

Seminar on Water Management Development in Egypt

Advisory Panel Project on Water Management

Seminar on Water Management Development in Egypt

Results of Long-term Egyptian-Dutch Co-operation

FINAL REPORT/PROCEEDINGS

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ABSTRACT

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A seminar on water management development in Egypt was held from 12-14 December 2002, in Hurghada, Egypt. The main aim of the Seminar was to highlight the results of the long-term, 27 years from 1975-2002, Egyptian-Dutch Co-operation on water management.

The seminar was organised by the APP (Advisory Panel Project) Central Office Cairo, Egypt and APP Supporting Office, Wageningen, The Netherlands.

It was co-organised with the Foreign Affairs Manager, Ministry of Water Resources and Irrigation, Corniche El Nil, Imbaba, Giza, Egypt, and the Netherlands Ministry of Transport, Public Works and Water Management, Directorate General for Public Works and Water Management. P.O. Box 20906, 2500 EX The Hague, The Netherlands.

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ABBREVIATIONS

APP	Advisory Panel Project on Water Management & Drainage
CMRI	Channel Maintenance Research Institute
DGIS	Directorate General for International Co-operation, The Hague
DRI	Drainage Research Institute
ECRI	Environment and Climate Research Institute
EPADP	Egyptian Public Authority for Drainage Projects
EU	European Union
Fe	feddan (4200 m ²)
GTZ	Gesellschaft für Technische Zusammenarbeit (Society for Technical Co-operation, Germany)
HRI	Hydraulics Research Institute
IIP	Irrigation Improvement Project
ILRI	International Institute for Land Reclamation and Improvement
INTESP	Institutional and Technical Support Programme, EPADP
IRU	Institutional Reform Unit (MWRI)
IWRM	Integrated Water Resources Management
KfW	Kreditanstalt für Wiederaufbau (German Investment Bank)
M&E	Monitoring and Evaluation
MALR	Ministry of Agriculture and Land Reclamation
MHNS	Ministry of Housing and New Settlements
MWRI	Ministry of Water Resources and Irrigation
NDP	National Drainage Programme
NWRC	National Water Research Centre
NWRP	National Water Resources Plan(ning)
OFWM	On Farm Water Management
RIGW	Research Institute for Ground Water
RIZA	Institute for Inland Water Management and Waste Water Treatment
RNE	Royal Netherlands Embassy
RTC	Round Table Conference (on institutional reform and donor co-ordination)
TA	Technical Assistance
SWERI	Soil Water and Environment Research Institute (MALR)
WB	World Bank/ Water Board
WWF(3)	(Third) World Water Forum (March 2003, Kyoto, Japan)
USAID	United States Agency for International Development

SUMMARY

Introduction

Water is life and for an arid country like Egypt the main source of fresh water (life) is the River Nile. Egyptians since the early times struggled to control the river to mitigate the dangers of the floods and harness its water to irrigate the lands.

Water management continues to be of prime importance to Egypt to deal with the increasing water demands and the ever-growing competition for water. Therefore support given to the water sector is in compliance with Egypt's top priorities. The drainage and water management sector is crucial for Egyptian economy, food production, and security and for the living conditions of a large portion of its population.

The bilateral Egyptian-Dutch Co-operation Program in the Water Management and Drainage sector has been the largest element in the Netherlands development co-operation with Egypt, that started in 1975 and planned to continue till the end of 2004.

The Netherlands support to the water sector was innovative in several respects: the mechanisation of field drainage construction involving the use of high capacity trenching machines, plastic pipe and synthetic envelope technology; the development of new weed control technologies to replace traditional silt removal and chemical weed control; the large scale introduction of computerised data processing and modelling techniques enhancing the management capabilities of several organisations in the sector; and pilots with water users associations and water boards as an instrument of farmer participation for improved water management.

Seminar

In order to overview the achievements of such productive endeavour, a three-day Seminar was organised by the Ministry of Water Resources and Irrigation (MWRI) of Egypt and the Dutch Ministry of Foreign Affairs through the Egyptian-Dutch Advisory Panel Project on Water Management (APP). APP is the co-ordinating body between the Dutch-financed projects and the platform for exchange of knowledge and experiences in various fields of water management between the two countries. The gathering is entitled 'Seminar on Water Management Development in Egypt: Results of Long-term Egyptian-Dutch Co-operation'.

The objectives of the Seminar are threefold:

- To highlight the achievements of more than 25 years of Egyptian-Dutch Co-operation.
- To reflect on the evolution of the co-operation program from technology transfer in land drainage towards integrated water management and planning, institutional reform, capacity building and environmental management.

- To exchange experiences, lessons learned, vision for the future of Egypt's' water sector and co-ordination issues of donor co-operation.

In seven sessions (five technical sessions, an opening and a closing session), several addresses and nineteen technical papers were presented. The five technical sessions were delineated to the following topics:

- Session (1): The Advisory Panel Project APP as a co-operative mechanism.
- Session (2): Transfer and Development of Technology (drainage, groundwater management, channel maintenance and weed control, water quality monitoring and pollution control, Nile River engineering and hydraulics and regional dimensions of the co-operation projects.
- Session (3): Integrated Water Resources Management IWRM (national water resources plan for Egypt, formulation of future water policy, Fayoum water management, flood and drought control).
- Session (4): Institutional Reform in the Water Sector (Dutch experience with institutional reform, development of the water boards in Egypt, institutional development in groundwater sector, institutional development in water quality management, gender in MWRI).
- Session (5): A Vision for the Future (The vision of MWRI towards institutional reform, donor's co-operation programs).



The Seminar activities spread over three full days (December 12 – 14, 2002) in the Sheraton Soma Bay Resort which is located on the Red Sea Coast 45 km from Hurghada, in Egypt. Day one activities included an opening session in addition to three technical sessions. The second day was devoted to a field excursion to visit different water management projects in Wadi Dara and in El-Gouna. Day three activities included two technical sessions (sessions 4 and 5) in addition to the closing session.

Critical Success Factors

In the Seminar the 'critical success factors', without which the Egyptian-Dutch co-operation could not have been successful, were outlined. These include:

- The co-operation is demand driven.
- Similarity of Egyptian and Dutch conditions in densely populated delta area
- Set-up of the Panel project with the annual Meetings, Workshops and related projects
- Membership of the Panel was always at the highest level, thereby ensuring a high level of expertise and authority
- The long-term character of the co-operation
- Bilateral co-operation in a focused area (water management)
- Co-operation with one Ministry
- Dutch co-operation has no biased political background
- Continuous support from the Netherlands Government for the Egyptian request.

Main Findings and Recommendations

- The projects implemented within the Panel framework have had several major impacts:
 - Solutions were found to many technical problems
 - Policy was formulated or assistance was given to policy formulation
 - The capability of the staff involved was greatly enhanced. Egyptian-Dutch co-operation in other countries is to be explored.
- The Panel and its related projects produced a large mass of documentation, technical reports and papers. It is important to revisit such outcomes to make it more accessible.
- There is a need to assess the possibility to establish a High Committee on Water/ National Water Commission with a clear mandate that encompasses the major stakeholder groups in the different sectors of the nation.
- Institutional reform is an ongoing process in the MWRI. Steps in the process have been discussed.
 - The process should pay more attention to the external environment by actively pursuing feed -back mechanisms and dialogues with all stakeholders.
 - Considering the process ahead there is a need for more specific capacity building by mobilising existing local capacity.
 - The harmonisation of existing laws and policies is essential for the success of the process.
- Although there is still much work to be done towards integrated water management, the Panel work has greatly contributed to its introduction by dealing with issues as water quantity, water quality, environment, socio-economic conditions, etc.
- Egypt has given the Dutch the possibility to work closely together on the real MWRI issues. This has paved the way for other donors as well to deal with the MRWI in an effective and efficient way.

- Collaboration between donors is essential in order to learn from each other and to avoid duplication of efforts. The donors present have expressed their willingness to jointly support the Ministry in its clear vision. The following areas warrant continuous support:
 - Strengthening the Nile Water Sector to perform its duties in the Nile Basin Initiative.
 - Strengthening both the Water Quality Unit and the Institutional Reform Units within MWRI.
 - Expanding the Water Boards concept, up scaling the application to the district level.
 - Institutional reform within the groundwater sector
 - Capacity building and Human resources development within the Ministry.

Closing of the Seminar

In the closing speeches, the Seminar's participants and organisers were thanked for their various and sometimes excellent contributions.

The Seminar could also serve as a model for future gatherings of the same type, e.g. with the Canadians, the Italians, with the World Bank projects, the USAID partnership, etc.

What was presented is much more than a 'Panel', it is a programme, that has acted for many years, and that has proved to be an excellent model for bilateral co-operation. It was also remarked that the results presented at the Seminar could not have been reached without the Egyptian determination to continue.

The Netherlands and Egypt have a lot in common and this explains the cordial atmosphere in which the bilateral projects were conducted. The results presented at the Seminar gave the participants all confidence in the future of the Water Sector in Egypt.

The Panel is a unique Forum, the envy of many, and it is far too valuable to let it elapse. It is also not a 'project', but it is co-operation between representatives of two countries, and there is absolutely no reason to stop this successful partnership.

INTRODUCTION

Background

Water is life and for an arid country like Egypt the main source of fresh water (life) is the River Nile. Egyptians since the early times struggled to control the river to mitigate the dangers of the floods and harness its water to irrigate the lands. Egypt was the cradle of civilisation where the Nile brought prosperity and navigation along the watercourse bounded the country and strengthened its unity.

Under the terms of the agreement for full utilisation of Nile water with Sudan in 1959, Egypt receives 55.5 billion cubic meters per annum. With this fixed quota the per capita availability of water dropped from 2100 m³/year in 1960 with a population of 30 millions to 950 m³/year in 2002 with an estimated population of 67 millions. The present figure is generally considered to characterise a water shortage situation. Under the circumstance, pressure on available water resources has increased substantially. While demand by the non-agricultural sector has grown, the total quantity available for agricultural use remained almost the same throughout the last forty years. Increased agricultural demands have been met by increasing the irrigation efficiency, reuse of drainage water and complementary groundwater extraction. Water management continued to be of prime importance to Egypt to deal with the increasing water demands and the ever-growing competition for water. Therefore support given to the water sector is in compliance with Egypt's top priorities. The drainage and water management sector is crucial for Egyptian economy, food production and security and for the living conditions of a large portion of its population.

The bilateral Egyptian-Dutch Co-operation Program in the Water Management and Drainage sector has been the largest element in the Netherlands development co-operation with Egypt, stretching over a full period of more than twenty five years. The program started in 1975, went through several phases, and the present phase is planned to continue till the end of 2004. The Netherlands contribution was complementary to the assistance given by two main donors, USAID and the World Bank. The former provided funds for improving the irrigation system, while the latter focused on supplying equipment for the implementation of the National Drainage Program.

The Netherlands support to the water sector was innovative in several respects: the mechanisation of field drainage construction involving the use of high capacity trenching machines, plastic pipe and synthetic envelope technology, the development of new weed control technologies to replace traditional silt removal and chemical weed control, the large scale introduction of computerised data processing and modelling techniques enhancing the management capabilities of several organisations in the sector and experiments with water users associations and water boards in Fayoum as an instrument of farmer participation for improved water management.

Seminar Organisation

In order to overview the achievements of such productive endeavour, this three day gathering is organised by the Ministry of Water Resources and Irrigation (MWRI) of Egypt and the Dutch Ministry of Foreign Affairs through the Egyptian-Dutch Advisory Panel on Water Management (APP). APP is the co-ordinating body between the Dutch financed projects and the platform for exchange of knowledge and experiences in various fields of water management between the two countries. The gathering is entitled 'Seminar on Water Management Development in Egypt: Results of Long-term Egyptian-Dutch Co-operation'.

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The second day was devoted to a field excursion to visit different water management projects in Wadi Dara and in El-Gouna. The former is a small-scale agricultural development based on groundwater extraction. The latter is a capital intensive integrated tourism development. Day three activities included two technical sessions (sessions 4 and 5) in addition to the closing session.

The Programme of the Seminar is given in Appendix 1, the Technical and Organising Committees in Appendix 2 and the list of Participants in Appendix 3.

Structure of the Report

The final report of the seminar comes in a typed text and includes in its folder a compact disc (CD). The CD includes (see Appendix 4) the text of the presented papers of the sessions as well as the PowerPoint presentations. These PowerPoint presentations correspond to the technical papers and include two presentations by USAID and World Bank.

The typed text includes welcome and opening addresses by Dr. S. El-Guindy (Director of APP Central Office), Dr. M. Abu-Zeid (Minister of Water Resources and Irrigation), Mr. S. Abu Reida (Governor of the Red Sea Governorate) (translated summary of an Arabic address), Mr. S. Leenstra (Ambassador of the Royal Netherlands in Egypt), and Mr. P. Flik (Head, Development Co-operation at the Royal Netherlands Embassy). Summary reports on each technical session are also included.

The Final report ends with the seminar outcomes in terms of the critical success factors of the Egyptian-Dutch co-operation, main findings and conclusions and closing remarks by Dr. Abu Zeid, Mr. Leenstra and Mr. Flik.

OPENING SESSION

Welcome Address by Dr. Samia El Guindy

Director of APP Central Office, National Water Research Centre

On behalf of the Advisory Panel Project (APP), I warmly welcome you all in this important seminar on Water Management Development in Egypt: Results of Long-Term Egyptian-Dutch Co-operation. In more than 26 years of development co-operation between Egypt and the Netherlands in the water sector, many activities and projects have been channelled under the umbrella and supervision of the Advisory Panel Project. Although it may be easy to count the number of the executed Dutch projects during this period, but it is still difficult to completely draw up how much they positively contributed to this important sector.

As you may all know that APP is one of these projects, that was established in 1976 and has since been the platform for the exchange of knowledge and experience in the various fields of water management between Egypt and the Netherlands. APP assisted, in an advisory capacity, the MWRI in carrying out its responsibilities towards managing the quantity and quality of Egypt's fresh water resources more efficiently and effectively. Throughout these years, the Panel successfully stimulated the implementation of the Egyptian-Dutch co-operation program in the water sector. In fact, the Panel since its start formulated in a wider sense various recommendations, researches, approaches and policies which are based on various fields of experience from Egypt, The Netherlands and elsewhere.

In reality projects that emerged from the Egypt – Netherlands co-operation program in the water sector have helped to improve the sustainable development of Egypt's water resources. Technical assistance played and continues to play a pivotal role in the transfer of technology and knowledge in many fields such as land drainage, salinity control and integrated water management. Moreover, the support provided to some research institutes (e.g. DRI, RIGW, CMRI, HRI and ECRI) of the NWRC contributed to the establishment and technical strength of these organisations as well as the development of valuable research capacities in the water sector. There are now many Dutch who consider Egypt as their second home, and many Egyptians who consider the Netherlands / Holland as their second home. Throughout these years the Panel dealt with many issues and topics on both technical and policy levels, which are directly, related to the MWRI different activities. These topics may include:

- Integrated Agriculture Sustainability (Drainage Aspects).
- Integrated Water Management.
- Environmental Aspects and Water Quality Management.
- Water Resources Policy and Planning.
- Farmers Participation.
- Institutional Aspects and Capacity Building.
- Gender.
- Others.

Today we are together in this seminar to pick up the fruits and celebrate the achievements and impacts of such unique co-operation. It may be worthwhile to mention that the outcome of this seminar will be presented in Japan at the 3rd World Water Forum, March 2003. In fact, a special session on the Egyptian Dutch Bilateral Co-operation has already been selected to present an example on such successful and unique collaboration.

As you already know from the seminar brochure that the seminar duration is 3 days. The first and last days will be on presenting and discussing different topics in transfer and development of technology, integrated water resources management and institutional reform. The second day will be a field visit to some locations in the Eastern desert. The objective of this visit is mainly to present the concept of integrated water management as has been understood from different recipients, i.e. from the small farmers to the large investors.

From this place I would like to thank H. E. Dr. Abu Zeid, The Minister of Water Resources and Irrigation and the Chairman of the Panel for more than 15 years for his sincere and dynamic guidance to the Panel project till it becomes a unique and successful example that many other countries try to follow.

I would like also to thank the Netherlands Embassy, especially H. E. The Dutch Ambassador Mr. Leenstra, Mr. Peter Flik, The Head of Development Division and Dr. Tarek Morad, The Senior Program Officer, Drinking Water/Sanitation and Agriculture for participating in this seminar. Without the continued support of the Ministry in The Hague and the Embassy in Cairo, we could not have worked together so closely and successfully all these years. Also I extend my gratitude to the presenters, participants and organisers for their enthusiasm and interest. Finally, I wish you all the best and I am looking forward to a successful and fruitful seminar. Thank You.



Address by Dr. Mahmoud Abu-Zeid

Minister of Water Resources and Irrigation and President of the World Water Council

May I take this opportunity to welcome you all to this important conference which is held in one of the most picturesque resorts of the Red Sea, Hurghada. In a time truly critical, a time when the alarm is on, alerting us to make a positive move on the international scene, as far as water and overall development is concerned.

In response, the World Summit on Sustainable Development was held last September in Johannesburg, and the World Food Summit was organised in Rome in June of the same year. A few months earlier, the Water Conference was held in Bonn. Next March 2003, we are all looking forward with high hopes to the convention of the Third World Water Forum to be held in Japan; these forums have no doubt become the world's greatest triennial events in the field of water on the global scale. As you may know, the second of this series of Forums has been held in The Hague in March 2000, organised by the World Water Council in co-operation with The Netherlands. In each of the mentioned conferences, water has been topping the list as the fundamental element of development. The optimum and rational use of water has always become the core of discussion.

Of course I will not re-state to you today the recommendations and main issues raised in such conferences. Nevertheless, I wish to confirm that the international community envisions the expected water conference in Kyoto as an important event that will discuss numerous issues; it is enough to know that the agenda includes about 300 technical sessions, besides two Ministerial conferences: one for the Ministers of Agriculture and the second for the Ministers of Water and other politicians. The Kyoto conference is expected to be attended by some 8000 participants, and we are still debating what those meetings may come out with, how we can make best use of its decisions and recommendations, and from all being together.

Undoubtedly, we are all aware of the challenges that face the international community and of the not negligible number of people subject to lack of food, water and sanitary conditions. We are aware as well with the commitments and targets that the world community has adopted in the previously mentioned summits and also with the financial, institutional and ethical requirements and the challenges that face the developing countries, of which Egypt is no exception.

It is beyond the scope of our present meeting to bring to the forefront those issues, all at a time, yet we will certainly highlight how the co-operation between numerous donor institutions and friendly countries has helped Egypt to successfully face those challenges and surmount major difficulties. Naturally, we will not be able to go deep into the detail of each issue, yet we will focus mainly on the achievements of the Egyptian-Dutch co-operation, where it was agreed that one of the sessions in Kyoto will be dedicated to this co-operation as one positive example of a success story. It is certain that this assembly of distinguished key persons and participants today will

assist in publishing the main themes of this session and in emphasising the messages that can be disseminated to the whole society world-wide.

I take the opportunity today to express our appreciation for the substantial assistance that was and is still being offered to us, particularly by The Netherlands. Today is the 28th year in the lifetime of this support, besides contributions from other countries and institutions represented in our meeting today that are beyond the scope of enlisting. It would be my honour to point out that all of them have contributed to outlining and implementing the Ministry's and country's future water vision for Egypt. No doubt, this vision coincides to a great extent to the world vision as far as the following challenges and solutions are concerned:

- A world of continuous increase in population (Egypt's present consensus is about 70 million, expected to increase to some 100 million in twenty years time. Statistics indicate that this consensus was approximately 20 million people fifty years ago with constant surface water resources since 1959);
- Huge financial requirements on the global scale; additional 100 billion dollars annually are required for water structures, most of which are in the developing countries, and about 14 billion dollars per year are required for Africa alone;
- Lack of water resources, where a number of 26 countries suffer now from water scarcity world-wide, subject to increase to 66 countries by the year 2025;
- Continuous deterioration in the water quality and increasing risk of pollution problems;
- More than 300 international rivers not pertaining to international or even regional agreements for solving disputes among its riparian countries.

The World Water Council is currently preparing a 'Water Actions Report' that comprises the most important executive programs adopted since The Hague conference held in the year 2000. It is worth mentioning that Egypt had a distinguished contribution to this report.

As you may know, Egypt has developed its water policy till the year 2017, by virtue of which numerous executive national programs are presently being implemented. Developing this policy and outlining Egypt's future strategy till the year 2050 is also being considered and will be presented to you in this conference.

If we are to speak today of the Egyptian-Dutch co-operation and how it has evolved and flourished throughout the past 27 years, it is not to be ignored that many of the professionals and technicians from both parties have contributed to this co-operation and I am pleased to express to them our sincere appreciation and gratitude, whether they have ended their mission or are still on duty. In this concern, I would specially wish to thank H.E. Mr. S. Leenstra, Ambassador of the Netherlands in Egypt and all his collaborators and work team here in Cairo. If I list on this occasion some of the distinguished signs of this co-operation, I should include:

- Institutional reform
- Public-private partnership
- Integrated water resources management
- Water quality

- Stakeholders participation
- Water resources planning
- Groundwater Management and development
- Flood and drought mitigation

My colleagues will elaborate on some of these topics during the next two days. It is also unique to announce that our joint co-operation has been developed from a *support program* to a *Partnership Program* that will have the ability for self-continuity and sustainability. I will touch later on some of the details about the Ministry's vision and its activities in the field of institutional reform and public-private partnership. Yet, I would like to clarify that the Ministry's policy as related to the Water Sector is proceeding towards a new trend of limiting its role merely to set and overview the water policies and supervise the management and operation of the principal water structures, meanwhile fully co-operating with the Nile Basin countries, developing and implementing national projects, outlining and executing the Integrated Water Resources Management (IWRM) policies, and upgrading the skills of the professionals and technicians by high-calibre training to confidently and effectively cope with future challenges. This policy will be supported by establishing specialised companies and laying more responsibility on the shoulders of different stakeholders. As evident, all such complex of matters may necessitate appropriate modifications of the laws and regulations, a fact that is on-going at present, as well as modifications in the Ministry's structural organisation as needed.

Distinguished participants and guests,

I am totally confident that your valuable participation will have utmost effect in fully comprehending the principal issues raised, and I am pleased to have you share with us most, if not all, of these activities.

Wishing you a fruitful time and a very pleasant stay in Hurghada.
Once again, thank you and best wishes.

Address by Mr. Saad Abu Reida

Governor of the Red Sea Governorate
(Summary Translation from Arabic)

Mr. S. Abu Reida welcomed the distinguished seminar participants in the Red Sea Governorate, which occupies nearly 18% of Egypt's total area. He stressed the importance of tourism industry for Egypt as it provides one sixth of the total country income. He elaborated on the growth of tourism activities in the Red Sea Governorate as the number of hotel rooms increased from 11800 in 1997 to almost 34000 in 2002 with 18000 more rooms under construction. He stressed the fact that fresh water scarcity in the Governorate is a main constraint for development. He would like to put some 20000 feddans under agriculture to support the governorate basic needs. The conveyance of Nile water to the coastal districts involves the

problems of distance and crossing the elevated Red Sea Mountains. Two pipelines currently are operating namely; Qena-Safaga pipeline with a total length of 156 km and capacity of 50000 m³/day and El Kurimat – Ras Gharib pipeline with a total length of 140 km and a capacity of 100000 m³/day. Mr. Abu Reida urged the gathering to think of the Red Sea Water Resources as they study and discuss water management in Egypt. He extended his best wishes for a fruitful seminar.



Address by Mr. Sjoerd Leenstra

Ambassador of the Kingdom of the Netherlands

I see here an impressive gathering consisting of representatives of different ministries, universities, the private sector, investors and consultancy firms, non-governmental organisations and representatives of donor organisations. I am pleased to see this variety of persons, representing different interests and views, because all of you have a vested interest in a proper allocation of ever-scarcer water resources.

I also appreciate that we have experts from the region with us. Not only because the subjects themselves are of interest to you and could be of great use in your own countries, but also because water is, increasingly, an international affair.

Since my arrival in Egypt, over two years ago, I have come to know quite a few of you well and I have come to admire your commitment and enthusiasm. I can say wholeheartedly that the water sector programmes we have been involved in over the last many years, have greatly contributed to the excellent relations between Egypt and the Netherlands. The subjects tabled during the next three days clearly reflect how

the Ministry of Water Resources and Irrigation has evolved and, with it, the assistance provided by the Netherlands and others donors.

While at the beginning of our co-operation programme the emphasis was on transfer of technology, the development of technology in Egypt is now important. The concept of planning evolved over the years. From a blue-print approach to one that logically and when needed flexibly links policy with plans, one that takes quantity and quality aspects into account, one that looks at supply and demand and at the ways to influence this demand. One that gives a voice to the different water users and takes the interests that are expressed into serious account, and tries to reconcile these often conflicting interests in order to arrive at equity.

We all know that this is easier said than done, not only as it touches on vested interests, but also because it means change in the way the MWRI and other ministries and organisations deal with each other and with the public. I hope that the experiences in the Netherlands with integrated water resources planning have offered some assistance in redefining these roles.

The above has much impact on the relationship between the State and civil society. What is (still) the domain of the State and where and how does the private sector and civil society come in? You will all agree that there is not one answer to this and as you will have noticed different donor agencies and international financial institutions have sometimes-different views. It is therefore of the greatest importance that Egypt, taking into account the various approaches in different parts of the world, defines its policy, which of course is based on its own history and experience.

Also in this respect the bilateral development co-operation programme has, in my view, contributed creatively. There are very many examples that can be mentioned e.g. the support first in the Fayoum and now also on a national scale to the formation of Water Boards. The same counts for the continued assistance over many years to water quality issues, of surface, drainage, and groundwater that has resulted in the setting up of the Water Quality Unit.

All the above can not leave the MWRI unchanged. The Ministry responsible for the quantity and quality aspects of the water resources, without which nothing is possible, will have to adapt to the change.

I look forward to a very fruitful meeting, thank you.

Address by Mr. Peter Flik

Head of the Development Section, RNE

In 1998, the Policy and Operations Evaluation Department of the Netherlands Ministry of Foreign Affairs published an evaluation of the Netherlands Development Programme with Egypt 1975 – 1996. The findings concluded that bilateral assistance to the water management sector had been the largest element in the Netherlands development co-operation with Egypt; support had a predominantly engineering focus. Since the early 1990s, teams consisted of technical experts such as civil engineers and hydrologists, but later on socio-economic and organisational experts were added.

Netherlands support for the water sector was innovative in several respects; the introduction of computerised models for water management purposes, the use of movable beds and computer models for hydraulics research, the introduction of biological weed control by means of grass carp, the introduction of re-use of drainage water for irrigation, and the experiments with water users associations in Fayoum as an instrument for participation in organisation and maintenance and improved water management.



Objectives broadened and increased in complexity during the period and attempts were made to incorporate policy themes, such as environmental conservation, and women and development. There were also changes within the three main components of the support programme. In research, the emphasis shifted from drainage technology to reuse of drainage water for irrigation and subsequently to integrated water management and data collection for environmental problem identification. Training remained prominent throughout the period, but increasingly it took place in Egypt, gradually coming under full control of MWRI and the initial emphasis on improvement of technical capabilities was broadened to institutional strengthening. The evaluation concluded that despite the dynamism of the programme, the principle institutional constraints were not always tackled, some of the main causes being outside the control of the recipient organisations, and could only be addressed effectively in the wider context of civil service reform.

Since then, we have witnessed a clear political will for change, which has made change more tangible and sustainable. These results are being discussed these days, in the period that a clear policy agenda is taking shape.

The Netherlands plans to end its co-operation programme with Egypt at the end of 2004, although we still hope that a decision will be taken that allows us to continue co-operation in a number of areas. These will focus on water quality issues, an area that is increasingly receiving attention as it is of vital importance for the social and economic development of Egypt. This subject touches on many ministries and institutions, with the MWRI as the focal point, as the spider in the web.

Such a programme will give due attention to groundwater, to the relationship between drainage and surface water, while it will also take municipal and industrial pollution, and of course solid waste, into account. The organising principle for water users in a vision that takes a time horizon of 20-25 years can be Water Boards, and as we all know heated discussions are ongoing on this subject. And if the Netherlands can not continue after 2004 then I trust that other donors will be interested to join in.

The agenda is a very good one leading up to the main issues relevant for the Ministry now.

I am not mentioning all, but just touch on a few subjects. The NWRP is on the agenda. This links the MWRI to other players in the field. It will be directly relevant for policies and actual water use, for quality and quantity. By mid next year we will discuss the results of the planning process. The Water Boards, the Water Quality Unit and the Groundwater Sector are on the agenda on day three. Especially regarding the Water Boards decisions need to be taken, both legal and practical to maintain the momentum. Concerning Gender I request your attention to the showing of an excellent video in this subject, prepared by the Panel. It will open your eyes.

As the Ambassador stated, the MWRI is changing to accommodate the present and future challenges and I am pleased that the Institutional Research Unit (IRU) has been established to guide this change process. We signed the arrangement regarding

our contribution to the IRU, to which also GTZ and others are contributing, only a few days ago. I am equally pleased that the various donor agencies, together with MWRI have moved to more concerted and common action in other fields.

A few remarks about the Panel. The Panel acts like a 'Think-tank' bringing the Minister and other persons knowledgeable in their own field in the different countries together. It is there to share experiences, to discuss best practices and sometimes worst practices as well, because one learns a lot from these. But indeed it is very small and relies on others. It is not there to perform miracles, but to initiate and this it has done in a remarkable way. Its composition changed over the years reflecting the changed demands put on the MWRI. Concerning continuation of the Panel a letter of Intent was signed between MWRI and the Netherlands Ministry of Transport, Public Works and Water Resources. This seminar fits in a series of meetings and links up with the RTC-2 planned for next week and then later with the WWF.

I wish you all success.

SESSION 1. THE ADVISORY PANEL

Chairman: Dr. M. Abu Zeid

Reporter: Mr. Ele Jan Saaf

Two papers were presented during this session. These papers were:

1. The Advisory Panel Project and its Scope of Work, presented by Dr. Samia El Guindy;
2. Egyptian-Dutch Panel Mutual Benefits, presented by Eng. J. Faber

The main scope of the session was to present and discuss the APP and the modalities it employed over the past 26 years. The APP is perceived as a successful formula for co-ordinating and linking developmental projects in the water resources sector with policy development at the national level in Egypt.

For the contents of the presentations the reader is referred to the CD with texts and presentations.

Comments and questions

The two speakers asked the audience to reflect on the question whether the APP was still a useful formula for continuation or if it has outlived its' usefulness. The following comments and questions were raised:

- A large number of projects (45) were implemented under the general co-ordination of the APP. One of the members of the audience (the newly appointed Head of the Water Quality Management Unit) wondered if the APP could make available the large number of technical reports, progress reports, manuals, and technical notes so that new projects could benefit from these. Dr. Samia El Guindy noted that the panel secretariat only had limited resources to facilitate this, but that the secretariat has a database that contains relevant project data and references. She invited any interested parties to make use of this database.
- One comment was made by a representative of UNESCO that in his perspective the sustainability of the APP was due to two factors: (1) the move from technical co-operation to a real partnership including the necessary trust between the different parties and (2) the attention to social dimensions of water use, through which the panel gave itself an added role as guardian of socio-economic aspects of water management in Egypt.
- A question raised by Delft Hydraulics was whether the APP had ever worked, possibly on a commercial basis, in other countries to transfer the lessons learned? The chairman answered that on occasion this was done. Another member of the audience detailed the co-operation between The Netherlands, Egypt and India in this regard.
- A representative from Sudan asked whether there was a link between the work of the APP and the Nile Basin Initiative. The chairman agreed that this would be a good idea but that such a link had not yet been made.

- An advisor of the minister lauded the role of a number of individuals in making the APP project a success. Specifically Dr. Samia EL Guindy was thanked for her role in the APP. A second comment of the advisor was to emphasise that the numerous projects co-ordinated by the APP were a school for scientists in Egypt. He asked the minister to ensure that this school would continue to exist.



This group photo was taken during the 36th Meeting of the Advisory Panel in Haarlem, The Netherlands, May 2002.

From left to right:

- | | |
|----------------------------|----------------------------------|
| 1. Dr. J.P.R.A. Sweerts | 13. Eng. Hussein El Atfy |
| 2. Dr. Magdy Salah El Deen | 14. Dr. A. Ahmed Goueli |
| 3. Dr. W. Wolters | 15. Drs. H.J. Tankink |
| 4. Dr. Samia El Guindy | 16. Dr. Shalan Nasr Shalan |
| 5. Dr. Tarek Morad | 17. Eng. Yehia Abdel Aziz |
| 6. Ir. C.D. van der Wildt | 18. Dr. M. Bahaa El Deen |
| 7. Dr. Tarek Sadek | 19. Dr. Fatma Abdel Rahman Attia |
| 8. Mr. P. Flik | 20. Mr. R. Havinga |
| 9. Ir. J. Faber | 21. Eng. Hussein Elwan |
| 10. Ir. J. Boeve | |
| 11. Drs. C.J. Kalden | |
| 12. H.E. Dr. M. Abu Zeid | |

SESSION 2. TRANSFER AND DEVELOPMENT OF TECHNOLOGY

Chairman: Mr. J. Faber

Reporter: Dr Tarek Sadek

Six papers were presented during this session. These papers were:

1. Drainage Technology, presented by Dr. M.H. Amer
2. Groundwater Management, presented by Dr. A. Khater
3. Channel maintenance and Weed Control, presented by Dr. T. Kotb
4. Water Quality Monitoring and Pollution Control, presented by Dr. Shaden
5. Nile River Engineering and Hydraulics, presented by Dr. Bahaa
6. Regional Dimension of the Egypt-Dutch projects, presented by Dr. Boeriu

The papers highlighted the key role the Dutch-Egyptian bilateral programmes played in development of technologies and capacity building in the fields of drainage, groundwater management, channel maintenance and weed control, water quality monitoring and pollution control and finally Nile River engineering and hydraulics. The following can be concluded based on the general discussion:

- Drainage is a dynamic process and many criteria should be considered in the present strategy of the MWRI. For instance cropping intensity will increase and drainage schemes and technologies should be adopted accordingly. Also, the impact of free cropping pattern on drainage is to be taken into account.
- The drainage in closed basins (e.g. Toshka project) should be studied. Equilibrium of water resources used (i.e. water balance in closed basins) needs to be defined in order to set the different policies of the agricultural sector.
- It was suggested to study the impact of the drainage projects on Egypt's economy. The reduction of cost when the drainage projects are completed need to be investigated to define the benefits that can be gained from the drainage projects (i.e. cost/benefit analysis and economic studies).
- Integrated approach was recommended in development of drainage projects. This will require new organisational settings and institutional reforms. All sectors and stakeholders such as Agriculture, Industry, Housing, etc. should be involved in main issues for future development.
- Experience gained from the artificial recharge indicated that care should be taken to avoid pollution of groundwater and to promote the environmental impact assessments of this action. Recharging of the groundwater aquifer with the polluted drainage water should be avoided.
- It is important to show how to transfer the technology gained from the Egyptian-Dutch bilateral co-operation to other regional countries. The Hydraulics Research Institute had good experience with training of the Nile Basin countries and Arab countries on River engineering and Hydraulics applications. The Drainage Research Institutes had similar experience and co-operation with India. Also, the Research Institute of Groundwater (RIGW) paid attention to capacity building and transfer of knowledge on groundwater protection.

- It was suggested to consider water quality, maintenance and weed control in wetlands by the Channel Maintenance project. The importance of the private sector participation in channel maintenance activities was highlighted during the discussion.



SESSION 3. INTEGRATED WATER RESOURCES MANAGEMENT AND PLANNING

Chairperson: Dr. Mona El Kady

Reporter: Mr. Hans van Leeuwen

Four papers were presented during this session. These papers were:

1. Overview of the National Water Resources Plan for Egypt, presented by Dr. T. Sadek
2. Formulation of Egypt's Future Water Policy, presented by Eng. Nader
3. Fayoum Water Management, presented by Eng. Nagwa
4. Flood and Drought Control, presented by Eng. Mamdouh Antar

Water resources in Egypt are becoming limited and scarce and consequently the classic approach of planning and supply management are no longer applicable. Under scarcity conditions an integrated and dynamic approach in water resources planning is required, which includes demand management and water quality management.

Integrated Water Resources Management incorporates both the natural water resources system and the human systems and interactions in the process of managing the water resource. This is not an easy task and requires awareness raising among the various stakeholders and reconciliation between conflicting interests of stakeholders.

Water management can no longer be a fragmented approach for the different sectors and stakeholders, but calls for a holistic approach that includes both the natural, environmental and human interactions with the water resource.

The presentations showed the achievements of the MWRI in developing a National Water Resources Management Plan. The results of the NWRP are to be the following documents:

- National Water Policy Document
- National Water resources Management Plan
- Technical Documents on Water resources assessment and planning tools

The National Water Policy to 2017 follows three principles:

- Optimise available resources
- Prevent pollution through water quality management
- Increase supply of water through development of non-conventional resources and through collaboration with other Nile countries to implement upstream water saving projects

The question was raised of how to maintain a sustainable planning mechanism in Egypt.

It is recommended that a National Water Commission will be established with a clear mandate that encompasses the major stakeholder groups in the different sectors of the Nation. The National Water Commission needs to be established at a high political and Administration level, preferably at the level of the Cabinet. Both the National Water Commission and the National Water Policy require a legal status, in order to ensure adherence to the National Water Resources Management Plan.



EXCURSION TO WADI DARA AND EL GOUNA

Field Excursion to Water Management Projects at Wadi Dara, Ras Gharib, and El Gouna; North Hurghada, Red Sea Governorate, Eastern Desert Egypt

1- Basic Information

During the field excursion, there will be a stop at two water management projects in the Red Sea Governorate at the Eastern Desert of Egypt. The two stops are Wadi Dara agriculture project on the Ras Gharib basin and El Gouna Resort and its complementary integrated development projects in Hurghada Basin.

Physical Setting

Ras Gharib – Hurghada basins consists mainly of a great backbone of high mountains running parallel to the Red Sea at comparatively short distance from the coast, and flanked on the West and North by highly dissected lower plateaux. The great mountain axis represents the main Nile – Red Sea watershed.



Climate

The Red Sea region is considered as one of the driest parts of Egypt. This region is characterised by a warm and almost rainless climate. Air temperatures rise up to 35 °C in the daytime during the summer and falls down to 5 °C even during the coldest nights of winter. Northerly winds are prevailing.

The average annual rainfall over this territory as a whole is only about one centimetre, and seasons of heavy rainfall over high lands lying along the Red Sea littoral zone are occasional. The activity of water in full flood leaves its traces everywhere in this portion. The rare sudden rainstorms come down with great force and can result in considerable mechanical damage in short time.

Geomorphology

The area is mountainous in some parts, and dissected by deeply incised Valleys in the remainder. Plant, animals, and all human activity are generally confined to the lines of drainage (Wadi's) and the coastal plain.

Red Sea Governorate

Administratively, the four areas belong to the Red Sea Governorate, which covers an area of about 130,000 Km². The total population of the Red Sea Governorate, according to the 1996 census, is 160,000 inhabitants. Most of population engaged in tourism and mining, and many of them performing economic activities such as fishing, construction and commerce.

Water Resources

The Water resources in the Eastern Desert are mainly developed parallel to the development of mining and the production of crude oil. Three different major water resources can be considered for the development of the Red Sea Governorate:

a) Groundwater

The groundwater potential is greater than has been generally believed. Deep settled groundwater (Nubian system), which occurs in the western part of the eastern desert (Wadi Qena and Wadi El Leqita) is sure to offer a certain potential for agricultural development. The Coastal And Wadi Aquifers are of more restricted potential. This however could easily fulfil the existing and short – term water requirements of the main towns and small scale agricultural projects (Wadi Dara, Shagar, and El Gouna). The water is brackish (2500 to 5000 ppm) and must be de-mineralised, at least for human consumption.

b) Nile Water

The conveyance of Nile water to the coastal districts involves the problems of distance, and of lift over the elevated Red Sea Mountains. Two pipelines have been accomplished at the shortest routes (Qena - Safaga with total Length of about 156 km with capacity of 50,000 m³ water /day & El Kurimat – Ras Gharib with total Length about 140 km with capacity of 100,000 m³ water/day).

c) Sea Water Desalination

There are no inherent technical problems for SWD on Red Sea coast, but this supply remains costly. In addition to those three major water resources there are two minor sources, which are flood retention and Urban Sewage.

2- Excursion Program

Date: Friday, 13 December 2002

07:00 Breakfast

07:30 Departure to Wadi Dara, (179 Km North Sheraton Soma Bay Hotel)

9:30 Visit to Wadi Dara Agricultural Project

- Dara Oasis, Shallow Wells (Tamiela), Groundwater Monitoring & Sampling (30 minutes)
- Private farmer irrigation Practices Deep Wells (Askar Farm) (30 minutes)
- Irrigation Practices & Geophysical Techniques for Groundwater exploration (Magnetic and Ground Penetrating Radar) (30 minutes)

11:00 Departure from Dara to El Gouna

12:00 Visit to El Gouna Resort Compound

- Desalination Unit & Fish Farms (40 minutes)
- Sites view (50 minutes)

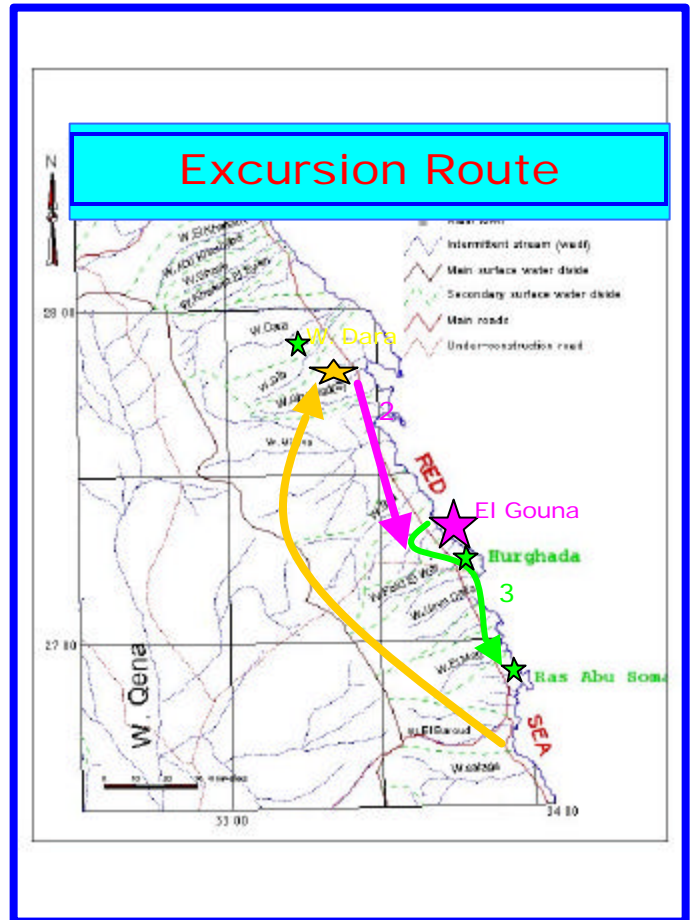
13:30 Lunch at LTI Paradisio Hotel

15:00 Tour at El Gouna Oasis & Farms

- Production Wells & agricultural development (10 minutes)
- Poultry and animal husbandry farms (10 minutes)
- Waste Management (20 minutes)
- Desert Breath (20 minutes)

16:30 Departure from El Gouna Oasis to Abu Suma Via Old Hurghada city

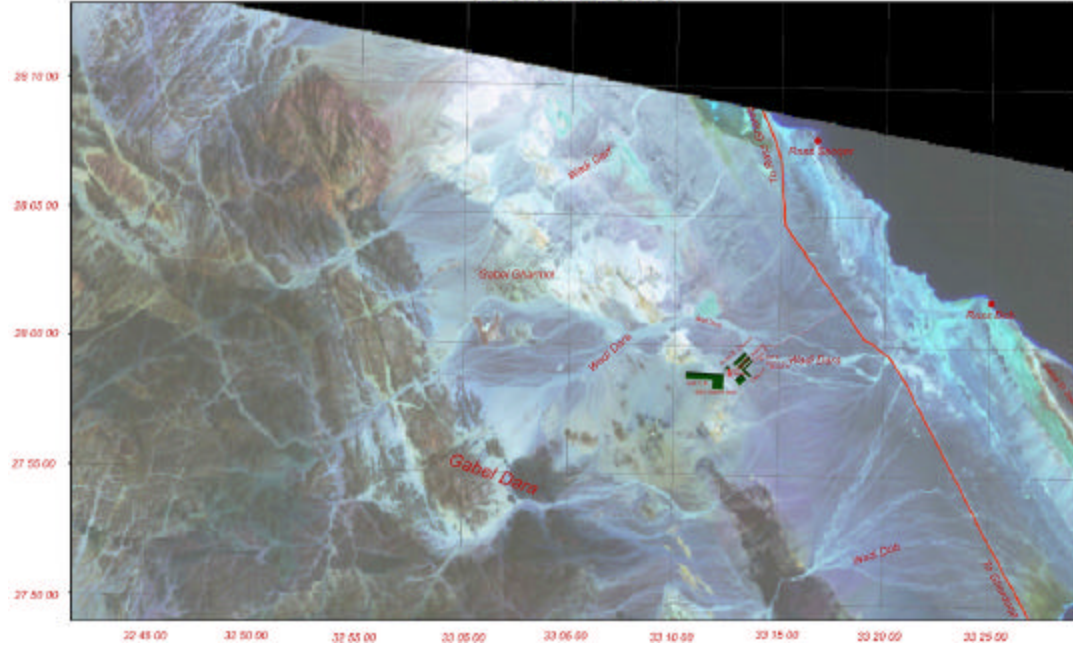
17:30 Arrival to the Hotel



3- Wadi Dara

Wadi Dara and Dara tectonic plain are located 40 Km in the southwest of Ras Gharib near the high mountains. It is surrounded by structure highs. The groundwater and soil potentialities of Wadi Dara are low, while, the groundwater and soil potentialities of Dara tectonic plain are relatively higher.

Wadi Dara



Area around Wadi Dara Agricultural project

(Image acquired October 3, 1999)

Dara Agricultural Co-operative Company drilled about 15 production wells; five of these are shallow wells (Tamiela) to cultivate 1000 acres at Dara plain and serve about 200 farmers. The other wells are 10 deep wells (100 meters deep) are used to reclaim about 4000 acres, and serving 80 farmers.

The design of El Ahally wells was not appropriate and highly concentrated in area characterised by a structure that causes low groundwater flow and relatively low groundwater storage. The well water is recharged mainly from the western high mountains through deep faults and maybe from Aish El Malaha Depression.

The groundwater storage is relatively better in the western part of the plain than in the eastern part. Water table is relatively near the ground surface in the western part of the plain nearby the mountain and become deeper eastward. The groundwater salinity is relatively low near the mountain (1000 ppm) and become relatively high up near the east (5000 ppm) due to the effect of marine sediments.

4- El Gouna Resort and Oasis

El Gouna, the Red Sea's premier leisure destination, is built on 10 km's of beachfront and boasts unique and diverse architecture, spread across a myriad of islands inter-linked by beautiful lagoons. El Gouna offers a wide range of accommodation from comfortable guesthouses to luxurious beachfront 5-star Hotels.



El Gouna Oasis

The Oasis is located about 10 minutes drive from El Gouna. It is the home of Hag Ahmed, Sheikh of Ababda Tribe of the Bedouin Community, and the oasis existed before El Gouna was created. It features a natural grove of date palms, wells, thatched-roofed huts, Bedouin tents, pigeon houses, and a garden producing tomatoes, citrus fruits and melons. Recently El Gouna's management located, near the Oasis, different complementary integrated development projects to keep the Red Sea environment clean. These projects are:

- 16 Production Wells & agricultural development
- Poultry and animal husbandry farms
- Waste Management factories
- Desert Breath (land arts installations)

El-Gouna Integrated Fish Farm

A way of making use of the desalination waste water in a tourist village on the Red Sea. The desalination plant of El Gouna utilises brackish groundwater with salinity between 2000– 6000 ppm. The by-produced waste water is around 1200 cubic meters daily. The only way to get rid of this water was to dump it onto the nearby

desert and leave it to dry, which created large swamps full of mosquitoes & other insects, and made a very unpleasant sight. The salinity of the waste water ranges between 11000 –17000 ppm and its temperature is around 30 °C. The chemical analysis showed that this water is suitable for raising 1st class table fish of Egypt such as Grey Mullet, Sea Bass, Sea Bream, and Groupers.



The idea of the 'Fish Farm Project' was simply to make ponds in the desert land closed to the desalination plant, instead of the swamps, to collect the waste water and raise fish. The topography of the desert land helped to divide the ponds into 3 levels to separate between herbivorous and carnivorous species with keeping all ponds connected in the same time.

The daily water loss by evaporation and seepage in the fishponds was measured. It was found that the total pond area should be around 9.5 feddan in order to use the daily waste water and compensate the water loss, and by that, there will be no waste water left to get rid off. The only problem facing the project was that the waste water coming from underground and passing through filters & membranes, contained no dissolved oxygen or any type of live food such as phyto- & zoo-plankton. To solve this problem:

- A waterfall was built over a collecting tank. The waste water passes from above the waterfall to the collecting tank and then to the ponds. This process increases the dissolved oxygen to the maximum.
- A duck farm was established on the middle pond of the upper level creating an integrated system where the ducks play into the pond water and their faeces & food acts as water fertiliser and feeding materials for fish. The ducks are being fed the kitchen waste of the hotels only. No artificial feeding, no antibiotics and no chemicals being used in growing both fish or duck. That is utilising the unwanted water and the hotel kitchen waste of El Gouna utilised to produce two healthy crops, which meet a very strong market in El Gouna, by both the residents and the hotels.

The upper level of the ponds was made in an irregular shape in order to match the tourism approach of El-Gouna. A part of these ponds were fenced, and some birds & animals were kept inside to live freely in a process of creating an open natural park where guests can do bird watching or fishing or just spend some time with nature.

Finally, it was noticed that migrating birds land on the farm area during their seasons, attracted by the water & duck farm sight. A record of all these birds is being kept containing the birds Latin & local name. The arrival and departure time, description of the bird & its behaviour during its stay and a fresh photo were also taken into consideration.

SESSION 4. INSTITUTIONAL REFORM

Chairman: Mr. C.D. van der Wildt

Reporter: Dr Hesham Kandil

Five papers were presented during this session. These papers were:

1. Dutch Experiences with Institutional Reform, presented by Mr. C.D. van der Wildt
2. Development of Water Boards in Egypt, presented by Mr. J. Bron
3. Institutional Development in Groundwater Sector, presented by Dr. Fatma Abdel Rahman
4. Institutional Development in Water Quality Management, presented by Dr. Abdel Khalek
5. Gender in MWRI, presented by Dr. Samia El Guindy

Dutch Experiences with Institutional Reform:

Changes in the Dutch Ministry of Transport, Public Works and Water Management were necessary for the following reasons:

- Political and social developments such as the intention that Government organisation should involve the private sector as much as possible. The Government should only carry out those activities, which can not be done by the private sector.
- Another reason may be the steadily increasing influence from the European regulations. The European Commission in Brussels dictates more than 70 percent of our laws.
- The Government and the Ministry have to become more transparent.

The Reform Process should be taken up with:

- A result orientation rather than a study-orientation
- Changes step by step
- Commitment from the top
- Good Communication, very important
- Relative speed. Do necessary changes in a short period

Assessment of the Reform Process showed improvement in client satisfaction.

Lessons of the process:

1. Follow very closely the opinion of the politicians and try to stay on the same wavelength. Pay attention to the feeling of the personal and monitor their satisfaction frequently.
2. With regard to organisational structures, try to change the structures as little as possible. If changes are necessary do it in a short period.
3. Especially the Ministry of Transport, Public Works and Water Management has many different disciplines and tasks. Each division in charge of these tasks needs their own approach.

4. Finally it is of interest importance that the people inside the organisation are heavily involved. They should be able to understand and explain the change process themselves



Development of the Water Boards in Egypt:

The paper presents status of the water resources in Egypt and physical improvement and constraints for further improvement. The paper also presents options for the future.

History of user participation is reviewed, starting with traditional participation especially in Fayoum area and formulation of WUA at the Mesqa area to recent efforts of Irrigation Management Transfer, Water Federations and establishment of Water Boards at the branch level.

Achievements of the Water Board Project were presented however; main constraint is the legislative limitations for wide application of the Water Boards (law 12 modifications are underway).

Lessons:

- User Organisations could be establishment without physical improvement.
- Users who are poor and low education, with proper assistance, could be very capable to organise the board. Success without legal framework is encouraging but should not be deceiving.
- Performance should improve with time otherwise there is a danger of collapse.

Conclusions

Roles and responsibilities of WB at the branch level are very limited. WB at the branch level is not sustainable and will not fulfil the objective of relieving the government from its burden. Hence strong recommendations were given to upscale water boards to the district level and for the law amendments to take place.

Sustainable Water Boards should have clear mission, mandate and legal framework. Human resources development is important to run Water Boards. Autonomous with accountability WB set-up is required. WB at the district would be more economic and successful.

Institutional Development in the Groundwater Sector:

Mandate and mission of the reform were presented. GWS is still in the establishment stage. Scope of the 3-years old sector includes groundwater resources, flash flood protection, and rainfall harvesting covering the Nile Valley, Delta and deserts. The paper presented the various working environments and possible future changes (internal--MWRI, sector and external).

Results of the analysis indicate that:

- A first step in the reform is the initiation of Integrated Water Management Districts (IWAMAD), after piloting and deciding on the constitution of such districts. An important point to be decided upon is the vertical communication line.
- The constitution and mandate of the IWAMAD should be made according to the regional structure and characteristics and involvement of the Ministry's sectors in such regions.
- Formation of Water Users Associations and Water Boards, as convenient, is a must to ensure the sustainability of developments for the groundwater and water related systems. However, this should consider impacts on disadvantaged people, especially small users (the poor communities).
- Capacity building should be considered an integral element of the IWAMAD to enable the staff to perform their duties properly.
- An institutional reform for the Groundwater Sector alone cannot materialise if the present structure of the Ministry remains as it is at present. It is thus recommended to consider the IR at all levels, taking into consideration the present main responsibility of the MWRI, which is '(Integrated) Water Resources Management'.

Institutional Development in Water Quality Management in Egypt:

Review the policy of the GOE regarding the supply and demand and MWRI actions for environment protection with emphasis on water quality. Brief review was presented on the water quality status in Egypt and impacts on health. This review ends with the conclusion that polluted water bodies may represent considerable health hazards to the population. The above reasons and the role and mandate of MWRI's lead to the establishment of a water quality structure in the Ministry.

Water quality management elements are legal aspects, monitoring and pollution control. Water quality management problems were summarised in terms of project driven activities, unrealistic standards and criteria and poor enforcement of the legislation.

Visions of water quality management include proposals to tackle the mentioned problems. Enhanced co-operation, raising awareness, human resources development, monitoring on two levels one for the operational and the other for the overall assessment purpose. More realistic standards would result in better compliance. This principle will be followed in the review and amendment of laws and regulation in the future.

Implementation of the water quality management measures and protection by the WQM unit will be carried out on a pilot scale first followed by wider applications after proper testing and evaluation.

Gender in MWRI:

The paper covers the importance of gender mainstreaming in policies and strategies of the MWRI. Main objective of the gender mainstreaming is to provide equal opportunities and benefits for men and women derived by effective and efficient water resources management. Focus should be at the grass-root level (poor farmers). About 30% of the landowners are women. The objective of the gender mainstreaming should be included in the current efforts for decentralisation and institutional reform activities.

Gender assessment studies and gender training were carried out at the level of district. Issue paper comprised main constraints and problems facing women, e.g. night irrigation.

Gender Focal Point was established to address current debates on strategies and critical gender items to be included in future MWRI policies.

Concrete steps for the mainstreaming of gender (putting gender policy paper into action):

- Integration of gender objectives and strategies in the National Water Resources Plan and other policy development process.
- Regular monitoring of new policies implementation by Gender Focal Point.

A documentary film was presented to show the important role women in the agriculture and irrigation activities and various views of different gender in the subject.

General Discussions

- Data from current monitoring activities has a lag time for around one-year. This will not satisfy the demand on water quality data for operational purposes and on short-term basis. Monitoring networks could only fulfil the planning and research purposes.

- Caution should be given to any suggested relaxed and flexible standards otherwise desired protection of water quality will not be achieved.
- Starting from the year 2000 and through the national water quality management program national investment started to replace foreign supported projects. The water quality monitoring should be designed based on local capacity in terms of equipment and finance.
- IWRM will be more effective on the irrigation district level rather than the Inspectorate level. The Inspectorate level is more for execution rather than management.
- Expectations of Water Boards ought to be realistic with considerations that supports they receive from government and foreign projects will stop at one point.

SESSION 5. A VISION FOR THE FUTURE

Chairman: Eng. Abdel Rahman Shalaby

Reporter: Dr. Tarek Kothb

Three papers and several Views were presented during this session. These were:

1. A Vision of MWRI towards Institutional Reform, presented by Dr. Mahmoud Abu Zeid
2. USAID-MWRI Partnership, now and future, presented by Dr. Ross Hagan (USAID)
3. Egypt and the World Bank group long association and fruitful co-operation, presented by Mr. Ossayed El Hanbali (World Bank)
4. Views of Mr. Thomas Selzer (KFW and GTZ)
5. Views of Mr. Kamal Rathle (Swiss Embassy)
6. Views of Mr. Joseph Embrechts (European Union)

The Chairman opened the session by giving emphasis on the importance of this distinguished gathering in concluding the future vision of MWRI as well as the donors' vision after attending the presentations concerned with the historical review of the Egyptian-Dutch co-operation with respect to the technical and institutional developments in the water sector of Egypt. The Chairman gave the floor to H.E. the Minister of WRI who excellently presented the future concerns of MWRI and concluded with a clear Vision for the Future. The main future concern of MWRI is closing the gap between the ever-increasing water demands- due to the rapid increase in population and developments in the different sectors of the society- and the limited water resources. This situation necessitates the implementation of an Integrated Water Resources Management Approach, which should go 'hand in hand' with the necessary Institutional Reform as this reform does not significantly differ from country to country; in consequence, Egypt can make use of the successful models that have been already developed in other parts of the world.

The water sector has the feature of 'monopoly' (one organisation dominates one commodity). It is also a sector of large capital investments, hence MWRI has to improve the services provided to the client, decentralise this service at the 'User' level with opportunities for Public Private Participation in the 'new lands'. MWRI plans to remain responsible for managing the 'main' irrigation system, delegating part of its responsibilities to the 'User' at 'lower hydraulic' levels; these hydraulic levels are still to be decided upon. In conclusion, the following points summarise MWRI Future Vision:

- An overall water resources management.
- Water resources development at micro level.
- Decentralisation of services provision at 'Inspectorate/ District' level, which involves assigning part of the responsibility to 'User' groups (Water Boards) and making 'real time' data available for effective operation and maintenance of the system components.

- Enhancement of stakeholders' participation in the water sector and implementation of full cost recovery programs.
- Water quality monitoring and management, involving the institutional reform needed to organise and strengthen the participation of the different 'players'.
- Strengthening the regional Nile Basin co-operation and co-ordination.
- Self-sufficiency and sustainable financial support for research and consultation services.
- Complete responsibility of planning, design, implementation of 'New' projects.
- Strengthening the co-ordination with other ministries, departments and institutions in water awareness (chained connections). Private sector should be granted the sustainability of the reform actions carried out. Political and community support should be in place.

H.E. ended his presentation by noting that although the vision is clear, the implementation is indeed very challenging and needs concerted efforts of all involved parties.



Afterwards, Mr. Hagan presented the different contributions of USAID to the water sector development in Egypt and the future vision for co-operation. As from September 2004 the USAID will be involved in two baseline information studies to explore the potential areas for finance in the water sector. The first baseline study will be implemented by ministerial staff and local consultants (no foreign consultants will be involved) and it concerns:

- The regulating laws, decrees, and policies in the water resources sector.
- Water trading in the Fayoum Governorate and other oasis.
- Assessment of training needs; immediate needs and projection of these needs during the next 25-year period.
- Integration of inter-ministerial policies of the different sectors involved in the water resources management.

The second baseline study will be implemented by international consultants to tackle the following topics:

- Water resources pollution.
- Water allocation, involving a data management system (developing methodology for data analysis and mechanisms for data collection and exchange).
- Evaluation of the efficiency and effectiveness of some selected market-based incentives for water quality improvement.
- Delivery system privatisation (fix, adjust and accelerate the program).

The above baseline studies may reveal the potential areas for finance, for instance:

- Identify the key points of policy impacts and adjustments needed.
- Specify objectives, approach and new policy.
- Expand and implement a management transfer and user associations' development.
- Enhance partnerships for environmental improvements.
- Promote public participation in policy formulation.
- Build up capacity of MWRI staff to implement the reform process.
- Initiate other activities during the process implementation.

Then, Mr. El-Hanbali from the World Bank presented the Bank historical contributions to the development of the water sector in Egypt. He mentioned that donors have already achieved certain co-ordination and co-operation in developing the water sector of Egypt. He next summarised the Bank's vision for future co-operation with MWRI as follows:

- The World Bank will contribute more to the infrastructure development.
- Contribute to the Irrigation Improvement Project covering about 250,000 feddan (physical improvements and development of Users Participation).
- Support to strategy development, particularly the institutional reform and water quality institutions.
- Strengthen the Public Private partnership in the water sector.

In summary, the Bank is interested in reviewing the water sector situation and implement Integrated Irrigation Improvement and Management actions (feasibility

study is currently under preparation), decentralisation of decision-making, and partnership.

Afterwards, Mr. Selzer of KfW was invited to present his views. He started with expressing his appreciation about the presented papers, specifically mentioning the ones by Dr. Samia El Guindy and Mr. Faber. In the past he used to receive APP documents and always considered them interesting. Mr. Selzer mentioned that it was the first time for him to attend such a Seminar and that he found it very useful. As an Investment Bank, KfW always builds on TA, and Mr. Selzer highlighted that KfW could finance a second agreement with EPADP now, for development of 800.000 fe (under NDP), because of the Dutch TA. Also, the feasibility studies for Nag Hammadi and Assiout Barrages, in which KfW is involved, were done by HRI, that also has been co-operating with The Netherlands for a considerable period of time. Mr. Selzer mentioned that he had followed the irrigation and drainage sector now for about 4 years, but that he still learned a lot from the presentations at the Seminar, as probably many with him.

The involvement of KfW is in various projects and it is e.g. co-financing IIP, a very important project and the NDP-II. It is also involved in the new Nag Hammadi Barrage. KfW is not only interested in investments, it also finances TA, in a limited way, such as e.g., the OFWM component of IIP, several Training Programmes and an intensive M&E project with the Water Distribution Research Institute of the MWRI

Mr. Selzer expressed his appreciation of the good co-operation with MWRI and the World Bank in their joint programmes and also mentioned the strong role of the MWRI in the programmes. The Ministry now finances for about up to 50% of the cost. The KfW is interested in Sector Development and the source of information in the Seminar is tremendous. Germany has withdrawn from certain Sectors, but has an interest in co-operating in the Water Sector, with as strategic interests:

- NWRP, and then how the Ministry will carry out the policy
- Institutional Reform. The way for (technical) capacity building to adept to the changing role
- Water Boards Project. KfW co-finances a part of it, to test it in an areas of IIP or NDP drainage improvement projects
- Water Quality. KfW is interested in the big plans for that

One of the important points in this respect is how to move from pilot to application. In the IRU and the Water Boards steps have already been made and that is very good for KfW and also GTZ. They are not only concrete steps, but it also fits very well into Water Sector development.

Then Mr. Selzer continued with mentioning that Mr. Christian Pollak, GTZ representative to Egypt, apologised for not being able to participate due to the Egyptian-German bilateral discussions held at the same time. GTZ is looking to become more involved, but not in competition with the Dutch Programme. However, if the Dutch bilateral programme will end in 2004, GTZ would be

interested to co-operate in a similar fashion (at present there is already a co-operation with the Dutch programme). GTZ activities:

- OFWM programme with SWERI. In this programme representatives from the MWRI and MALR are sharing, as water is a binding factor
- The IRU. It was successful in its preparation, by the Netherlands Embassy Co-operation Programme, but it still has to tackle difficult issues. The IRU programme was established with Dutch funding, and some involvement of GTZ, and the unit is foreseen to start in December 2002.
- District Water Boards
- Interest in the MWRI Training Centre programme, which will be co-ordinated with other donors as well.

Mr. Rathle from the Swiss Embassy also expressed his appreciation to the conference theme and initiatives taken by H.E. the Minister of WRI with respect to the organisation and management of the distinguished gathering in order to present the achievements attained under the Egyptian-Dutch co-operation and drawing the future vision of MWRI and donors. He added that the Swiss Fund has a limited experience in the water sector of Egypt and that there are two mixed financing programmes with the MWRI at present, i.e. the rehabilitation of 40 pumping stations between Aswan and Qena and work under the Egyptian-Swiss Development Fund. Mr. Rathle added that the Swiss Government would like to continue its co-operation with Egypt.

Finally Mr. Embrechts, Expert Rural Development/ Water Resources at the Delegation of the European Commission in Egypt, expressed that the EU is not yet involved in any project relevant to the water sector development in Egypt. He attended the conference to listen and learn about the contributions of other donors. He explained that he participated because of the 'Barcelona agreement', in which the EU agreed to co-operate with all Mediterranean countries. A new Egypt-EU Agreement is in the make that will be signed possibly in this Parliamentary Session. One of the issues in this Agreement is water and the EU is looking for commitment from the Egyptian side. One of the other reasons for Mr. Embrechts to participate in the Seminar was to be informed on the 'hot' and 'burning' issues in the Water Sector, and he listened with interest to the explanations on the MWRI vision and strategies, e.g. on Institutional Reform. If it would be possible to come to an agreement on co-operation then, Mr. Embrechts mentioned, he would like to pick-up from the current situation with the MWRI and possibly other Ministries.

Co-operation with the EU follows certain principles, including: a) Sector wide approach favoured, no stand alone projects; b) Strategies developed from formulated policies. For example, if the EU would support decentralisation, it would be in an entire sector, with also active participation of the beneficiaries, applying the principle of 'subsidiarity'. Mr. Embrechts mentioned that he had seen, during the Seminar, that bottom-up approach of issues could very well fit in with the top-down approach. Had the two been separate, there would be two strategies that both would probably fail. He could also envisage, in the future, EU commitment to support cross-cutting research in water management.

The Chairman afterwards opened the floor for comments and discussion. The most important comments were that reform and modernisation-oriented managers are seriously needed for developing the water sector, as well as any other sector. Yearly review of water demands based on 'real-time' data must be implemented.

H.E. the Minister of WRI addressed the major challenge to the participants by concluding that Integrated Water Resources Management has not yet been attained, consequently our main challenge is to balance the supply/demand equation, at the national level as well as micro level.

With this remark, the Chairman thanked all participants and closed the session.

CLOSING SESSION

Chairman: Dr. M. Abu Zeid

Reporter: Dr. W. Wolters

The Chairman opened the Closing Session by giving his Views on the Road from The Hague, WWF2, to Kyoto, WWF3. After that Dr. Bazaraa presented the Conclusions of the Seminar as follows:

Critical Success Factors

- The co-operation is demand driven. The Panel was established at the request of Egypt for co-operation in the field of design and implementation of drainage.
- Similarity of Egyptian and Dutch conditions in densely populated delta area
- Set-up of the Panel project with the annual Meetings, Workshops, and related projects:
 - The projects were started to implement investigations and to test recommendations.
 - The Panel works with a feedback and follow up mechanism. The Recommendations are followed up with Action Plans
- Level of expertise:
 - Both countries provided the best expertise available to tackle the issues at hand
 - The Egyptian Panel Members have the authority to take decisions
 - The Panel, as a think-tank, brings up new issues and ideas
 - On the Dutch side highest level participants matching the shifting agenda, therefore, appropriate changes in the membership took place.
- The long-term character of the co-operation: The existing common understanding led to mutual trust and confidence on the Panel's recommendations. This has facilitated dealing with the real MWRI issues and enabled the evolution from technical advice to policy formulation. Efforts started with drainage then viewed the sector as a whole. Efforts started with the MWRI then included most relevant other parties.
- Concentration of activities led to real impacts. The concentration was on two axes:
 - With a limited number of Institutions in the MWRI. This is in comparison with other international co-operation activities in Egypt, where sometimes attention is diluted to the extent that impact is hardly felt.
 - In specifically selected areas, e.g. in Fayoum.
- Dutch co-operation has no biased political background
- Continuous support from the Netherlands Government for the Egyptian request, first from The Hague and later from the Embassy in Cairo. At present, the Panel functions as the platform for the discussions on the bilateral co-operation.

Main Findings and Recommendations

The projects implemented within the Panel framework have had several major impacts:

- Solutions were found to many technical problems
- Policy was formulated or assistance was given to policy formulation
- The capability of the staff involved was greatly enhanced. Egyptian-Dutch co-operation in other countries is to be explored.

The Panel and its related projects produced a large mass of documentation, technical reports and papers. It is important to revisit such outcomes to make it more accessible.

There is a need to assess the possibility to establish a High Committee on Water/ National Water Commission with a clear mandate that encompasses the major stakeholder groups in the different sectors of the nation. Such commission needs to be established at a high political level (Cabinet Level).

Institutional reform is an ongoing process in the MWRI. Steps in the process have been discussed.

- The process should pay more attention to the external environment by actively pursuing feed -back mechanisms and dialogues with all stakeholders.
- Considering the process ahead there is a need for more specific capacity building by mobilising existing local capacity.
- The harmonisation of existing laws and policies is essential for the success of the process.

Although there is still much work to be done towards integrated water management, the Panel work has greatly contributed to its introduction by dealing with issues as water quantity, water quality, environment, socio-economic conditions, etc.

Egypt has given the Dutch the possibility to work closely together on the real MWRI issues. This has paved the way for other donors as well to deal with the MRWI in an effective and efficient way.

Collaboration between donors is essential in order to learn from each other and to avoid duplication of efforts. The donors present have expressed their willingness to jointly support the Ministry in its clear vision. The following areas warrant continuous support:

- Strengthening the Nile Water Sector to perform its duties in the Nile Basin Initiative.
- Strengthening both the Water Quality Unit and the Institutional Reform Units within MWRI.
- Expanding the Water Boards concept, up scaling the application to the district level.
- Institutional reform within the groundwater sector
- Capacity building and Human resources development within the Ministry.

Closing remarks of Mr. Flik

Mr. Flik opened his statement by mentioning that he considers the summary as excellent, and that he would still like to give some additions. The first point that he would like to emphasise is that the programme moved from technically oriented drainage advice to policy formulation for the Water Sector as a whole. The second point is that co-operation always was with one core Ministry in Egypt, the MWRI. The third point is that the participation on the Dutch side has always been at the highest level. Whenever there was a change in the Panel's agenda, also the membership was adjusted. A fourth point could be the dynamics of the process, together with its coherence and its long-term operation. The projects were at national level, and much of the work was concentrated in the Fayoum. The Panel initiated projects and later was phasing out. Mr. Flik's last point was a reflection on the increasing openness among donor agencies. This will enable also the move towards more complementary work. Finally, Mr. Flik thanked all the Seminar's participants and organisers.

Closing remarks of H.E. Dr. Abu Zeid

Dr. Abu Zeid mentioned that we should look to the future, and think on how best to extend the programme and enrich it. We should keep this in mind for the recommendations. He added that we lived with the panel for many years and that it has proved an excellent model for co-operation.



He thanked all of the participants for sharing this exercise and it has been very useful. The Seminar itself could also serve as a model for future gatherings of the same type, e.g. with the Canadians, the Italians, with the Bank projects, the USAID partnership, etc. H.E. mentioned that he was proud and glad with these partnerships and added that it also felt as having gained new partners, mentioning the EU and GTZ.

Dr. Abu Zeid thanked his colleagues from The Netherlands and also for encouraging other partners to join. Many people participated and all have recognised the work of the organisers. He then said 'A Panel'? It is much more than a Panel, it is a programme, adding that he also appreciated the participation of all those who work in different projects.

The Minister than thanked the Panel Secretariat and the colleagues from the Panel in The Netherlands. Mr. Flik already mentioned the top decision-makers of The Netherlands and thanks are due to them as well. He expressed the hope that they would be able to continue working with Egypt, as they are strong supporters. He mentioned that H.E. the Ambassador attended the Nile Basin Conference in Switzerland this summer and expressed support to such extent that he convinced many other donors.

Dr. Abu Zeid ended by also thanking the Netherlands Embassy staff and the staff of the Seminar Secretariat who had been silently but efficiently contributing to the success of the Seminar.

Closing remarks of H.E. Mr. Leenstra

Mr. Leenstra mentioned that he addressed the Seminar at the beginning, but that he was also grateful to speak at the end. He wanted to thank the participants for their continuous effort to make this Seminar a success and for all the contributions to it. He mentioned that at the beginning he was pleased to represent the Dutch Government, but that at the end he was also proud to represent the Dutch Government, having listened to all presentations, discussions, and the excellent summary. Moreover, he mentioned that he was proud to be part of an international co-operation project that is appreciated so much.

Normally The Netherlands is not a very boastful country but certainly at this Seminar there is a reason to do so. He added that in The Netherlands, the international co-operation policy is being discussed continuously, not only in the Ministry of Foreign Affairs, but also in society at large. The results presented at the Seminar could not have been reached had it not been for the Egyptian determination. As well, Netherlands and Egypt have a lot in common, they are both 'hydraulic civilisations' and especially the engineering specialists feel they are on common ground.

Ambassador Leenstra is of the opinion that the type of discussion of the last days should be continued, as indeed happens during the forthcoming Round Table

Discussion on Institutional Reform. For the future, he added, we will continue, in some form or the other. Except for the recent political developments in The Netherlands, the decision to continue would already have been taken, on a programme dealing with water quantity and water quality. The Panel is a unique Forum, the envy of many, and it is far too valuable to let it elapse. It is also not a 'project', but it is co-operation between representatives of two countries, and there is absolutely no reason to stop this. He also expressed to be pleased to have witnessed the participation of representatives of other donor agencies.

Mr. Leenstra ended by thanking all participants and the organisers for making this Seminar such a success, and by stating that he has all confidence in the future of the Water Sector in Egypt.

APPENDIX 1 SEMINAR PROGRAMME

Day	Time	Activities	Speaker
12/12	09:00-10:00	OPENING AND INTRODUCTION	
	09:00-09:15	Welcome	Dr. S. El Guindy
	09:15-10:00	Opening & Overview on the Long Egyptian Dutch Co-operation.	Dr. M. Abu Zeid Mr. S. Leenstra Mr. P. Flik
	10:00-10:15	Break	
	10:15-11:00	SESSION 1 Chairman: H.E. Dr. M. Abu Zeid Reporter: Mr. Ele-Jan Saaf	
	10:15-10:40	The Advisory Panel Project and its Scope of Work	Dr. S. El Guindy & Dr. W. Wolters
	10:40-11:00	Egyptian-Dutch Panel, Mutual Benefits	Mr. J. Faber
	11:00-11:30	Break	
	11:30-14:00	SESSION 2. TRANSFER AND DEVELOPMENT OF TECHNOLOGY Chairman: Mr. J. Faber Reporter: Dr. Tarek Sadek	
	11:30-11:50	Drainage Technology	Dr. M.H. Amer & Mr. H. van Leeuwen
	11:50-12:10	Groundwater Management	Dr. A. Khater & Mr. A. Tuinhof
	12:10-12:30	Channel Maintenance and Weed Control	Dr. T. Kotb & Mr. R. Rowbottom
	12:30-12:50	Water Quality Monitoring and Pollution Control	Dr. S. Abdel Gawad Mr. K. Bons
	12:50-13:10	Nile River Engineering and Hydraulics	Dr. M. Bahaa & Dr. R. Thabet
	13:10-13:30	Regional Dimension of the Egyptian-Dutch Projects	Dr. M. Gaweesh & Mr. P. Boeriu
	13:30-14:00	Discussion	
	14:00-15:00	Lunch Break	
	15:00-17:00	SESSION 3. INTEGRATED WATER RESOURCES MANAGEMENT AND PLANNING Chair-person: Dr. Mona El-Kady Reporter: Mr. H. van Leeuwen	
	15:00-15:20	Overview on the National Water Resources Plan for Egypt	Dr. T. Sadek & Mr. E. van Beek
	15:20-15:40	Formulation of Egypt's Future Water Policy	Mr. C. Veeningen & Eng. Nader El-Masry
	15:40-16:00	Fayoum Water Management	Eng. N. El-Khashab & Mr. R. Roostee
	16:00-16:20	Flood and Drought Control	Dr. B. Attia, Mr. H. Ogink, Eng. M. Antar

Day	Time	Activities	Speaker
13/12	09:00-16:00	FIELD EXCURSION, VISIT TO WATER MANAGEMENT PROJECTS	
14/12	9:00-12:30	SESSION 4. INSTITUTIONAL REFORM Chairman: Mr. C. van der Wildt Reporter: Dr. H. Kandil	
	09:00-09:30	Dutch Experience with Institutional Reform	Mr. C. van der Wildt
	09:30-10:00	Development of Water Boards in Egypt	Eng. Y. Abdel Aziz Mr. Jan Bron
	10:00-10:30	Break	
	10:30-11:00	Institutional Development in Groundwater Sector	Dr. F. Abdel Rahman Mr. A. Tuinhof
	11:00-11:30	Institutional Development in Water Quality Management	Dr. M. Abdel Khalek
	11:30-12:00	Gender in MWRI	Dr. S. El Guindy & Ms. A. Osseiran
	12:00-12:30	Discussion	
	12:30-12:45	Break	
	12:45-14:30	SESSION 5. A VISION FOR THE FUTURE Chairman: Eng. A. Shalaby Reporter: Dr. T. Kotb	
	12:45-13:00	The Vision of MWRI towards Institutional Reform Policy	H.E. Dr. M. Abu Zeid
	13:00-14:00	Donors Co-operation Programs on Integrated Water Resources Management	Dr. Ross Hagan Dr. O. El Hanbali Mr. Thomas Selzer Mr. Kamal Rathle Mr. Joseph Embrechts
	14:00-14:30	Discussions	
	14:30-15:30	Lunch Break	
	15:30-17:00	CLOSURE SESSION Chairman: H.E. Dr. M. Abu Zeid Reporter: Dr. W. Wolters	
	15:30-16:00	From the Hague (2 nd WWF) to Tokyo (3 rd WWF)	H.E. Dr. M. Abu Zeid
	16:00-16:30	Presentation of Conclusions	Dr. A. Bazaraa
	16:30-17:00	Closing Remarks	Dr. P. Flik H.E. Dr. M. Abu Zeid Mr. S. Leenstra

APPENDIX 2 TECHNICAL & ORGANISING COMMITTEES

Based on the Ministerial Decree No. 265-2002 issued on June 26, 2002 both the Technical and Organising Committees of the Seminar were formed as follows:

Seminar Technical Committee:

1. Mr. Abdel Rahman M. Shalaby
2. Mr. Yehia Abdel Aziz Saad
3. Dr. Bayoumi B. Attia
4. Dr. Mohammed H. Amer
5. Dr. Ahmed Taher Moustafa
6. Dr. Fatma Abdel Rahman
7. Dr. Mohamed Bahaa Eldin Saad
8. Mr. Hussein A. El-Atfy
9. Mr. Hans van Leeuwen
10. Mr. Casper Veeningen
11. Dr. Tarek Sadek
12. Dr. Samia El-Guindy
13. Dr. Magdy Salah El-Deen

Seminar Organising Committee:

1. Dr. Hesham M. Kandil
2. Ms. Mervat H. Abdel Aal
3. Dr. Wouter Wolters
4. Mr. Lex Oosterbaan
5. Dr. Samia M. El-Guindy
6. Dr. Magdy Salah El-Deen

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