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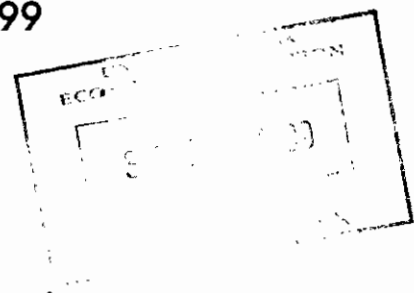
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# **Seminar on Irrigation and Water Management in North Africa**

Cairo, Arab Republic of Egypt  
9-12 October 1999



**Report of the Seminar on  
Irrigation and Water Management  
in North Africa**

**SUB-REGIONAL SEMINAR ON IRRIGATION AND WATER  
MANAGEMENT IN NORTH AFRICA, CAIRO (EGYPT),  
9-12 OCTOBER 1999**

**A. Introduction to the Seminar**

The Seminar was organized by the Sub-regional Development Center for North Africa (SRDC-NA) of the Economic Commission for Africa (ECA) and held in Cairo, in close collaboration with the Ministry of Public Works and Water Resources (MPWWR) and the Ministry of International Cooperation (MIC) of Egypt.

The main objective of the seminar was to increase sub-regional public and private awareness on water utilization and management, especially in the field of irrigated agriculture. Special attention was given to environmental issues like water salinity, drainage, and health which are linked to intensive water utilization in irrigation in North African Countries. The need for close south-south cooperation in the exchange of information, technology, and experiences on "Best Practices" was discussed.

The seminar was held in Cairo during the period from 9-12 October with the participation of Egypt, Mauritania, Morocco, Sudan, and Tunisia. The World Health Organization (WHO) was represented by the International Land Rehabilitation Institute (ILRI). The UNDP and FAO attended the meeting. In addition fifty participants enriched the discussions of the papers presented. The list of participants is in annex I. The agenda and the program of work are also attached in annexes II and annex III.

**B. Opening**

The opening session included a brief introduction on the aims, objectives and outline of the seminar. The general Rapporteur, Dr. Fouad El-Shebini introduced the main speakers of the opening namely:

Dr. S. Jugessur	Representative of the ECA/SRDC-NA
Dr. Ali Soliman	Representative of the Minister of International Cooperation
Dr. Bayoumi Attia	Representative of the Minister of Public Works and Water Resources

The delegates delivered opening statements on the seminar. Dr. El-Shebini spoke on the objectives of the seminar. Dr. S. Jugessur, representative of the Director of the SRDC-NA, reviewed the situation of water management and irrigation in North Africa, and pointed out the need to use water more efficiently. He stressed the willingness of the SRDC-NA to help North African Countries to achieve that goal. On

his part Dr. Ali Soliman expressed his satisfaction at the participation of many countries and experts in the seminar, and specially pointed out the efforts made by the MPWWR and SRDC-NA to hold this seminar. Likewise, he stressed the great experience of Egypt in the field of water management and irrigation and invited the participants to come up with practical proposals that would benefit the N.A. countries. Dr. Bayoumi Attia emphasized the need to shift from supply-oriented to demand-oriented water policies. He also mentioned the advantages of participative approach together with the strong involvement of stakeholders. In this respect he pointed out that competition between users of water should turn into cooperation, and that water should not be considered as a source of conflict. Instead it should be the bases for close cooperation among the countries.

### C. Proceedings of the Seminar

On the first day of the seminar there were seven presentations concerning thematic issues like:

- a. Relevant water management and irrigation issues facing the sub-region (Dr. J.L. de Pedro, SRDC-NA);
- b. Large scale irrigation: the Egyptian experience (Eng. Yahia Abel Aziz);
- c. Irrigation, water recycling and environment (Dr. Mohamed Ahmed Sabaah);
- d. Health impact of irrigation schemes and of waste-water re-use (Dr. W. B. Snellen ILRI/WHO);
- e. Modern methods of irrigation (Dr. Diaa Eddein Al-Kousi);
- f. Water Management and utilization (Dr. Hassan Wahby);
- g. Ground water utilization strategies in Egypt. (Dr. Fatma Abdel Rahman Attia).

The presentations were followed by intensive discussions on issues like data exchange, best practices, stakeholder participation, water pricing, appropriate technologies for water collection, distribution, recycling, and health.

On the following day representatives of countries exchanged national experiences focusing on:

- a. Irrigation improvement projects in Egypt (Eng. Ramsis Bakhoum);
- b. Drainage water re-use and waste-water utilization (Dr. Shaden Abdel Gawad, Egypt);
- c. Oasis irrigation (S. Ould Abbass, Mauritania);
- d. Micro-irrigation and water storage (Abdellah and Nourredine, Morocco);
- e. Water losses management (S. A. Hadi, Sudan ) and
- f. Irrigation and aquifer recharge (M. Ben Hassine and N. Kaabi, Tunisia).

This was followed by the presentation of an Action Programme Framework by the ECA-NA-SRDC (Dr. J.L. de Pedro). The discussions were constructive and served to disseminate experiences among the participants. The ECA Action Programme Framework was very well received and approved by the meeting.

Participants also made a field visit to the North Sinai Irrigation Development Project ( Second Phase of El Salam Canal).

#### **D. Conclusions**

The following conclusions were reached:

1. There is great need and importance for integrated water resources management policies, including surface and groundwater.
2. Comprehensive data monitoring, and development of efficient information technology tools are required in all countries.
3. Application of appropriate technologies suitable to site specific conditions is a priority.
4. There is urgent need for sub-regional cooperation in water resources management projects.
5. Introduction of non-conventional resources as an essential component in water resources policies and strategies for sustainability is of paramount importance.
6. There is need for proper management of shallow and deep groundwater reservoir to avoid pollution and / or salinity, and other types of water degradation and pollution.
7. Special attention should be given to wastewater treatment techniques in urban and rural areas to protect surface and groundwater sources from man-made pollution, and protect human health.
8. Emphasis should be given to improve and upgrade tools and facilities through well planned capacity building.
9. Learning practical lessons from real life problem solving in water resources through exchange of data and dissemination of useful relevant information among regional countries must be encouraged.
10. There must be awareness programmes as the most effective and efficient tools to provide advice on design that can reach stakeholders.

11. Continuous improvements of the ongoing practices in irrigation water utilization and management at conveyance and distribution levels are essential.
12. There is a need to explore low cost energy in operating pressurized systems and extraction from ground water wells (wind and solar).
13. It was deemed that water scarcity during the next century was the most vital challenging problem. Hence, there was common agreement that such conclusions could be implemented if the true spirit of cooperation and sincere teamwork are boosted among the sub-regional countries.

#### **E. Recommendations**

Based on the papers presented and on the discussions that took place during the two days of the Irrigation and Water Management Seminar, the meeting agreed on the following recommendations:

1. Due to the increasing stress that the sub-region is already suffering because of water scarcity, it is urgent for countries to put water in their global development agenda, and foster better coordination and dialogue among policy makers, water programmers and specially water consumers. Updating and implementing appropriate water and irrigation laws, codes and other legal instruments are essential for achieving these goals. Moreover, the meeting insisted on the need to stimulate popular participation as an effective means of ensuring long-term water sustainability and quality in North Africa. The examples of North African countries on participation and rural extension should be disseminated throughout the sub-region , if possible in form of "Best Practices".
2. There is also urgent need to set up a network system for data collection, analysis and dissemination, concerning water production and utilization in the sub-region, as proposed in the Action Program Framework. The priority issues and fields, where data and information collection are essential, are shown in table one of the (APF) matrixes. The Sub-regional Development Center for North Africa (SRDC-NA), based in Tangier (Morocco), which developed the framework could constitute a focal point to support this activity.
3. Apart from stimulating the utilization of new resources of water, the meeting recommended the enhancement of water saving policies. They should start with agriculture, followed by industry and household sectors. As agriculture is one of the domains in which greater water savings can be made, the meeting underlined the need for disseminating new irrigation techniques suitable to specific conditions of soils, climates and crops. Before adopting these techniques, identification of

criteria was essential. The meeting laid special emphasis and recommended the promotion of appropriate technologies, including the non-renewable, like solar, geothermal and wind energy.

4. The meeting strongly recommended the reduction of water losses, from harvesting until consumption. It specially recommended the utilization of treated wastewater (for special agricultural uses and for forestry), the charging of ground water basins, as well as the utilization of alternative sources of water such as saline and drainage sources. In this context, the proposal of the SRDC-NA to carry out a study on: *The Present Status of Wastewater Production, Treatment and Prospects for its re-utilization in Agriculture in North Africa, beyond the year 2000*, was approved. It would be the platform for launching a Sub-regional Wastewater Program (SRWP) for the North African Countries.
5. All efforts should be exerted to increase surface water generation in each country. To achieve this goal, it was recommended to increase water capacity of dams. Likewise, a recommendation was made to ensure long term storage and quality of ground water. Respect for existing laws, codes and regulations and the continuous monitoring of their exploitation was largely discussed and recommended by the meeting. In addition, and due to the great value of the non renewable underground water, it was recommended that special attention should be given to their rational management, exploitation, pollution prevention and monitoring. The case of the exploitation of non-renewable Nubian Reservoir Water could serve as another example of "Best Practices" in North Africa.
6. The meeting recognizing the need for the North African countries to strengthen national capabilities and create awareness to use water in sustainable manner, recommended the utilization of the (SRDC-NA) expertise, logistical capacities and means for achieving these objectives. The main aim should consist in the dissemination, at low cost, of the scientific, technical, research and socio-economic knowledge among the seven countries of the sub-region. An effective forum to this end could be the Intergovernmental Committee of Experts (I.C.E) of the SRDC-NA that meets annually in Tangier (Morocco).
7. The meeting stressed the need for the SRDC-NA to monitor the implementation of the above recommendation by setting up a network in the sub-region to deal with water-management and irrigation issues.

#### **F. Closure of meeting**

The meeting after adopting the conclusions and recommendations with the Action Programme Framework (APF), was closed by the representative of the Minister of Public Works and Water Resources, Dr. Bayoumi Attia, who thanked the organizers and the participants.

# ANNEX I

## Participants Seminar on Irrigation and Water Management 9-12 October 1999

		NAME	Address	COUNTRY	Tel.	Fax.	E-mail
1	Mr.	Ahmed About Ayoub	Director General Organisation Arabe Pour le Developpement Agricole	Rabat			
2	Eng.	Ahmed Bahaa El Din	Nile Water Sector	Cairo	572 0218	572 3147	nwater@idscl.gov.eg
3	Mr.	Ahmed Mohamed Fahmy	Nile Water Sector	Cairo	572 0218	572 3147	nwater@idscl.gov.eg
4	Eng.	Ahmed Yousry	Planning Sector	Cairo	312 8394	312 9257	
5	Mr.	Ali Al-Ogabi Knifer	Head Man-Made River Water Utilization Authority Bahari	Libya			
6	Dr.	Ali Slaliman	Arab & African Cooperation	Cairo	591 3370	591 3306	
7	Eng.	Amal A. Abd El-latef	Planning Sector (MPWWR) GIS Unit	Cairo	312 8394	312 9257	amal_latif@hotmail.com
8	Eng.	Ashraf Hebeishi	Resorunir and Grand Bawages Sector	Cairo	312 3043	312 3260	
9	Mr.	Ayman Awwad	African Economic Organization	Cairo	588 4657	5911 603	
10	Eng.	Basem Shawky	Planning Sector	Cairo	310 2401	312 8385	bas_sh@hotmail.com
11	Dr.	Bayoumi Attia	Head of Planning sector (MPWWR)	Cairo	312 9257	313 9257	
12	Mr.	Brahim Amour	Sub-regional FAO-SNEA Representative	Tunisia			
13	Mr.	Casper Veeningen	NWRP	Cairo			
14	Eng.	Dalia Mostafa	Planning Sector	Cairo	312 8394	312 9257	
15	Mr.	Daniel Mora-Castro	Senior Water Development Officer Programme and Technical Support Section UNHCR Geneva	Switzerland			
16	Dr.	Diaa El Deen El Qosy	National Water Research Center	Cairo	312 3817	312 3732	
17	Dr.	El fih Said Abdel Hadi	Hydraulic Researc Station - WADMEDANI	Sudan	249-511-42221	249-511-773838	hrs-fs@hotmail.com usmih@suddannet.net
18	Mr.	El Magzoub Ahmed Taha	Dams Directorate HQ. Kh. Depitu Director	Sudan, Khortom	279-511-775667	249-511-773839	hrs-fs@hotmail.com usmih@suddannet.net
19	Eng.	Eman Sayed Ahmed	GIS Planning Sector (MPWWR)	Cairo	312 8394	312 9257	eman_sayed@hotmail.com

	NAME	Address	COUNTRY	Tel.	Fax.	E-mail
20	Mr. Foad Fathi Youssif	Arab African Sector	Cairo			
21	Dr. Fatma Abd El Rahman Attia	Research Institute for Groundwater, Groundwater sector Ministry of Public work & water Resources	Cairo	218 2117	218 8129	f-attia@mail.com.link.eg
22	Dr. Foad El Shibini	National Water Research Center, MPWWR	Cairo			
23	Mr. Foad Fathi youssf	Arab African Sector	Cairo	590 4657	5913 603	
24	Mr. Gamal Youssf El Khooly	Arab African Sector	Cairo	589 4657	5912 603	
25	Eng. Hala Ramadan El-Sayed	Planning Sector	Cairo	312 8394	312 9257	harman65@hotmail.com
26	Eng. Hany Aly Mohamed	Planning Sector	Cairo	710 8846	313 9258	hany4h@hotmail.com
27	Mr. Hassan Gafer Lasheen	African Communities and Organizations	Cairo	590 4657	591 3306	
28	Dr. Hassan Wahby	Water Management Research Institute	Cairo	218 9458	218 9561	
29	Eng. Hesham El Sayed A.Ghany	Nile Water Sector	Cairo	572 2767	572 3147	hesham_ghany@hotmail.com
30	Dr. Hussam Fahmy	Strategic Research Unit	Cairo	217 3058	217 1259	
31	Eng. Ibrahim El Sebaie	Planning Sector	Cairo	310 2401	312 8385	
32	Mr. J.A. Hueb	Sanitary Engineer, Water, Sanitation and Health (WSH) WHO Geneva	Switzerland			
33	Mr. Jose I. de Pedro	NA-SRDC (Tangier)	Tangier (Morocco)	212-9-322346	212-9-340357	srdc@cybermania.net.ma
34	Mr. Joseph Roshier	N.F.S	Cairo			
35	Dr. Kamel Moustafa Amer	Water Management Research Institute (WMRI)	Cairo	218 9563	218 9561	
36	Mr. Laiti Abedlhak	Deuction du Developement et de la Gestion de l'Irrigation/ ministere de	Morocco/ Rabat	212-7698435/31	212-7698432	seen@maghiebuet.net.ma
37	Dr. M. A. Sabbah	Director, DDC, AVC	Cairo	202-3397717		
38	Mr. M. Mahamed Ben Hassine	Ministere de l'Environnement	Tunisia	216-1 704000	216 70430	
39	Dr. Maha Twfik	Strategic Research Unit	Cairo	218 3058	218 1259	
40	Eng. Mamdouh Antar	Planning Sector	Cairo			
41	Eng. Mamdouh Antar	Planning Sector	Cairo	310 2401	312 8385	m_antar@hotmail.com



		NAME	Address	COUNTRY	Tel.	Fax.	E-mail
42	Mr.	Mary George Samuel	African Organization	Cairo	591 3370	591 3306	
43	Dr.	Mona Youssef	Research Institute for Groundwater	Cairo	210 271	210 271	
44	Eng.	Mohamed Abd El Latif	Central Director for Water Distribution	Cairo	312 3279	312 3879	
45	Eng.	Mohamed AbedEl Aty	Planning Sector	Cairo	310 2401	312 8385	mohamedsovyed@hotmail.com
46	Dr.	Mohamed Fadel OULD AGHDHAFNA	Ministry of Rural Development and Environment P.O. Box.: 180-NOUAKCHOTT	Mauritania	222-250967	222-257475	sisaar.resal@toptechology.mr
47	Mr.	Mohamed M. Tawfik	Water Resources Organization Sector	Switzerland			
48	Dr.	Mohamed Rami	Main Information Center	Cairo	310 9531	310 9524	
49	Dr.	Mohammed Hamdy El Awady	Desert Development Center (AUC)	Cairo	(202) 3397717		
50	Mr.	Mohamed Soudki	Senior Water Development Officer (FAO/ AUC)	Cairo			
51	Mr.	Mona Fahim Ramzy	Arab and African Cooperation Sector	Cairo	592 5942	591 3306	
52	Eng.	Nabila Baha Aldeen	Main Information Center	Cairo	312 3817	310 9524	
53	Eng.	Nader El Masry	NWRP Planning Sector	Cairo	312 9258	312 9258	
54	Dr.	Nehal El Arabi	Research Institute for Groundwater	Cairo			
55	Eng.	Nehal Adel Mohamed	Sector of Horizontal Expansion & Projects	Cairo	312 3732	312 3732	
56	Eng.	Noshy Shaker	Planning Sector	Cairo	314 8394	314 9257	
57	Mr.	Noureddine Kaabi	Ministere du Developpement Economique	Tunisia	216-1-352749	216-1-351666	
58	Mr.	Nourhan Kouta					
59	Dr.	Paola Minoia	UNDP Egypt	Cairo	5784840/6	5784847	paola.minoia@undp.org
60	Eng.	Ramsis Bakhourm	head of development Irrigation Sector (MPWWR)	Cairo	444 4513	444 4513	
61	Mr.	Samia Abdel Azim		Liby			
62	Mr.	Samia Abdel Azim El-Refai	African Organization	Cairo	590 4657	591 3306	
63	Mr.	Samir Ismaael	Desert Development Center (AUC)	Cairo			

		NAME	Address	COUNTRY	Tel.	Fax.	E-mail
64	Mr.	Samir Zein El Abedein	African Organization	Cairo	391 3370	591 3306	
65	Eng.	Samaa Abd El Rasheed	Genral Directorate for Water dis.	Cairo	312 3879	312 3879	
66	Dr.	Shaden Abd El Gawad	director of Drainage Research Institute (MPWWR)	Cairo	218 9841	218 9153	drins@idecl.gov.eg
67	Mr.	Sifouallah SEYF OUAH. OULD. ABBAS	Project Dasis BP 2911 NOUAKCHOTT	Mauritania	254923 / 252746	254117	
68	Eng.	Somaia Abdel Latif	Irrigation Department	Cairo	312 3243	312 3260	
69	Mr.	Soodursnn Jugessur	NA-SRDC P.O.B 316	Tangier (Morocco)	212-9-322346	212-9-340357	srde@eybermania.net.ma
70	Dr.	Tarek AbedAllah Ahmed	Researcher, Horizontal Exponson & Projects Sector	Cairo	312 3817	312 3732	
71	Eng.	Tarek El-Sayed Kombaz	Planning Sector	Cairo	312 8394	312 9257	
72	Dr.	Tarek Mohie El Deen		Cairo			
73	Eng.	Waled Mohamed Aly	Planning Sector	Cairo	710 8846	313 9258	
74	Mr.	W.B. Snellen	HOW representative c/o ILRI, Wageuingen	Netherlands	31317-490144	31317 417187	ilir@ilri.nl
75	Eng.	Yehia Abd El Aziz	Irrigation Department	Cairo			
76	Mr.	Zizi Nourreddine	Division du Development et de la Gestion de l'Irrigation Direction / Agriculural, Runal Development and fisheries Ministry	Morocco	212-630063	212-7-698040	biblio@@mbsx.azure.net
77	Eng.	Zubaida M.Fathallah	Planning Sector	Cairo	312 8394	312 9257	

SEMINAR ON IRRIGATION AND WATER MANAGEMENT  
IN NORTH AFRICA  
(Cairo), 9-12 October 1999

PROVISIONAL AGENDA

1. Opening of the meeting
2. Election of the bureau
3. Adoption of the agenda and organisation of work
4. Irrigation and water management in the sub-region : Issues, challenges and action
  - Relevant water management and irrigation issues facing the sub-region
  - Large scale irrigation : the Egyptian experience
  - Irrigation, water recycling and environment
  - Health impact of irrigation schemes and of wastewater reuse
5. Thematic presentations:
  - Modern methods of irrigation
  - Water management and utilization
  - Groundwater utilization strategies in Egypt
6. Exchange of experiences:
  - Country presentations
7. Action programme : Framework
8. Concluding session: recommendations
9. Closure of the meeting

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Agenda  
Sub-Regional Seminar on  
Irrigation and Water Management

Venue : Hotel Conrad, Cairo  
Date : October, 9 – 12, 1999

**Day 1: Saturday, October 9, 1999**

***Morning***

**9.00 – 10.00**

**Opening Session**

Introduction to the seminar

Statement by the Director of the SRDC-NA

Statement by the Minister of International Co-operation

Statement of the Minister of Public Works and Water Resources

**10.00 – 11.00**

**Coffee break,  
Registration**

**11.00 – 13.00**

**Session 1**

**Irrigation and water management in the sub-region:  
Issues, challenges and action**

- **Chairman:** Dr. Fouad El-Shebini

- **Rapporteur:** Dr. Tarek Mohie- El Din

Relevant water management irrigation issues facing the sub-region

**SRDC-NA and ECA; [25 minutes]**

State of art and irrigation prospects in the sub-region

**FAO-RNE [25 minutes]**

Large scale irrigation: The Egyptian experience

**Eng. Yahia Abdel Aziz [25 minutes]**

Irrigation, water recycling and environment

**Dr. Mohamed Ahmed Sabaah [25 minutes]**

**Discussions**

**13.00 – 14.30**

**Lunch**

**Annex II**

**Afternoon**

**14.30 – 16.00**

**Session 2**

**Thematic Presentation**

- **Chairman:** Representative of Moritania
- **Rapporteur:** Representative of Morocco

Modern methods of irrigation

**Dr. Diaa Eddin Al Kousi** [20 minutes]

Water management and utilization

**Dr. Hassan Wahby** [20 minutes]

Groundwater utilization strategies in Egypt

**Dr. Fatma Abdel Rahman Attia** [20 minutes]

**20.30 – 00.00**

**Discussion**

**Invitation to Dinner**

**Day 2: Sunday, October 10, 1999**

**Morning**

**9.00 - 10.30**

**Session 3**

**Exchange of experiences, Countries Presentations**

- **Chairman:** Dr. Ali Soliman
- **Rapporteur:** Representative of Tunisia

**(a) Algeria**

Emphasis on fruit trees irrigation and dam siltation  
Prevention [20 minutes]

**(b) Egypt**

Irrigation improvement projects in Egypt  
**Eng. Ramsis Bakhoun** [20 minutes]

Drainage Water Reuse and wastewater utilization.  
**Dr. Shaden Abdel Gawad** [20 minutes]

**10.30 – 11.00**

**Discussion**  
**Coffee break,**

**11.00 – 12.00**

**Countries presentations (continuation)**

**(c) Libya**

Emphasis on utilization of fossil water, sprinkler  
irrigation desalination [20 minutes]

**(d) Mauritania**

Emphasis on underground water management and  
oases irrigation [20 minutes]

**12.00 – 12.30**

**Discussion**  
**Free Discussion among Participants**

12.30 – 14.00

Lunch

*Afternoon*

14.00 – 15.30

**Session 4**

**Countries presentations (continuation)**

- **Chairman:** Representative of Sudan

- **Rapporteur:** Representative of Libya

**(a) Morocco**

Emphasis on micro-irrigation, irrigation water storage and distribution, and wastewater reutilization

**[20 minutes]**

**(b) Sudan**

Emphasis on water losses management

**[20 minutes]**

**(c) Tunisia**

Emphasis on wastewater reutilization for irrigation, aquifers recharging and micro-irrigation with thermal water

**[20 minutes]**

**Discussion**

**Day 3: Monday, October 11, 1999**

07 – 17.00

Field Visit (North Sinai Irrigation Project)

**Day 4: Tuesday, October 12, 1999**

- **Chairman: Dr. Bayoumi Attia**

- **Rapporteur Dr. Tarek Abdalla**

09.00 – 10.30

Action programs: National and sub-regional

10.30 – 11.00

**Coffee Break**

11.00 – 12.30

Concluding session: recommendations raised and closure