ASSISTANCE TO CAPACITY BUILDING FOR INTEGRATED WATER MANAGEMENT

a comparison of Netherlands support to water sectors in six countries

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CONTENTS

PREFACE

We would like to thank Mrs. Barbara van Koppen of WAU, Mr. Ton Negenman of TNO, Mr. Henk Nijland of RIZA, Mr.Huub Savenije of IHE and Mr. Peter de Haan of DGIS-DSI/MY for their inputs in making the 'water resources management profiles' of the various countries and for their comments and suggestions with regard to the contents of this synthesis paper.

Also numerous DGIS staff at headquarters and embassies and some consultants in the countries have made invaluable contributions to this study in various stages: Mr. Bert Diphoorn, Mrs. Karin Roelofs and Mrs. Louise Huijbens for Bangladesh, Mr. Peter Flik for Egypt, Mr. Pieter Gooren, Mr. Bob Bakker and Mrs. Joanne Doodewaard for Kenya, Mr. Cees Metselaar and Mr. Leo Kranendonk for Moçambique, Mr. Dick van Ginhoven for Yemen, Mr. Johan de Waard and Mr. Dirk Kammer for Zimbabwe and Mr. Willem Ankersmit of DGIS-DSI/SB. The views expressed in this paper do not necessarily represent those of DGIS and are the sole responsibility of the authors.

The process of putting this paper together has deepened our insights in the developments taking place in water sectors in various countries and clarified our ideas on the choices that can be made in water sector support. We hope this paper may in a similar way be stimulating to the readers, both in the DGIS and outside.

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1. INTRODUCTION

1.1 The Netherlands is supporting a number of developing countries in their strive towards development and their struggle against poverty. Some 15% of the development assistance is provided to water-related projects and programmes. Generally such support is directed not so much to investments but to developing capacity of selected organizations. The Netherlands is more and more recognizing that these activities must not be looked at from a sub-sectoral users perspective, but should be placed in a wider, integrated approach to water management aiming at sustainable development.

1.2 This paper focuses on capacity building for integrated water resources management. It reviews to what degree the present assistance to water sectors already contributes to the development of such capacity and delineates perspectives for the future. Six countries were selected for this review: Mozambique, Zimbabwe, Kenya, Egypt, Yemen and Bangladesh. These countries represent a variety of physical settings: from arid to humid climatic zones, from mountainous to flat topographies, from small catchments to large international river basins.

1.3 For each country a water resources management profile was elaborated on the basis of a concise questionnaire. The questionnaires were answered by consultants involved in the assistance programme in each country in consultation with the sector specialists at the Embassies and desk-officers in The Hague. A series of three discussion sessions with DGIS staff and consultants were held to verify as accurate as possible findings from the profiles and discuss implications. Draft versions of the paper were then elaborated and distributed among all concerned for commments. Nevertheless the views expressed in this document and possible mistakes in reflecting the practical situation in the countries are the sole responsibility of the authors.

1.4 The present paper focuses on:

- General issues in water management and sector organization (section 2).
- The characteristics of the institutional environment encountered in the countries (section 3).
- Types of capacity that have been developed with assistance from the Nether-lands (section 4).
- Donor strategy and organization issues (section 5).
- Conclusions and perspectives for the future (section 6).

2. ISSUES IN WATER MANAGEMENT AND SECTOR ORGANIZATION

2.1 Water is a unique substance. It is essential for all forms of life and as such can not be replaced by anything else. It has a number of fairly different functions. It is important for economic development as it is used in most agricultural and industrial production processes. It regulates biotic and abiotic processes and is thus essential for maintaining dynamic equilibria in climatic and ecological systems. It has a carrier function for aquatic organismsand for activities such as transport and tourism. And it plays a role in many cultural and religious practices.

Table 1 Functions and values of water

FUNCTIONS OF WATER

- **Production functions**
  Goods produced by nature that can be used or consumed by mankind, for example water for irrigation or drinking water.

- **Regulation functions**
  Water has an important role in many biotic and abiotic processes which are essential to maintaining dynamic equilibria in for example climatic systems and ecosystems.

- **Carrier functions**
  Water is a medium for aquatic organisms, but also for water transport or water tourism, without being consumed.

- **Information functions**
  Water has important meanings in many cultural and religious practices and beliefs.

The different functions of water often can not been clearly separated. One body or flow of water can have different functions at the same time. Yet, it is important to identify and nominate the different functions in a certain situation.

VALUES OF WATER

- **Social values**
  Refer to the quality of life, for example health, safety, personal well-being or religious experience.

- **Economic values**
  Are attributed to the use of water for economic activities, such as agriculture, industries and tourism.

- **Ecological values**
  Refer to the role of water in maintaining the integrity of ecosystems and biodiversity.

Functions can be described more or less objectively, while values can only be determined subjectively. Users with different interests will value the same functions of water differently.

After: R.S. de Groot (1992) Functions of nature. Evolution of nature in environmental planning, management and decision making. Wolters Noordhoff.

2.2 In recent years water is becoming scarce in many countries. Water scarcity does not only occur in quantitative terms, but, with increasing pollution, also in qualitative terms. The scarcity may be a result of increased consumption by a growing population, agriculture and industry. It may also result from decreasing water flows and water storage caused by earlier consumption or environmental degradation. Pollution by human population, agriculture and industry may contribute to limited availability of water of the required quality.

2.3 The value of water is relatively low as long as ample water of reasonable quality is available or can be made available against little costs. When scarcity increases and competition for water develops, its value increases and there is a growing need to manage water resources in an integrated manner. The use of the word 'integrated' in this context refers to different dimensions. It implies that one takes into account:

- Different sources, surface water as well as ground water, water quantity as well as water quality.
- Different functions and uses of water in various sub-sectors and in relation to other sectors.
- Different organizations, actors and stakeholders involved in water resources management at central and decentralized levels.
- Different types of measures that can be used in water management: technical, socio-economic, institutional, environmental and other.
- Different stages in the life-cycle of water management interventions: planning, design, execution, operation and maintenance.

2.4 In this integrated perspective we use the term 'water sector'. In this view different uses or users of water are seen as interacting, competing sub-sectors.

2.5 The largest user of water world-wide is irrigated agriculture, next comes industry and then human and municipal consumption. The total sweet water requirement for productive, regulating and environmental functions is estimated at 2000 M3 per capita per year. For 26 countries in the world the available water volume per capita is already less than 1000 M3, which is considered as scarcity. Of these countries 11 are located in Africa and 9 in the Middle East. With growing populations the availability of water will further decrease and it is expected that the number of countries with water stress or scarcity will rise quickly.

2.6 Over the last few years thinking on water sector organization has rapidly developed. New concepts, policies and reform proposals have been brought forward by different parties including national governments, the World Bank, FAO and consultants[1]. As a result a range of concepts and ideas hardly known to professionals and policy makers 5 to 10 years ago are now broadly used. Gradually a considerable degree of consensus is thus developing about four major developments that are required to improve water sector performance:

- To move from 'water master planning', which usually focused on water availability and development, **towards more comprehensive 'water policies'** which address the interaction and possible competition between different sub-sectors and between economic sectors, set balanced priorities for integrated water management, provide for institutional mechanisms that enable integrated water management and address capacity building requirements.

- To **distinguish policy, regulatory and operational functions** in water management (see Box below) and create some institutional separation between these functions. This can be done for example by creating some organizational distinction between the policy preparation and/or regulatory function and the bodies for operational water management functions.

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[1] *See for example World Bank, 1993, 'Water Resources Management: a World Bank Policy Paper' and FAO, 1995, 'Water sector policy review and strategy formulation, a general framework'.*

Table 2 Basic institutional functions in IWRM

BASIC INSTITUTIONAL FUNCTIONS IN WATER RESOURCES MANAGEMENT

a) **The policy preparation and strategic planning function**s:
Set priority objectives for water management on the basis of general economic, social and environmental policies as well as an analysis of the water resources situation; define institutional and financial mechanisms and measures to realize such policy. The policy function can exist at different levels within a country, for example on a national as well as a regional level.

b) **The regulatory functions**:
Allocate water within the framework set by the policy, license water use, monitor water resources availability and use, enforce rules and regulations, and provide feed-back on water policy. The regulatory function can sometimes be partially combined with the policy function or with larger scale operational functions.

c) The operational functions:
Ensure delivery, evacuation or maintenance of water volumes, flows, levels or qualities to enable specific uses of water (such as agriculture, fisheries, drinking water, sanitary drainage, industrial use, water trans-port, and recreation). Operational functions are often divided over various sub-sectoral organizations for specific types of water use and development.

- To **decentralize operational water management functions** for irrigation and drinking water where possible, as this increases the possibilities to match water management to the actual needs of the users. Such decentralization can be shaped in various forms, for example increased autonomy of government bodies, forms of joint management of infrastructure or complete transfer to private or user organizations.

- To **reform financing mechanisms** for water management in order to have less dependency on central government budgets, a higher contribution by the users and a more direct linkage between payments made and services provided.

2.7 In this paper we will focus especially on practical developments with regard to the first two points mentioned above, the development of water policies and the creation of separate policy and regulatory capacity, as these are most relevant to strengthening integrated forms of water management. The definition of capacity building which we use to this end is consistent with the 'capacity development for the environment' (CDE) definition developed by the OECD/DAC. Capacity itself we define as 'the ability of individuals, groups, organizations and institutions to perform appropriate tasks (in integrated water management) effectively, efficiently and sustainably[2]. With capacity development for integrated water resources management we refer to the processes by which such ability is enhanced. This can be done by means of a range of organizational or institutional measures, for example the reform of overall institutional set-up in the sector, strengthening of specific organizations, promotion of general awareness and education, development of monitoring and analytical instruments or the improvement of legal frameworks.

[2] *See Hilderbrand and Grindle, Harvard Institute for International relations, 1994, p.8-12.*

3. CHARACTERISTICS OF THE INSTITUTIONAL ENVIRONMENT ENCOUNTERED

3.1 Two typical institutional settings in water sectors can be distinguished. There are countries where a strong government involvement in irrigation or water management exists for many decades or even centuries. In our sample Egypt, Bangladesh and Kenya represent such setting. On the other extreme are the countries where traditionally government organizations for water management are small and limited in scope. In our sample Mozambique and Yemen are such countries. These differences in institutional set-up usually reflect the degree to which managing water was actually required. Where water was scarce or required large-scale interventions in order to become available, a stronger government presence in water management often developed. Where water is amply available or can be managed by relatively simple and small scale means, government is often less involved.[3]

3.2 In Annexure I (A and B) comparison is made between the institutional characteristics of the water sectors in the six countries. It appears that there is considerable variation in the organization of the water sector.

Sector organization in the specific countries

3.3 Egypt has a Ministry of Public Works and Water Resources (MPWWR) with policy preparation, regulatory and operational functions combined in one hierarchy. The operational functions for irrigation, drainage, new projects, field level irrigation, etc. are separated in different operational departments. Users involvement in irrigation as well as drinking water provision is traditionally low in Egypt. Drinking water and sanitation is under the Ministry of Housing.

3.4 In Bangladesh there is a separation between the administrative and policy functions of the Ministry of Water Resources and the construction, operation and maintenance of water management infrastructure, which is largely done by the Bangladesh Water Development Board (BWDB). The Ministry is supported by a so-called Water Resources Planning Organization (WARPO). The BWDB has integrated its field level activities in Divisions, which may include agricultural staff. In recent years some distinction between Divisions for construction and for O&M has been introduced. The provision of drinking water is under the Ministry of Local Government, Rural Development and Cooperatives (MLGRDC), Department of Public Health Engineering (DPEH). Over the last few years also the Local Government Engineering Department (LGED) gets more and more involved in small scale irrigation, flood control and drainage projects.

3.5 In Yemen recently a National Water Resources Authority has been established. This is placed directly under the Prime Minister and is responsible for policy preparation and overall planning of water management in the country.

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[3] *Note that non-governmental forms of organization for water management have grown quite big and complex in several Western countries. In developing countries such development has sometimes been prevented, or reversed, by centralistic tendencies under colonial regimes as well as after independence.*

It is envisaged that regional branches will be established. Operational water management for different purposes is mainly under the Ministries of Agriculture and Water Resources (MAWR, for irrigation) and Electricity and Water (MEW, for urban and rural water supply).

3.6 In Zimbabwe a Zimbabwe National Water Authority (ZINWA) is being established now, but placed under the Ministry of Lands and Water Resources (MLWR). It will have a policy support and advise and a regulatory function. Under the ZINWA five so-called Catchment Boards will operate with Stakeholder Boards. The catchment authorities will perform catchment planning, water allocation and also a number of operational functions. Other operational functions will remain under the Ministry of Agriculture for irrigation, and under the National Action Committee / District Development Fund for water supply and sanitation.

3.7 In Mozambique the National Directorate for Water (DNA) is part of the Ministry of Public Works and Housing and responsible for policy preparation and overall planning of water resources. Recently it has been decided to set-up five Regional Water Authorities (ARAs), of which one is actually operating as a pilot now. Under DNA is an operational body for rural water supply. Irrigation is under the Ministry of Agriculture, while urban water supply is to some extent under DNA and partly also under the local government system. There are plans to privatize water supply in five cities now.

3.8 In Kenya the Ministry of Land Reclamation, Regional and Water Development (MLRRWD) makes policies in the field of water management. Under the Ministry is a three-tier system of water management boards: the Apportionment Board at national level, Catchment Boards and District Water Boards. These Boards have a regulatory role. They consist of representatives of various agencies involved in water management at the respective level and do not have permanent staff. Large-scale irrigation schemes are managed though the National Irrigation Board, which is a corporation under the MLRRWD. Small holder irrigation is under the irrigation department of the Ministry of Agriculture, Livestock Development and Marketing (MALDM). There are governmental as well as non-governmental drinking water agencies.

Differences and similarities

3.9 In the first place the descriptions above show that there are important **differences in general institutional set-up** for water management. Differences exist for example with regard to the existence of national and regional water authorities for IWRM, the place and role of such authorities, the degree of separation / integration of operational water management functions, and the relation between the line agencies for water management and local government bodies.

3.10 In all countries considered here, there are developments towards **more overall and integrated planning and management** of water resources. National master plans for water were made in 1983 in Egypt, in Bangladesh in 1986/89 and in Kenya in 1992. All these were more conventional water master planning exercises.

3.11 In Mozambique, Yemen and Zimbabwe recently a **more comprehensive water policy statement** has been made or is being made. In Mozambique DNA has formulated a National Water Policy (NWP) based on an IWRM approach, which was approved by the Mozambican Government in 1995. Yemen is presently engaged in a water policy formulation process, which is supported by a multi-donor group of the World bank, UNDP and the Netherlands under the so-

called 'Water Strategy Initiative'. The recently established NWRA is supported by a capacity building programme financed by the same multi-donor group. Zimbabwe is presently starting up a Water Resources Management Strategy (WRMS) project to develop a realistic and comprehensive water resources management strategy, including legal and institutional reforms and capacity building. The WRMS project is an inter-ministerial activity with an independent secretariat.

3.12 It can be noted that in our sample the countries with the largest and oldest water management bureaucracies (Egypt, Bangladesh and Kenya), and presumably with the most strongly vested interests and institutional arrangements in water management, have made relatively little progress in developing more comprehensive water policies.

3.13 **New bodies for IWRM** are realized or being developed in the form of 'water authorities' in Mozambique, Zimbabwe and Yemen. Kenya has gradually developed its tiered system of a national Apportionment (previously Water) Board (1935), Catchment Boards (around 1962) and District Water Boards (1992). Note that there are important differences in set-ups between these countries. In Yemen the National Authority is placed directly under the Prime Minister and will set frameworks within which the Ministries will have to function. In Zimbabwe on the other hand the National Authority is being developed under the Ministry of Land and Water Resources. In Mozambique the central functions will remain with the National Water Directorate, while regional authorities will be created under the same Ministry, who have a mixture of regulatory and operational functions. In Kenya the Apportionment, Catchment and District boards are committees and do not have permanent staff.

3.14 **Inter-sectoral linkages** as a basis for effective water management are reported to be weak or very weak in all countries considered. The capacity to relate and adjust water management policies to wider socio-economic policies is rather limited, amongst others because the Ministries or Departments responsible for water management are usually staffed almost exclusively with (civil) engineers. In Kenya one of the complicating factors is that there is a range of national 'Development Authorities' dealing with different aspects of land and water use, that are interested in development of water resources (in order to use more water), but whose activities are hardly coordinated and often determined by local political and economic interests.

3.15 While some shift of attention to IWRM takes place, much remains to be done on **operational water management capacities** in different sub-sectors. For all countries important **structural problems** are reported to constrain capacity development in operational water management, notably low government salaries and lack of operational budgets.

3.16 **Cost-recovery** remains a difficult subject in most countries. Although water tariffs, charges or fees are often formally in existence, actual collection is usually poor. In most countries discussions and experiments are going on in this area. However changing basic financing mechanisms and flows is a very difficult issue for most governments. Experience in countries where cost-recovery has been introduced or improved successfully, shows that a very strong political commitment is required. Often this develops only when there is a clear commitment of the national government to cut-back on its expenditures for water management. In Zimbabwe the new national water authority, ZINWA, is planned to run on commercial lines, but basic water needs must stay affordable and kick-start subsidies for communal / small scale irrigation schemes will continue.

3.17 **Users involvement** has been growing in operational functions over the last 5-10 years. Developments towards **decentralization, larger autonomy and turn-over** are taking place especially in the drinking water sub-sector, for example in Egypt and Mozambique. In irrigation such transfer or decentralization has not been practised on a significant scale in any of the countries under consideration here. In Yemen irrigated agriculture was and is the responsibility of Regional Development Authorities which were and are quite powerful.

3.18 For the regulatory and policy functions, users involvement is still a very new area. Some experiments with representation of stakeholders at the catchment or regional level have started or are planned to start in Mozambique, Zimbabwe, Yemen and Kenya.

3.19 For all countries important inadequacies in the **legal framework** for water management are reported, ranging from the definition of water rights, or the choice of regulatory mechanisms to the division of roles in the sector. In Yemen and Mozambique new Water Laws have recently been proposed to rectify such weaknesses.

3.20 From the above it is clear that the water sector provides an environment in which at present rapid changes are taking place in most countries. There are considerable differences in the specific organizational arrangements that are adopted to foster IWRM, for example with regard to the place and functions of water authorities. Such differences may be caused by specific institutional and physical environments in these countries, but are also 'coloured' by the specific persons and actors involved in decision making processes. Such choices will have a great bearing on the developments in the future. Exchange of information on how similar processes are undertaken in different countries is still very limited and therefore research and monitoring with regard to the institutional innovations in different countries could be strengthened.

4. TYPES OF CAPACITY DEVELOPMENT IN THE WATER SECTOR SUPPORTED BY THE NETHERLANDS

4.1 In most countries, the Netherlands has taken up assistance to different types of organizations in the water sector, ranging from executive agencies for irrigation and drinking water, to central units in the relevant Ministry and education and research organizations. A systematic comparison is made in Annexure II (A and B). The following observations can be made.

Strengthening of specific organizations

4.2 In different countries different choices have been made with regard to the **kind of government agencies** that are supported. In Egypt and Bangladesh a majority of the projects have been implemented with executive, often regional, operational organizations. Support to central level organizations or organizational units has often started later. In countries with smaller government agencies, assistance often started to focus on central bodies earlier in the development of the programme (Mozambique, Zimbabwe, Yemen). This can be explained from the demand of the government, and also from the mere size of the organizational units in the different countries.

4.3 Development of **forms of user participation and organization** have often been supported by the Netherlands, not only through typical water sector projects, but also through more general rural development projects.

4.4 Since a couple of years, for projects that are implemented by consultants it is a general rule in the Netherlands technical cooperation, that the involvement of **consultants or consultancy firms from the recipient country** is required. A partially deliberate side-effect of Netherlands assistance in the water sector is thus the strengthening of local consultancy capacity. The development of such capacity, next to government and users organizations, can indeed be considered essential to the capacity of the sector as a whole. It has however not been seen as an explicit assistance objective and receives little attention in evaluations. In Bangladesh recently a first project has been set-up which explicitly aims at development of independent advisory capacity in the field of environmental information and environmental impact assessment for water management.

4.5 In Yemen and Mozambique The Netherlands also support the environment ministry or its equivalent. However, it is unclear to what extent the departments with the respective mandates on environment and water resources management benefit from each others knowledge and work together, for instance during and after the elaboration of the national environmental action plans.

Instruments and tools for monitoring, analysis and management

4.6 **Monitoring** of the actual water situation has been an important point of attention of the Netherlands assistance in countries like Yemen, Egypt, Bangladesh, Kenya and Mozambique. A better knowledge of the actual water occurrence, quality and use is essential for the development of water management capacity. For most countries it is reported, that further development of monitoring systems will be required, also in view of the growing urgency and complexity of water issues confronted. In Egypt for example the Netherlands is presently supporting several projects to improve monitoring capacity with regard to quality of surface and ground water.

4.7 In the course of the assistance programmes a range of **analytical tools** has been introduced in all countries, such as mathematical models, regional assessment methodologies and planning studies. Planning instruments used till present are usually studies. For Yemen for example it is indicated that such regional planning exercises do not yet result in implementable actions plans. To develop the latter, one needs to combine top-down studies with bottom-up approaches for involvement of various user-parties or stakeholders. In Kenya, in the development of 'District Water Development Plans' top-down water resources assessment studies are already combine with community / institutional surveys representing the bottom-up demands with regard to water management. In many countries the focus will thus have to shift from 'planning methodologies' to 'institutionalizing planning frameworks and procedures' within the (local) government system. The linkage between IWRM and regional planning procedures will be an issue of concern. Regional planning mechanisms are weakly developed in several of the countries.

4.8 Environmental impact assessment (EIA) in water resources management is not yet well developed. Modest contributions have been made to that end in e.g. Kenya and Bangladesh, but in general the linkage between environment and water, that is the ecological base, has not been explored to full potential.

4.9 In all countries of the sample, the systematic development of **the regulatory function** in the sector still has to start more or less. *This does not mean that there are no regulatory mechanisms yet, but as far as they are existing these are not complete, do not match todays*

problems, or weakly enforced in practice. The development of effective regulatory mechanisms and instruments will become a major concern in sector development as a follow-up on the formulation of more comprehensive water policies and national or regional authorities for IWRM. The attention will thus shift to the practical mechanisms through which water is allocated, the ways that permits are given, water quality is controlled, water availability and use are analyzed and relevant regulations are enforced. These regulatory mechanisms as a systematic area of concern in the water sector are quite new to the national governments as well as for many donor and consultancy staff.

Users organization and involvement

4.10 'Participation' is a key concept in Netherlands development assistance. In Bangladesh and Egypt, with their traditions of top-down bureaucratic water management, the Netherlands is actively supporting pilot projects that **develop new models** for users participation and organization. This includes studies into legal aspects.

4.11 In the other countries the attention for users involvement has been more **on a project basis**. Users involvement in design, implementation and management of new infrastructure has been a key issue in drinking water and sanitation projects in Yemen, Mozambique and Bangladesh and in drinking water, arid and semi-arid land-use (ASAL) and small-sale irrigation projects in Kenya.

4.12 In several of these models and project-based approaches for users involvement attention was paid to **women**'s inclusion. Compared to two decennia ago, when the water user was almost exclusively thought to be male, changes are considerable. Especially in the drinking water sub-sector, in which women are most visible, operational water management functions have started to be decentralised to women, for example in Mozambique. But also women's participation in irrigated agriculture is now reflected in women's equal representation in water users groups in some pioneering small irrigation projects in Kenya. In Bangladesh, where landlessness is a major problem, landless women can now also obtain an income in construction and maintenance works in the sector.

4.13 These and other achievements were the result of innovative bottom-up planning appraoches. However, at higher planning levels women are often still excluded from users representations in inter-village, catchment and regional bodies. Top-down planning studies and procedures may include women's needs, but this is rare. An exception is Zimbabwe where research capacity on gender issues in the water sector is supported.

Development of IWRM capacity and inter-sectoral linkages

4.14 In Yemen, Mozambique and Zimbabwe the Netherlands is now supporting the development of national or regional **'water authorities'** which have to perform IWRM. In Kenya assistance for assessment of water resources is directed towards strengthening capacity at both the national and the District level to address water resources issues. Also the 'local level land use planning' that is part of the ASAL programmes contributes to this development of District level capacity.

4.15 Remarkably the attention from the Netherlands side for IWRM in Egypt and Bangladesh has been less strong and explicit. In the Fayoum region in Egypt a first **regional water management plan** is now prepared and the support to research institutes and the planning sector of the Ministry is focusing on integrating water quality aspects in monitoring, analysis and planning. In Bangladesh, the Netherlands is now taking up support to the development of **environmental capacity** in the Water Resources Planning Organization as a priority.

4.16 For all countries, except for Yemen, it is reported that the Netherlands has devoted **little or no attention to inter-sectoral linkages** for IWRM. In Yemen the WB/UNDP/DGIS 'Water Strategy Initiative' has supported the Yemeni actors to identify relations with other policy areas, such as agricultural development, diesel prices, employment and migration. Policy measures in these field will strongly influence water management in the country.

Awareness, understanding, education

4.17 Attention to raising awareness, understanding and education in the Netherlands assistance programme is in the first place directed to the **staff of the specific organizations one is working with**. A specific IWRM approach has gradually been applied for example in support to GDH in Yemen, DNA in Mozambique, the Water Resources Division of MLRRWD in Kenya and the Planning Sector in Egypt. In other projects, especially those with operational bodies for irrigation and drinking water, usually a sub-sectoral focus is prevailing.

4.18 The Netherlands is **supporting Universities** in water management related fields, such as engineering and agriculture, in Mozambique, Zimbabwe, Kenya, Yemen and Bangladesh. In Mozambique this support does not have a specific IWRM focus, in Zimbabwe, Yemen and Bangladesh it has to some extent. It is reported that for several countries priority is given to the development of more basic professional skills in the fields of irrigation, civil engineering, hydrology or drinking water and sanitation and that education in IWRM is not deemed realistic without such professional basis. It can also be noted that the support to water engineering departments in the Universities has usually not been designed to have direct linkages with other activities in the water sector.

4.19 The development of **research capacity** in water management in supported in the Water research centre of Egypt and in the university and related institutes in Zimbabwe.

4.20 The Netherlands assistance is providing considerable opportunity for **formal training abroad** in the form of short, diploma, MSc, and PhD. courses. Partly such education may have an IWRM focus, for example at the IHE in Delft. The Netherlands has also sponsored the organization of various international conferences on (integrated) water resources management and often supports the participation of national staff in these.

Policy development and sector reform

4.21 In most countries the Netherlands has taken up projects, which can be regarded as **'policy pilots'**, as they experimented for example with new technical solutions, forms of users participation, cost-recovery or regional water planning. If successful, the results of such projects influence general policies in the sector. It is remarkable that, even where this national pilot aspect of the project was recognized right from the start, such policy spin-off has often not been formulated as an explicit

objective. The need for the innovations was usually motivated in relation to the local situation and the specific priorities of Netherlands development assistance.

4.22 In general the Netherlands assistance in most countries developed on a **project-by-project basis** rather than as a coherent sector programme. In recent years the development of a more overall sector strategy in several of the countries can be observed. In Yemen 'sector strategy papers' were produced for all sectors to which the Netherlands provides substantial support. In Egypt an 'Institutional Assessment for Sector Assistance' was recently made for the water sector and will be used as an input for the formulation of a 'sector assistance strategy'.

4.23 In Yemen, Mozambique and Zimbabwe, the Netherlands is participating in a **multi-donor group** which supports the development of more integrated water policies and the creation of new sector institutions. Experiences in Yemen and Mozambique show that development of such coordination of donor / financing agency efforts, requires considerable effort and time. In both cases the Netherlands has brought in its long-term and in-depth knowledge of the sector, while the World Bank put the main issues (and sometimes conditions) on the agenda and UNDP played a coordinating and facilitating role. Among the six countries considered here, there is a clear relation between the tendency towards sectoral reform and the degree of donor coordination that is achieved. Obviously where major donors have an important financial role in the sector but different priorities and approaches to sectoral development and little coordination, it is very difficult for the sector itself to develop a coherent strategy towards change.

4.24 It is reported that there is considerable **trust** in the Netherlands assistance to the water sector in countries like Bangladesh, Egypt, Yemen and Mozambique. The Netherlands is able to play some coordinating role among the donor community in some of these countries. In Bangladesh for example by chairing the 'Local Consultancy Group' of all donors and financing agencies active in the water sector, which has been of significant importance for the Flood Action Plan and provided support during the formulation of the 'Bangladesh Water and Flood Management Strategy'. The Netherlands has thus actively raised policy issues in the field of peoples participation and environmental concerns.

Legal frameworks

4.25 Attention to legal aspects of water management is developing in recent years in the Netherlands assistance programme. Assistance in developing **new laws and rules** has been or is given for example for cost-recovery in Bangladesh and users organization in Egypt and Bangladesh. In Yemen and Mozambique assistance has been given to the drafting of entire new Water Laws.

5. DONOR STRATEGY AND ORGANIZATION ISSUES

5.1 Although assistance was given to a variety of organizations in the water sector for a considerable period, on the part of DGIS an **overall view on the sector** and its organization was not formulated in most countries. The assistance thus remained essentially project-based. Only Yemen has developed an explicit sector analysis and strategy. Recently the Institutional Sector Assessment in Egypt revealed important possibilities to: a) improve a number of administrative and financial arrangements in order to increase sustainability of interventions; b) adopt project designs

more intimately and carefully to the organizational setting; c) address higher level institutional and policy issues with Egyptian partners and increase synergy in the programme.

5.2 It is remarkable that very different **modalities** of support were used. In countries like Mozambique and Zimbabwe the posting of 'suppletion'[4] experts in relevant government agencies remained a core element of the assistance programme for a considerable time. In Egypt, Bangladesh, Kenya and Yemen, various consultancy firms and advisory organizations are involved in executing projects right from the start of the Netherlands assistance. The fact that the civil war in Mozambique made the implementation of projects difficult for many years, and that the assistance to the water sector in Zimbabwe is a fairly young programme, may explain these differences.

5.3 It is reported that there is quite some **trust** in the Netherlands assistance to the water sector in a number of countries, which is reflected in the role it plays in supporting (informal) discussions on sector reform and policies. Factors which may have contributed to this trust are: a) the development of the assistance programmes was often strongly determined by national requests, b) Netherlands consultants and 'suppletion' experts often integrate highly into the existing organizations, which fosters a good understanding of the operational reality and close working relations, c) the Netherlands support is provided with little or no conditions attached (procurement or other Netherlands interests).

5.4 In practice the Netherlands has been adopting a **long-term approach**: with most organizations the relation extends over 10 years or more. However this is usually realized by extending projects from one phase to the other. Formulations and evaluations still basically adopt a 3 or 4 year project cycle perspective.

5.5 For most countries it is indicated that **donor coordination** is difficult. It is remarkable that for the three countries studied that have made progress on a national water policy (Yemen, Mozambique, Zimbabwe) also the best donor coordination is reported[5]. In such cases there is a tendency for a certain division of roles between donors / funding agencies along the following lines. The World Bank puts main issues on the agenda and sometimes also conditions, UNDP may play a coordinating and facilitating role, and one or more bilateral donors (usually DGIS, GTZ, ODA or one of the Nordic countries) provide for substance on the basis of detailed knowledge of the sector. Of course such donor contributions can only be fruitful if the government of the country has the wish and commitment to reform and takes the lead in implementing it.

5.6 Internal DGIS evaluations of sector programmes, such as the presently on-going ones for Egypt and Bangladesh, invariably point to a limited '**institutional memory' and 'learning capacity**' on the side of DGIS. It is reported that in some countries the assistance to the water sector has been dominated too much by technical (and to some extent participatory) views. Input of institutional and economic expertise which would allow for other approaches to the sector as a whole are usually limited or of recent date. Experience shows that adequate exchange of

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[4] *Suppletion experts are Netherlands experts which work under a direct contract with the host organization in the country and thus receive a local salary which is topped-up by DGIS.*

[5] *Note that these three are also the ones that have the least developed national water bureaucracy.*

experiences and discussion between Dutch parties involved is essential for the quality of the assistance and its capacity to develop. In some cases successful formal or informal discussion fora of 'experts' are reported, in other cases the discussion is fragmented, polarized or dominated by interests of specific parties involved. In any case a desk-officer in the Hague or sector specialist at the Embassy will not be able to maintain the quality of the assistance programme on his or her own. It is important to always develop instruments and strategies for developing adequate 'networks of expertise'.

6. CONCLUSIONS AND RECOMMENDATIONS

A. The institutional context encountered in water sector support

A.1 **Considerable change and development is going on** in water sector organization. Notably the creation of water authorities and the formulation of more comprehensive water policies are important innovations which start to be adopted. In most countries these processes are just starting or still have to really take-off. Progress in such reforms can not be planned or predicted as it depends on political need and commitment and requires in-depth discussion and increased cooperation between parties which in the past have often had little interaction or conflictive relations.

A.2 Institutional **contexts vary considerably** as has been shown by the cases reviewed in this paper. At the same time there are important similarities in the types of reforms presently undertaken, for example with regard to the establishment of water authorities. Within these general frameworks there is thus a need for tailor-made solutions for complex and specific problems in each country.

A.3 **Donor coordination is difficult but essential** for supporting the types of capacity development presently at stake in the water sector. In the sample of countries studied, there is a clear relation between the degree of donor coordination that has been realized and the degree of progress in formulating water policies and set up bodies for integrated water management. In cases where donor coordination has been relatively successful, there is a tendency for a certain division of roles between the World Bank, UNDP and one or more bilateral donors.

A.4 **Netherlands has de-facto adopted a long-term approach** in its assistance. Also the assistance has often had a 'policy pilot' function and in some countries support is given to major sector reforms. In the management of the assistance programme however a project-by-project focus still prevails and usually no overall sector strategy has been elaborated.

B. Trends in support needs

B.1 It is expected that the development of reform processes will demand **support for a period of a decade or more and (new) expertise** in fostering high-level policy discussions in the country, in relating analysis of the sector to issues and policies in other sectors, and in bringing forward legal and institutional alternatives to present set-ups.

B.2 As a follow-up on the development of more comprehensive water policies and national or regional authorities for IWRM, the **development of effective regulatory mechanisms and instruments will become a major concern** in sector development. This is a fairly new area for the national governments concerned as well as the donor and consultancy community involved.

B.3 Further support to development of operational capacity in sub-sectors is required. But in most countries there are important structural constraints to such development, notably in the sphere of salary levels of government staff and operational budgets. Therefore the continuation of **support to development of operational capacity should consider the scope that exists for measures to address structural constraints**, for example cost-recovery, increased autonomy and transfer of tasks to private sector or users organizations, and civil service reform.

C. Implications for donors

C.1 The idea of a water resources or water sector strategy provides a useful focal point for developing donor coordination, preferably with the national parties together. **Building the essential synergy between donors takes considerable time and effort and requires to go beyond exchange of information and to engage in-depth discussions about specific problems in the sector and possible solutions**. Of course such donor contributions can only be fruitful if the government of the country has the wish and commitment to undertake reform and takes the lead in implementing it.

C.2 The capacity to reflect and learn is important now so many relatively new ideas and subjects are taken up. **Donors need to pay attention to their mechanisms for institutional memory and collective learning**, for example by fostering networks of expertise for a specific country or stimulating research and development in new areas (such as the policy and regulatory function).

D. Specific areas of attention in policy and methodology development (for DGIS)

D.1 The **adoption of more explicit long-term targets and indicators and the formulation of a comprehensive sector assistance strategy** in the Netherlands assistance to water sectors, will improve the synergy of the assistance, stimulate institutional learning and help to make strategic choices. Practical instruments for sector assessment are an important area for DGIS / donor in-house methodology development.

D.2 In the Netherlands assistance to water sectors, **more attention to financing mechanisms and cost-recovery, inter-sectoral linkages and the legal frameworks** is required, if on the basis of worthwhile experiences and knowledge in ongoing projects a meaningful contribution to improved operational capacities as well as policy and regulatory functions is to be provided in the coming years.

D.3 **Expertise on development of regulatory mechanisms** is not widely available in the donor and consultant community and new questions in this field will be faced in the coming years. Research and development in this area should therefore be stimulated.

D.4 As environmental concerns have not been integrated to the maximum extent necessary in integrated water management so far, **more experience needs to be gained in applying EIA to projects** as well as, on a more streategic level, to policies, plans, programmes. To that end, more work needs to be done on the further operationalisation of the function/value matrix (after Groot, 1992) for IWRM. This will in practice also require a stronger link between the work of environmental departments and water sector agencies.

D.5 In bottom-up planning, design and implementation of water resources management effective inclusion of all water users in decision making should be pursued. **Scattered experiences on gender- and class-balanced democratic methodologies should be inventoried, documented, integrated and promoted at policy levels**. In top-down analysis, studies and monitoring this can be supported by systematic specification of and quantification of the general expression 'the users' according to gender and class. Specific studies, e.g. on women's water rights and on forms of gender- and class-balanced multi-tier representation, may be needed to complement knowledge gaps.

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Table 3 Perspectives for improving assistance for CDE in IWRM

PERSPECTIVES	IMPLICATIONS
Reform processes will require long-term support (decade or more) and new expertise	* Make long-term commitments * Mobilize expertise in fostering policy discussions, in cross-sectoral analysis and in developing alternative institutional and legal set-ups * Stimulate research and development in these areas of expertise
Development of regulatory mechanisms, instruments to operationalize these and capacity to implement them will become a major concern in sector development	* Legal expertise required and legal systems and capacity in the countries a key concern * From planning studies to institutionalizing planning frameworks and procedures at national and regional levels * Monitoring systems to be further improved * Demand management options to be further developed, applied and evaluated
Continuation of support to development of operational capacity in sub-sectors should take into account the room that exists for addressing structural problems in salaries and O&M funding	* Make a good institutional assessment before undertaking major projects for supporting operational capacity * Make explicit in project designs to what degree structural problems in salaries and finances will be dealt with and how these will influence project outcomes and sustainability * Seek ways to pay attention to civil service reform in cooperation with other donors / financing agencies
To make maximum use of experiences in NL supported projects, more attention is required for financing mechanisms, inter-sectoral linkages and legal frameworks	* Bring-in such expertise in monitoring, evaluating and formulation sector assistance * Foster networking in these areas with other donors
Building synergy between donors is essential for supporting the types of capacity development presently at stake	* Put building donor coordination as an explicit objective in sector assistance programmes * Exchange experiences with practical ways in which donor coordination can be realized * Make it a subject of monitoring and evaluation (of programme officers)
Donors need to improve their mechanisms for 'institutional memory' and 'collective learning' in order to address the new issues presently emerging	* Foster networks of expertise for specific countries * Pay attention to R&D in new areas, such as the organization of policy and regulatory functions, water sector reform processes, etc.
Adoption of more explicit long-term targets and the formulation of a sector assistance strategy	* Make a sector assistance strategy, integrating technical, social, environmental, institutional and financial aspects of sector development as a basis for the actual programme / projects undertaken * Foster programme-wide monitoring, reviews and evaluation

LIST OF ABBREVIATIONS

ARA	Regional Water Authority, Mocambique
ASAL	Arid and semi-arid lands
BWDB	Bangladesh Water Development Board
BUET	Bangladesh University of Engineering and Technology
CB	Capacity Building
CDE	Capacity development in environment
CDSP	Char Development and Settlement Project, Bangladesh
CPP	Compartmentalization Pilot Project, Bangladesh
DAC	Development Assistance Committee of the OECD
DDP	Delta Development Project, Bangladesh
DEPI	Department for Studies and Investments of DNA, Mozambique
DGIS	Directorate-General of International Cooperation of the Ministry of Forteign Affairs, the Netherlands
DNA	National Directorate for Water, Mocambique
DPHE	Department of Public Health Engineering, Bangladesh
DRH	Water Resources Department of DNA, Mozambique
DWR	Department of Water Resources, Zimbabwe
EGIS	Environmental Geographic Information System project, Bangladesh
EIA	Environmental Impact Assessment
EIP	Early Implementation Project, Bangladesh
EPADP	Egyptian Public Authority for Drainage Projects
FAO	Food and Agriculture Organization of the United Nations
FAP	Flood Action Plan, Bangladesh
FID	Fayoum Irrigation Directorate Egypt
FPCO	Flood Action Plan Coordination Organization, Bangladesh
GDH	General Department of Hydrogeology, Yemen
GIS	Geographic information system
GTZ	Gesellschaft für Technische Zusammenarbeit (German Technical Cooperation)
HPM	Hydrology Project Mozambique
HSA	Hydrology Sector Assistance project, Mozambique
IHE	Institute for Hydraulic Engineering, the Netherlands
ISAS	Institutional Strengthening of ARA South Project, Mocambique
IWM	Integraded Water Management
IWRM	Integrated Water Resources Management
KEWI	Kenyan Water Institute
LGED	Local Government Engineering Department, Bangladesh
LRP	Land Reclamation Project, Bangladesh
M3	Cubic Meter
MALDM	Ministry of Agriculture, Livestock Development and Marketing, Kenya
MAWR	Ministry of Agriculture and Water Resources, Yemen
MEW	Ministry of Electricity and Water, Yemen
MES	Meghna Estuary Study project, Bangladesh
MLGRDC	Ministry of Local Government, Rural Development and Cooperatives, Bangladesh
MLRRWD	Ministry of Land Reclamation, Regional and Water Development, Kenya
MLWR	Ministry of Land and Water Resources, Zimbabwe
MoA	Ministry of Agriculture, Zimbabwe/Mozambique
MPWH	Ministry of Public Works and Housing, Mozambique
MPWWR	Ministry of Public Works and Water Resources, Egypt
MWR	Ministry of Water Resources, Bangladesh

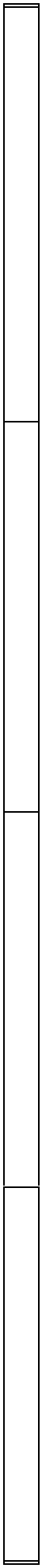
NAC/DDF	National Action Committee District Development Fund, Zimbabwe
NGO	Non-Governmental Organization
NL	The Netherlands
NWRA	National Water Resources Authority, Yemen
NWP	National Water Policy, Mozambique
ODA	Overseas Development Association, Great Britain
OECD	Organization for Economic Cooperation and Development
O&M	Operation and Maintenance
RIZA	National Institute for Fresh Water and Effluent Water, the Netherlands
RDWSSP	Rural Domestic Water Supply and Sanitation Project, Kisumu, Kenya
RWA	Rural Water Authority, South-Eastern region, Zimbabwe
SISDO	Smallholder Irrigation Support and Development Organization, Kenya
SNV	Netherlands Organization for Development Cooperation
SRP	Systems Rehabilitation Project, Bangladesh
TNO	Netherlands Organization for Development Cooperation
UNDP	United Nations Development Programme
WARPO	Water Resources Planning Organization, Bangladesh
WAU	Wageningen Agricultural University, the Netherlands
WB	World Bank
WR	Water resources
WRAP	Water Resources Assessment Project, Kenya/Mozambique
WRM	Water resources management
WRMS	Water Resources Management Strategry Project, Zimbabwe
ZINWA	Zimbabwe National Water Authority

Annexure I A ***CHARACTERISTICS OF THE INSTITUTIONAL SETTING IN WATER SECTORS***

	BANGLADESH	**EGYPT**	**YEMEN**
Basic set-up of water sector	- Ministry of Water Resources (MWR) - Water Resources Planning Organi-zation (WARPO) - B. Water Development Board - Local Gvt. Eng. Dept. - Dept. of Public Health Engineering	- Min. of Public Works and Water Res. (MPWWR) - Regional branches of the MPWWR for irrigation management, drainage, new projects - Drinking water comp. under different government set-ups	- National Water Res. Authority (NWRA) - Ministry of Agr. and Water Resources - Reg.dev. authorities of the MAWR for irrigation - Min. of Electricity and Water for urban and rural drw.
Water resources issues, macro-economic policies	- Flooding problematic with increasing pop., infrastructure etc. - Agriculture crucial to economy - Flood protection, dr. and irr. to increase security and production - Flood Action Plan (FAP) since 1990	- Aswan dam: full year irr., drainage necessary - Population growth high - Expansion of agricultural area still a policy priority - Big and growing water quantity and quality problems - Egyptian Environmental Action Plan in 1992	- Rapid depletion of groundwater, water scarcity etc. - Water is binding constraint on development - There is awareness among a large group of officials & professionals - Changes in other econ. policy areas required
Policy function: capacity, existence of water policy	- Nat. Water Plan 86/91 - limitations in capacity MWR to make policies - Last years government in crisis because of political tension - FPCO has merged with WARPO to strengthen policy preparation and	- Water Master Plan 1983 - High Committee on Nile Waters with different Ministries, MPWWR to lead / coordinate - Capacity limited, construction and O&M orientation dominant - Planning framework and capacity	- NWRA established 1995: water policy preparation, planning and management - Elements of sector strategy elaborated - Cap. developed out of assessment and planning activities in 80-ies - No O&M estimates of planned investments

	planning	weak	

Degree of separation of policy, regulatory and operational functions	- In theory separated: policy with Ministry, execution with BWDB - Regulatory function still hardly developed	- No clear separation between policy, regulatory and operational functions (one hierarchy)	- Clearly separated since erection of NWRA - Regulatory function still to be developed by NWRA
Operational water management functions for irrigation, drinking water, etc.	- BWDB has regional Divisions for impl. and for O&M of water infrastructure - LGED, more and more in small water mgt. - Drw. agencies under Min. of Local Govt.	- For irrigation a strong and old bureaucracy. - For drainage separate line has been developed - Drw. companies at present moving to increased autonomy	- In general capacity is weak - Reg. dev. authorities of MAWR for irrigation - Min. of Electr. and Water for drinking water
Existence of integrated WRM capacity and horizontal linkages within sector	- Weak at present, WARPO to develop this - No mechanisms for regional water planning	- Water resources planning group in MPWWR is small and no power - Coordination between branches of MPWWR weak - No structure for reg. water resources planning	- NWRA provides linkage between different sub-sectors at national level - Regional level planning mechanisms still to be developed
Inter-sectoral linkages for water management	- Weak - WARPO to address this through the elaboration of a National Water Management Plan	- High Committee on Nile Waters - Especially in water quality monitoring and management various Ministries have a role, but adjustment and coordination weak - Reg. coordination by governors, little impact in water management	- NWRA to develop interfaces with MAWR and MEW by activities for strengthening their cap. for making reg. plans - The donor-coordinated Water Strategy Initiative develops components within MAWR and MEW and provides linkage with macro-economic framework



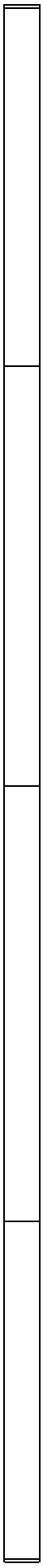
Involvement of users in water management	- Users involvement in irrigation, flood control and drainage strongly promoted by various donors - BWDB pressed by WB to develop O&M focus and interface with users	- Water planning prepared by officials MPWWR, little involvement others - Users involvement in irrigation and drw. low	- Planning approach till now very much top-down. - In the execution of the new regional action plans end-user involvement will be strongly emphasized
Existence of cost-recovery for water management	- Water rate for irr. hardly collected - Not existing for fl. control and drainage - For drw. & san. also low recovery rates	- No payments for irrigation services - Politically difficult - Drw. companies are starting to raise their tariffs and recovery	- Tariffs for drinking water in urban areas existing, but not covering actual costs - No other cost-recovery mechanisms by government
Legal basis for water management	- Legal basis for IWRM, users involvement and cost-recovery inadequate	- Irr. and Drainage Law of 1984, no IWRM focus - Laws on water quality difficult to enforce - Legal constraints on user involvement in irr.	- Draft Water Law was proposed to the cabinet in March 1996
Summary	- Dominant role of BWDB, eng. focus - WARPO to develop IWRM capacity - No structure for regional integration and coordination - Gaps in legal frameworks	- Strong old bureaucracy - Growing water crisis, quantity and quality - No clear separation policy, regulatory and operational function - IWRM capacity weak at national as well as regional levels - Very low govt. salaries and budgets	- Water a key issue in national development - NWRA established in 1995 with strong political support will provide for central IWRM policy capacity and will coordinate regional planning - New Water Law under discussion - Regulatory function still to develop

Annexure 1 B ***CHARACTERISTICS OF THE INSTITUTIONAL SETTING IN WATER SECTORS (CONT.)***

	KENYA	**MOZAMBIQUE**	**ZIMBABWE**
Basic set-up of water sector	Min. of Land Reclamation, Regional and Water Dev. Apportionment Board Catchment Board District Water Board Irr. schemes (gvt/farm.) Drw. agencies (gvt/priv.)	Min. for Public Works and Housing - National Dir. for Water (DNA) 5 Reg. Water Authorities (ARA), one established Irrigation schemes MoA Govt. agencies for urban and rural water supply	Now: Min. of Lands and Water Res. - Dept. of WR River Boards Regional water authority in SE region Urban councils, Nation. Action Comm. / Distr. Dev. Fund (NAC/DDF)[6]
Water resources issues, macro-economic policies	- Industrial and irr. dev. threaten WRM - Impact deforestation very negative - Since 1990 conflicts and shortages of water, esp. in transition zones, problems now also present in Western Kenya - Growing quality problem esp. ecially lake areas - Water highly political issue, but IWRM not high on the political agenda	- South Africa taps increasing amounts of water from international rivers, which causes increasing water resources problems in Southern Mozambique	- W. sector to reform in line with struct. adjustment policy - Economy depends strongly on (irr.) agr. and agro-industry - Current water all. in favour of large-scale (white) farming sector - Growing pressure to re-allocate to emerging small (black) farmers

[6] *New: MLWR - DWR / Zimbabwe National Water Authority (ZINWA) / Catchment authorities, DDF*

Policy function: capacity, existence of water policy	- Min. has staff; budget and facilities limited - National Water Master Plan issued in 1992 - Min. prepared National Policy and Strategy for the Water Sector in 1995 but no clear choices on IWRM responsibilities	- DNA formulated a National Water Policy based on IWRM approach in 1993 - Traditionally irr. and hydropower are important - Macro-economic considerations play little role in WRM	- Inter-ministerial WRM Strategy project started 1995 to develop new policy and strategy - Policy function to stays with reduced DWR - ZINWA to provide policy support and advise
Degree of separation of policy, regulatory and operational functions	In theory clearly separated: - Policy: Ministry - Regulation: Boards at various levels - Operation: govt., users and private organizations App. and Catchment Boards weak	Now separated: - Policy: DNA - Regulation: ARAs - Operation: irr. schemes and dr.w. agencies	- Little separation now, much with DWR - In future ZINWA will adopt regulatory and operational roles
Operational water management functions for irrigation, drinking water, etc.	- Large irr.: corporation under Min. of Water Dev. - Small irr.: under Min. of Agriculture - Dr.w. agencies: govt. and private	- General: capacity weak, very limited numbers educated staff - Govt. agencies urban and rural water supply - Irrigation under MoA	- Currently with DWR, RWA and River Boards, dr.w. municipalities and NAC/DDF - MoA involved in small and medium irrigation
Existence of integrated WRM capacity and horizontal linkages within sector	- IWRM cap. has been created through Boards at since 1935 - Boards are committees, have no permanent staff and limited funds. - Ministry has limited budget and facilities	- Capacity DNA for IWR planning and management still limited - Only one ARA has been established, still performs rather weakly - Coordination DNA other actors still weak	- In the past weakness in coordination between DWR and others and little attention for env. and other needs - Staff of DWR still eng. oriented, lack of anal. and mgt. tools



Inter-sectoral linkages for water management	- At central level (App. B.) Min. of Water Dev plays dominant role - At District and Catchment level there is interaction, no integration	- Linkages with other ministries are limited - Recent establishment of the new ministry for coordination of environmental affairs has little effect yet	- Currently weak and primarily sub-sectoral (Irr. Liaison Comm. and Nat. Action Comm. drw.) - WRMS and ZINWA to improve inter-min. and inter-sectoral coord.
Involvement of users in water management	- Composition of Boards is 'user-oriented' (govt. agencies). - User-involvement in irrigation has grown (SISDO)	- Up till now users are hardly involved - Within the ARAs user committees must be established with considerable influence on the ARA's policies	- Now mainly through River Boards consisting of water right holders (mainly large farmers) - Planning and mgt. largely with DWR, done in top-down fashion
Existence of cost-recovery for water management	- WRAP developing system to generate funds from data and permits	- In the past there were no water tariffs - Now first experiments, but political resistance and mechanisms weak	- Currently totally inadequate. Water right water free, govt. supplied water highly subsidised
Legal basis for water management	- Water Act 1962 is not completely adequate, although not too bad if really enforced - Draft new water act under preparation	- draft Water Law of 1995 includes legal tools for IWRM	- Water Act 1976. Good piece of legislation but not fully enacted - Minor changes required to facilitate new policies and inst. changes

Summary	- Basic structure for integrated WRM is present - Water is a highly political issue, new policy in discussion - Flaws in legal system - Lack of funds for Ministry and Boards - Lack of analytical and management tools	- A new structure, legal basis and policy has been defined - Operational capacity in the sector very limited - Very low education ratios and very low wages of govt. staff are important constraints	- In the past: inequitable allocation, approach sectoral and unsustainable, lac of coordination and user participation - Adaptation of policy to water scarcity, political and soc-ec. priorities is needed - Need to adopt IWRM and improve resource ass. and mgt. tools and capabilities - Low salaries, limited career perspectives are currently a constraint

Annexure II A TYPES OF CAPACITY DEVELOPMENT SUPPORTED BY THE NETHERLANDS

	BANGLADESH	**EGYPT**	**YEMEN**
Strengthening of specific organizations	- BWDB reg. divisions - BWDB Planning Dir. - BWDB O&M Directorate - WARPO - Flood Plan Coord. Organization (FPCO) - Drinking water agencies in 18 towns under DPHE - Water Resources Dept. University (BUET)	- Drainage Auth. (EPADP) - Reg. Irrigation Dir. in the Fayoum (FID) - Research Institutes Drainage, Groundwater and Hydraulics - Drw. company in Fayoum - Planning sector MPWWR - Central drw. and sanitation organization	- Sana'a University, Faculty of Engineering - General Department of Hydrogeology (GDH) - NWRA - Urban drinking water and sanitation in Rada and Sana'a (MEW) - Rural dr.w. and s. in Dhamar and Hodeidah (MEW)
Policy development	- SRP project focuses on O&M approach and procedures in BWDB - EIP developed planning mechanisms small projects - CPP contributed to guidelines for Peoples Participation - LRP/CDSP pioneers settling of landless	- Egyptian - Dutch advisory panel influenced drainage policies - Development of the water resources strategy in the Eg. Environmental Action Plan (1992) - In Fayoum new integrated channel maintenance methods were piloted	- Through capacity building, notably at DGH, basis was laid for present policy capacity - Donor coordination in the form of the Water Strategy Initiative contributed to discussions with Yemeni on water policy elements
IWRM capacity at policy, regulatory or operational level	- Different projects have supported BWDB regional branches in developing better water management strategies for their respective regions - FAP-20/CPP implements experiment with new water management concept	- Assistance to FID to stop water rise and land degradation Fayoum Lake - First water management plan for Fayoum is being prepared - Planning Sector is presently supported in using integrated planning instruments	- DGH is nucleus for the recently established National Water Resources Authority (NWRA)

Monitoring, analysis and management tools	- Monitoring of water levels / availability in project regions - Guidelines for selection, prep., impl., and monitoring of 'early implementation projects' - O&M concepts, budget and activity categories - Monitoring of O&M activities and budgets - Recently attention for flood modelling, GIS/radar technology and flood damage assessment under MES and EGIS projects	- Monitoring network surface water in Fayoum - Development of monitoring networks for groundwater and drainage with research institutes - Analytical capacity at res. inst. to support projects, policy dev. and national planning - Improvement and introduction of planning tools in Planning Sector	- Monitoring: support to establishment of national WR information centre (data base) and networks for ground and surface water in three regions - Tools for water resources assessment and planning were developed - Planning tools and frameworks to be further developed in NWRA - Work on regulatory instruments still has to start
Users organization and involvement	- Models for participation in maintenance and constr. (EMG, CMG, LCS) - Models for part. in project id/form. and water mgt. developed and tested - Guidelines for Peoples Participation MWR 1995	- In Fayoum experiment with farmers involvement in mgt. of secondary irrigation canals, first time in Egypt - Drw. company in Fayoum strengthening its public relations	- Little attention so-far, will be a strong emphasis in making water action plans under NWRA
Awareness, understanding and education	- Strengthening Dept. of Water Resources BUET - Promotion of O&M/water mgt. orientation and part. approaches BWDB staff - Active role in donor community and FAP discussions	- Support to Egyptian Environmental Action Plan - Staff development in research institutes, Drainage Authority and other organizations - Development of management courses with central drw. organization	- Substantial contributions to awareness and understanding of IWRM in Yemen through technical assistance with GDH and University

Sector organization, incl. cost-recovery	- Reorientation of BWDB to O&M/water management, including: separation of construction and O&M Divisions, staffing schedules, budget proc., improved cost-rec. mechanisms	- Drw. company Fayoum is supported towards increased managerial and financial autonomy - Experiment with users involvement in irrigation is a major innovation in sector organization	- Establishment of NWRA supported by WB, UNDP and the Netherlands
Inter-sectoral linkages	- Several projects try to stimulate inter-departmental cooperation at the local level (notably CDSP, CPP)	- Some attention in first water management plan Fayoum	- Some attention under Water Strategy Initiative - Obligation to report on cooperation between NL financed projects
Legal frameworks	- Improvements to Water Rate Rules - Support to dev. of peoples part. guidelines - Gaps in legal framework for IWRM and user organization have been surfaced recently	- Legal options for water users organizations in irrigation have been studied and proposals for improvements may result in the coming years	- Support to formulation of Draft Water Law
Summary	- Most activities directed to improvement of BWDB performance in O&M and identification/planning - Strong participatory focus, attention to legal and inst. framework - Attention to IWRM cap. increasing (WARPO)	- Broad involvement in execution, research and planning - Major institutional issues surfaced in last few years (users part., water res. planning, org. of research, civil service issues)	- NL support first centred on alleviating water supply problems, then on adequate water resources management to avoid a water crisis. - Explicit consistent strategy was followed, donor coord. realized

Annexure II B TYPES OF CAPACITY DEVELOPMENT SUPPORTED BY THE NETHERLANDS (CONT.)

	KENYA	**MOZAMBIQUE**	**ZIMBABWE**
Strengthening of specific organizations	- Rural Domestic water Supply and Sanitation Project, Kisumu - Water resources assessment and planning (WRAP) for Districts - Smallholder irrigation Support and Development Organization (SISDO, previous Provincial Irrigation Units) - Community projects in 4 ASAL programmes	- Water Res. Dep. (DRH) of DNA since 1977: suppletion experts, HPM/HSA projects - Urban water supply sector / agencies - Engineering and Agricultural faculties of University - Cap. building for North. Region in Small and Large Water Supply Systems	- Training and cap. building at DWR through 'suppletion' experts - Support to establish IWRM MSc. at University - Pilot catchment management project with pilot authority Mupfure
Policy development	- WRAP develops towards national issues (data bast, monitoring network, waterpolicy document) - Rationalisation of min. and their tasks through civil service reform (with NL support)	- Support under the HSA project has contributed to the formulation of the National Water Policy	- Inputs by suppletion experts - Support to WRMS project in formulation of new policies and strategies
IWRM capacity at policy, regulatory or operational level	- Through WRAP support to Ministry HQ, mainly at regulatory level: Water Rights and Assessment Section and other Sections of the Water Resources Division - Through WRAP support to District Water Offices at operational level	- Strong support to capacity building in DRH (and studies dept. DEPI) - Starting now with DRH: Water Resources Assessment & Planning (WRAP) project - Also starting: inst. support to the first regional water authority ARA-Sul (ISAS)	- WRMS project as a CB component aimed at IWRM - Mupfure project involved establishment of a new style catchment authority - Suppletion experts provide input at different levels

Monitoring, analysis and management tools	WRAP plays a major role: - operating a national WR monitoring network - operating national and district WR data bases and information centres - preparing ass. studies, district water development plans and maps - development models for water abstraction scenarios	- Development of monitoring networks for ground and surface water - Development of data bases - Making of maps - Training and introduction of analytical models for water resources ass. - Next step will be: planning and management models	- Suppletion experts are assisting with dev. of monitoring networks, data bases op. and mgt. models (part. surface water) and preparation of catchment plans - Further assistance will be provided through the WRMS project
Users organization and involvement	- Through 4 District ASAL programmes and RDWSSP - WRAP not targeted at involvement of user groups	- No specific point of attention in the water programme so-far	- Will receive major impetus under the Mupfure project - User part. in sm-sc. irrigation supported through SNV and NGOs
Awareness, understanding and education	- Contribution to water sector policy through WRAP - WRAP scenario analysis aims at increasing awareness of limitations in surface water extractions - WRAP supports dev. of training curricula at KEWI	- Support to DNA has strongly contributed to awareness and understanding with counterpart staff of the need for IWRM - University projects have not focused on IWRM	- The 'suppletion' staff is contributing to growing awareness of IWRM and assisting with DWR training programme - MSc. course at Univ. will provide training - DWR staff study IWRM in the Netherlands
Sector organization, incl. cost-recovery	- Cost recovery for data supply	- Development of a Water Policy and related establishment of ARAs has been supported from HPM/HSA projects	- The suppletion experts are contribu-ting towards establishment of institu-tional reforms under ZINWA

Inter-sectoral linkages	Especially locally: - at district level through District Water Development Plans (WRAP) - RDWSSP coordination bodies - ASAL district planning mechanisms	- No point of attention	- The WRMS process, supported by the Netherlands, is an important initiative in this direction - Also encourages under integr. rural dev. progr. supported by SNV and Dutch NGOs
Legal frameworks	Not much	- Contributions to the development of the ARA model (UNDP leading donor)	- Suppletion experts and WRMS project support in establishing legal framework for ZINWA and changes to Water Act
Summary	- Ongoing support for ASAL in 4 districts, rural water supply and sanitation in Kisumo, WRAP district plans and modelling for the lake area and wetlands conservation - Intention to support possible new programme on IWRM after acceptance of the new water policy	- HPM/HSA had a modest inst. str. approach, still with a largely technical concept of WRM. - WRAP/ISAS have a much more operational and economic approach to IWRM - Approach still has to become 'more integrated' (soc., pol., econ., ecol. and operational aspects)	- NL support has been 'low profile' by means of suppletion experts - Support for major inst. and policy reforms by WRMS and Mupfure projects - Additional NL support for IWM through water related component of integrated rural development programmes