصى الجيمعون بضرورة الاهتمام بالادارة المتكاملة للموارد المائية العراقية الحقلية للموارد المائية وعماً ونوعاً والاهتمام بتدريب الكوادر الفنية العاملة في مجال الورد المائية بالوطن العربي مع التركيز على استمرار التعاون والتواصل بين اللجان والمنظمات العربية المختلفة.

تقديم الورد المائية المتخاضة وتطبيق استراتيجيات الاستغلال الأمثل، ثم قدمت الهندسة عائشة القرشي مدير دائرة تقيم موارد المياه بالوزارة عرضاً عن الاحتمالات الواجبة للتفتيش بحصد الفيضانات وكيفية استغلال مياه الفيضان وتحديد الاحواض الملائمة لتخزين الفائض لاستخدام هذه الوردية في استخدامات سكنية او مختلفة.

وقام صباح أمس الدكتور رضوان الوشاح الخبير الهيدرولوجي بمكتب اليونسكو بالقاهرة باستعراض أنشطة البرنامج الهيدرولوجي الدولي وما تم اخراجه من الوردية المهمات العربية. وبعد مناقشة الحضور تم التخصيم عليه.

كما ناقش الاضامه من مسقط حول مستطبات المياه بالوطن العربي والتي شمل عدداً من الحاور أهمها:

أ - برنامج بحوث تطبيقية تخضع لمشكلات المياه وتوفر الحلول الالامه تقانياً واقتصادياً



تحت رعاية
مد بن سليمان بن حمد الغربي
والبيئة وموارد المياه
الاقليمي التاسع للجان العربية
الهيدرولوجي الدولي
مكتب اليونسكو بالقاهرة

اختتمت مساء امس بملفق كراون بلازا تحت رعاية المهندس عبدالقاي بن على الخابوري نائب مدير عام الورد المائية بوزارة البلديات الاقليمية والبيئة وموارد المياه رئيس اللجنة الوطنية للبرنامج الهيدرولوجي الدولي ببنده فعاليات الاجتماع الاقليمي التاسع للجان العربية للبرنامج الهيدرولوجي الدولي الذي تنظمه وزارة البلديات الاقليمية والبيئة وموارد المياه بالتعاون مع كل من منظمة اليونسكو ومكتب اليونسكو الاقليمي بالقاهرة والمنظمة العربية للريية والثقافة والعلوم والابنيسكو والمنظمة الاسلامية للعلوم والثقافة والابنيسكو، والركز العربي لدراسات المناطق الجافة والاراضي القاحلة، الاصاوم، وقد ناقش هذا الاجتماع الذي حضره اكثر من اربعم مشاركاً شكلوا الهيئات والاساسات والمنظمات بمختلف الدول العربية العديد من المواضيع المتعلقة اتصالاً مباشراً بقضايا المياه وكيفية حمايتها باعتبارها أحد الورد الطبيعية الحيوية، وعلى مدى اربعة ايام استعرضت وفود جميع الدول المشاركة الاستراتيجيات الوطنية والاقليمية الخاصة بحماية المياه وصونها من شتى انواع التلوث وتكملة السعي في التقليل من استنزافها بما يتوافق مع النمو السكاني المطرد وما يشتملها مع مسيرة التنمية الاقتصادية والاجتماعية في البلاد العربية.

هذا وقد واصل المشاركون حياج امس جلساتهم بفتح



الخميس ٩ من رجب ١٤٢٢ هـ الموافق ٢٧ من سبتمبر ٢٠٠١ م العدد ٢٤٢٢

(SELECTED PHOTOS)



Opening session

Regional Hydrologist/ UNESCO
Representative addressing the meeting



Part of the opening session

H.E. The Omani Minister receiving
Dr. Radwan Al-Weshah/ UNESCO



H.E. The Omani Minister receiving
Dr. Salim Maksoud chairperson of
the 8th IHP committees

H.E. The Omani Minister receiving
Dr. Bahlul El-Yaquobi of ALECSO



Group photo for participants
