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INSTITUTIONAL DEVELOPMENT

Netherlands support to the water sector

1988 - 1998

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Preface

During the 1980s the view gradually emerged that, on the one hand, water resources would become increasingly scarce in the future and, on the other hand, new institutional solutions would have to be found for a sustainable management of these scarce resources. These ideas crystallised into a general consensus adopted at the Dublin International Conference on Water and the Environment (1992) and the Rio de Janeiro Conference for Environment and Development (1992). As a result, the World Water Council and the Global Water Partnership were established. Developing countries and donor agencies have started to implement this consensus during the past decade. In the case of Dutch development aid this was important given the high volume of aid to the water sector, estimated to be NLG 2 billion over the period 1988-1998.

The Policy and Operations Evaluation Department (IOB) carried out an independent evaluation of the new institutional objectives in Dutch aid to the water sector in four countries: Bangladesh, Egypt, India and Mozambique. These four countries are among the main recipients of aid to the water sector and count for 40 percent of the disbursements. The limitation of the study to these four countries also meant more of a focus on drinking water and drainage and related water management support and less on irrigation support and sanitation.

It takes time to build an international consensus on how to deal with management issues in the water sector. The history leading up to the Dublin and Rio conferences is proof of that. The ideas have not yet been fully developed, and work continues on a Long Term Vision for Water, Life and Environment, as well as a Framework for Action by the Global Water Partnership. These ongoing exercises will be discussed at the World Water Forum, to which this report will also be presented. We hope that this report may provide a basis for discussion of the huge difficulties that are encountered when recipient countries and donor agencies implement new visions and policies. The country studies underlying this report will be published separately as working documents.

The evaluation was carried out by Inspectors Alex Bartelink and Jan Sterkenburg, in collaboration with consultants Rien Bos and Martin de Graaf. The fieldwork was conducted in 1999 by teams of consultants headed by John Soussan, Roland Rodts and Bert van de Putte. IOB is grateful to all who contributed, especially the local teams in Bangladesh, India and Mozambique, by sharing their knowledge, experience, views and comments. IOB, however, bears sole responsibility for the contents of this report.

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1 Main findings and conclusions

1.1 Introduction

The objective of this study was to evaluate the policy relevance, effectiveness, efficiency and sustainability of Dutch aid to institutional development of the water sector in the period 1988-1998. For the purpose of this study, institutional development has been defined as the process by which individuals, organisations and institutions increase their abilities and performance in relation to their goals, resources and environment. In this definition institutional development has three dimensions:

- human resources development;
- organisational strengthening; and
- system development, i.e. the dynamics of policies and legislative frameworks.

The volume of Dutch aid to the water sector totalled an estimated NLG 2 billion over the period 1988-1998, divided over 45 countries. India, Bangladesh, Egypt and Mozambique, the four countries studied here, were among the main recipients of aid to the water sector in terms of volume, between them accounting for 40 percent of the disbursements. The evaluation focused on the bilateral aid programme and was limited to activities in the two main subsectors, namely (i) irrigation and drainage and (ii) drinking water and sanitation. The bilateral aid programme was the main channel for support to the water sector: drinking water and sanitation accounted for 45 percent of the disbursements to the sector, and irrigation and drainage for 20 percent. The balance was used largely for port improvement, dredging and coastal protection. The limitation to the bilateral aid programme and the selection of these four countries implied that the study focused more on drinking water and drainage and related water management support, and less on irrigation and sanitation support. It also meant a concentration on large-scale activities and the public sector rather than small-scale activities through assistance to non-governmental organisations.

1.2 Main findings

1. The main thrust of water sector policies in all four countries has shifted from a predominantly sectoral, technical and construction-oriented perspective towards a more integrated one that takes account of social, economic, environmental and institutional issues. This reflects the trend in the views of the international community on the development of the water sector.

2. There was a significant time lag of approximately five years between the articulation of views in the international community on the one hand and the formulation of policies reflecting these views in the respective countries and the Netherlands on the other.

3. The implementation of these policies in terms of water sector activities showed a similar gap. Dutch assistance focused for a long time on the construction of physical infrastructure. Initially, institutional development objectives and activities were add-ons to what were primarily technical projects; later, projects increasingly focused on improvement of human resources development and organisational strengthening. Only a number of recent projects show a more structured approach to institutional development, reflecting an internal learning process in the programmes. This trend differs considerably from country to country.

4. Many projects during the 1980s and early 1990s concentrated on investments which resulted in a significant expansion of technical facilities and services. A substantial number of people, often belonging to weaker socio-economic groups, benefited in terms of improved access to safer drinking water and a more reliable supply of irrigation water. These were the main objectives of the activities during that period, and the effectiveness was generally satisfactory. However, in many cases the results of these projects were not sustainable, mainly due to deficiencies in operation and maintenance.

5. The implementation of the new policies focusing on institutional development faced difficulties, chiefly because in many cases organisations in recipient countries were unable or reluctant to adapt their structures or mandates. These organisations were characterised by a strong sectoral and subsectoral division of responsibilities, were technically oriented and had little experience in the social, environmental and economic aspects of water resources management. The long-term support provided by the Netherlands to these organisations confirmed and reinforced, often unintentionally, their mandates and structures. Moreover, the Netherlands tended to interpret the project proposals of public sector agencies in recipient countries as in line with the policy principle of ownership, gave high priority to continuity of cooperation with the agencies concerned, and was advised by technically oriented project staff.

6. The overall effects of Dutch support to institutional development have thus far been disappointing and smaller than might have been expected given the objectives of the

projects and the level of resources committed. (Over the last 20 years, around one-third of aid volume to the water sector in the selected countries involved technical assistance, a proportion which has increased to more than half since the late 1980s.) With the benefit of hindsight, it is clear that the objectives were not realistic given the structural difficulties facing institutional development.

7. The unrealistic objectives of Dutch support for institutional development in the water sector were primarily related to inadequate conceptualisation and analysis. This related particularly to: the purpose of institutional change, the nature of institutional processes which govern the water sector, the limitations of institutional development in improving capabilities of individuals, and the absence of stakeholder analysis.

8. *Human resources development* was the most consistently evident component of institutional development. The effectiveness of the various types of training was satisfactory in terms of improvements in the technical knowledge and skills of individuals. However, as the training did not take place within a systematic assessment of needs or strategies for human resources development within the counterpart organisation, it often did not make a significant difference to the performance of the organisation in question. This in turn stimulated a shift towards support for strengthening the organisations concerned.

9. *Organisational strengthening* was an important, but usually not central, part of Dutch-supported water sector activities. The effects have so far been limited. More recently, several projects addressed the structural problems of water sector organisations more directly. These projects focused mainly on improving the management of the organisations' core activities. In general, there was considerable resistance to donor interference in the internal functioning of public sector agencies, and consequently the effectiveness of aid to organisational strengthening was low.

10. Contributions of Dutch aid to s*ystem development* differed from country to country. They primarily involved the specification of policies and the testing of new concepts and approaches. Policy specification focused on decentralisation and the involvement of users organisations and NGOs. The contribution of new concepts and approaches mainly involved environmental issues and operation and maintenance practices.

11. The long-term commitment of the Netherlands to the water sector has had a cumulative effect, in that a consistent message has been internalised within the counterpart

organisation through of the trust engendered by a long relationship and the shared achievements and failures of the past. For this reason the overall effectiveness of different programmes in the area of institutional development has improved over time.

12. The efficiency of Dutch support to the water sector is a matter for concern and suggests considerable room for improvement. This is partly related to the project-by-project approach, although a learning curve can be discerned over the longer term. Moreover, many projects in all four countries were themselves problematic even within their construction orientation, with considerable time and cost overruns. Some of this reflected design faults, but there were also obvious problems with the organisational capacities of implementing agencies.

1.3 Issues for the future

Some of the crucial issues in relation to institutional development in the water sector have been addressed in the aid programmes in the four countries, while some others deserve greater attention in future interventions. The findings with regard to the latter are described below.

Adequate analysis

- Agreement on policies between recipient countries and the donor are not a sufficient basis for formulating programmes and projects. What is required is a thorough understanding of the process by which institutional change takes place. The analysis of human resources development, organisational strengthening and system development needs to be accompanied by a stakeholder analysis of all players in the sector.

- The dynamics of the process of change varied considerably from country to country. The planning of donor interventions was based on general policy agreements rather than on harmonising the process of institutional change. This often led to over-optimistic expectations in the formulation of activities and low effectiveness and efficiency levels in the implementation. There was a considerable time lag between the formulation of policies in the recipient countries one hand and their implementation by the implementing agencies concerned on the other. Such a time lag has also been observed for the formulation of aid policy intentions of the donor and the actual change of orientation of development activities.

Institutional change: a slow process

- Institutions in the various countries' water sectors are strong in terms of the actual process of construction and infrastructure development. These organisations are also characterised, however, by inefficiencies and capacity deficiencies (varying in degree from country to country). The strong sectoral division and technical character of many agencies stand in the way of an orientation towards the social, environmental and economic aspects of water management. These constraints make institutional development a slow process, a factor which has to be clearly recognised when designing and implementing programmes. The effectiveness and efficiency of institutional activities will otherwise be disappointing. This has also been observed by the World Bank (World Bank, 1994).

Clear strategies and a long-term commitment

- In order to address the three dimensions of institutional development – human resources development, organisational strengthening and system development – effectively, the relevant players in the recipient country and the donors have to develop a clear strategy and a long-term vision on all three dimensions as appropriate. Strategy and vision have to be based on careful analysis of all public and private entities and stakeholders in the sector in order to build up a coherent understanding of the institutional change processes and to allow planning of interventions that are tailored to the sector's needs. The ongoing processes of decentralisation and privatisation must also be taken into account. This should lead to a new division of tasks between government and private sector at national, regional and local levels.

Innovative approaches

- Although most organisations in the water sector are generally strong on construction and infrastructure development, problems in system design and operation and maintenance often challenge the sustainability of the works. Some of the newer, more innovative activities (like partnerships and participative approaches) are effectively going beyond the mere enhancement of the capacities of individuals and counterpart organisations, and are geared to the realisation of policies for institutional reform and decentralisation. These projects are promising and are an example to countries where technical project approaches with their institutional add-ons still prevail.

2 Objectives and approach

2.1 Justification

The importance of the institutional dimensions of international development cooperation programmes and projects has been increasingly recognised by multilateral and bilateral donor agencies and their counterparts in developing countries. Especially in the 1990s, the role played by institutions and organisations in the development process grew in importance, partly in relation to discussions on reforms in the public sector. Most documents on the subject indicate that institutional issues influence both short-term success, i.e. the efficient production of the intended goods and services and effective performance, and long-term success, i.e. the sustainability of results and impact (Brinkerhoff, 1994).

There are several good arguments for evaluating Dutch aid for institutional development in the water sector. First, support for institutional development has become an important objective of Dutch development aid. Second, aid to the water sector has been provided since the early 1970s and has increasingly been focused on institutional development in the sector. Third, aid to the water sector has been made available to a large number of countries and, moreover, disbursements for activities in the water sector have been considerable (an estimated 15 percent of the bilateral development aid budget). And fourth, Dutch aid for institutional development has not been the subject of an evaluation before, and the findings may provide information relevant to the World Water Council Conference in 2000.

2.2 Objective and key questions

The general objective of the study is to assess the contribution of Dutch aid to institutional development in the water sector. The evaluation focuses on policy relevance, effectiveness, efficiency and sustainability of the support.

The objective of the evaluation has been specified in the following key questions.

1. How did Dutch development cooperation policy for the water sector evolve, and how does this policy relate to international trends in this area?
At a number of international conferences over the last two decades, a broad consensus has emerged on water issues and aid policy. Dutch aid policy is linked to the international water dialogue as formulated in the documents of these conferences. The policy frame-

work provides the background against which the activities (i.e. projects and programmes) have been assessed.

2. How did the objectives of the Dutch aid programme relate to the recipient countries' priorities for the water sector?
This key question relates to the general situation and main problems of the water sector, the legal framework and the government policies for dealing with the main problems. This question thus refers to the relevance of the programmes and projects.

3. How did the activities supported by the Netherlands contribute to the strengthening of institutions, and to what extent are the results sustainable?
This question focuses on the approaches adopted by the Netherlands in supporting institutional development in the water sector. It thus refers to the effectiveness and the sustainability of the activities.

4. How was the development cooperation organised and managed?
This question covers the organisation and management of the support to the subsectors among the stakeholders in the recipient country, by the Netherlands and by the donor community. It also deals with the mechanisms used to decide on policies and support for interventions, and with cost effectiveness. This question thus refers to the efficiency of the support.

These key questions have been elaborated in a series of subordinate questions and relevant indicators by which aid performance can be assessed.

Institutional development has been defined as the process by which individuals, organisations and institutions increase their abilities and performance in relation to their goals, resources and environment. In this definition institutional development has three dimensions: human resources development, organisational strengthening and system development (Kruse, 1998). The assessment focuses on support for human resources development and organisational strengthening. System development, i.e. the dynamics of policies and legislative frameworks in the water sector, has been used in the description of the context for the aid projects and programmes, while the contribution of aid activities to changes in this wider framework has also been part of the assessment.

The achievements in institutional development may be seen in each of these three different dimensions:

- *human resources development* in terms of enhanced technical and managerial capabilities as a result of the various types of training and the provision of material support;
- *organisational strengthening* in terms of improved human resources planning and management, enhanced technical and management processes in the individual organisations concerned, improved financial management and strengthening of their external relations; and
- contributions to *system development*, such as improved legislation and regulations, changes in policies and planning, and conceptual innovations in water management.

2.3 Scope of the study

The evaluation focuses on the two main subsectors for Dutch aid to the water sector, namely irrigation and related drainage activities and drinking water and related sanitation activities. This means that the evolution of Dutch development cooperation policy with regard to these subsectors has been analysed at the policy level and compared with trends in views and policies among donors and developing countries.

The evaluation has been limited to the aid made available to the two subsectors through the regular bilateral programme and those special programmes relevant to institutional development, such as the fellowship programme, the university cooperation programme and the Dutch associate expert programme. Approximately 85 percent of all disbursements for the water sector during the period 1988-1998 were financed from the regular bilateral programme. Drinking water and sanitation accounted for 45 percent of the disbursements, and irrigation and drainage for 20 percent. The balance was used largely for port improvement, dredging and coastal protection, i.e. activities which are not included in this evaluation.

The bulk of the disbursements for the selected subsectors was made available to a limited number of countries which are all classified as priority countries for Dutch aid. Four of these countries have been selected for a more detailed assessment of the aid programme: India, Bangladesh, Mozambique and Egypt. This selection reflects the geographical distribution of Dutch aid to the water sector, in which Asia, the Middle East and Africa figure prominently. Moreover, in this way use is made of recent IOB country programme evaluations (Egypt and Bangladesh) in which the water sector was also reviewed.

For these two countries the field study was therefore limited to updating the available information and comprehensively addressing the relevant aspects of institutional development. For Mozambique and Egypt both subsectors were covered, including overall water management. For Bangladesh the evaluation focused on water management in relation to irrigation, drainage and especially flood control activities. For India the study was limited to drinking water and sanitation in one state in view of the size of the country. Gujarat was selected for its long-term support to the drinking water sector (since the mid 1970s) and the trend in the programme, which is also illustrative of the changes in Dutch aid to drinking water improvement in India.

The evaluation covers the period 1988-1998. This time-frame takes account of the time required to assess relevant changes in aid policy and supported activities and to assess properly the effects of interventions on institutional development in the two subsectors.

The limitation to the bilateral aid programme and the selection of the four countries largely on the basis of aid volume implied that the study focused more on drinking water and drainage and overall water management support, and less on irrigation and sanitation support. It also meant a concentration on large-scale activities and the public sector rather than small-scale activities through assistance to NGOs.
In order to obtain a more complete picture of institutional development in the water sector, several subjects deserve further study in the near future. The following subjects should be mentioned in this context:

- stakeholder analysis and participatory planning;
- the effectiveness of various types of technical assistance (long-term resident versus short-term, and expatriate versus local consultants);
- the function of various types of training in the broader context of manpower development in the water sector; and
- comparison of the various organisational models for the sector (including degree of decentralisation and the responsibilities of public vis-à-vis private organisations).

2.4 Methodology

The evaluation started with an inventory of international and national views on the development of the water sector and its institutional development and Dutch aid policy. Subsequently, an inventory was made of the activities supported in the sector in the selected countries. Activities were grouped into projects and clusters of projects with similar objectives and activities.

The dimensions of institutional development on which the evaluation focused – improvement of human capabilities and strengthening of organisations – were operationalised as follows. Three types of improvement of human capabilities were taken into account: on-the-job training in projects, participation in formal training courses, and the establishment or strengthening of training facilities in the selected country. Indicators for human capabilities improvement were the continuation of employment in the relevant organisation, and the improved performance of individuals in the organisation as a result of the training.

With regard to organisational strengthening, four aspects were included in the evaluation: human resources management, core process management, financial management and external relations:

- improvements in human resources management were measured in terms of training (inventory of available expertise and design of training programmes), staffing policies (recruitment and career planning) and the creation or strengthening of a personnel unit/department;
- improvements in core process management were measured by reviewing the capacity for planning of production and/or services and the allocation of staff to core activities, the delegation of tasks to appropriate levels, and the progress in operation and maintenance, and in monitoring and evaluation;
- better financial management was understood to mean improvements in budgeting, accounting practices and financial monitoring and reporting;
- and finally, strengthening of external relations was measured by observing changes in client contacts and contracts, more intensive contacts with relevant organisations and a firmer incorporation into the wider organisational framework.

The projects were assessed in terms of the extent to which various aspects were addressed, and, if they were, whether they were being implemented or had been completed by the project, and whether they had been incorporated by the relevant organisation as part of its regular practices.

Strengthening of organisations was considered a means to an end and not as an end in itself. In other words, the ultimate purpose of organisational strengthening was to achieve more efficient and effective performance of the relevant organisation in terms of improvements in and/or expansion of the delivery of services. The following performance indicators were applied to the organisations in the water sector:

- the reliability of water delivery, by comparing actual duration of delivery and intended duration;
- the coverage of the population in terms of water supply and sanitation/drainage compared to the intended coverage or identified needs;
- the proportion of structures in working condition in relation to those essential for the proper functioning of the system, as an indicator of the quality of operation and maintenance;
- the extent to which the operation and maintenance costs and investment costs are recovered by revenues received by the relevant organisation and through government subsidies, as indicators of financial viability.

Finally, an assessment was made of whether projects affected the wider institutional setting in which they operated and thus contributed to what has been called 'system development'. Attention was given to three aspects: introduction and advancement of new concepts, assistance to policy design and implementation, and facilitation of the legal framework and rules and regulations.

The information required for the evaluation was collected through desk studies complemented by field evaluations in the four selected countries. In general, the following methods of data collection were used:

- analysis of relevant literature and policy documents concerning development assistance policies for the water sector and for its institutional development, with particular emphasis on the subsectors of drinking water and irrigation;
- desk study of policy documents, projects and programme files, progress reports and evaluation studies for the four selected countries;
- field studies in the selected countries; for each field study, separate terms of reference were formulated, which included more detailed key questions and main aspects of evaluation;
- interviews and surveys.

3 The water sector and institutional development

3.1 International views on the water sector

Water in all its uses is a key element of physical, social, economic and cultural life in every society. Its significance for biological life is obvious: there can be no human, animal or plant life without sufficient availability of fresh water. Most civilisations have evolved around sources of fresh water, and although these days technologies make it possible to transport water or bring up water from greater depths, reliable access to an adequate water supply is still a primary factor in establishing a sustainable society on any scale.

While water is a crucial element in physical and social life, all indications are that this natural resource is under severe threat. In a number of countries and regions groundwater resources are running out or becoming prohibitively expensive, rivers are drying up and the quality of available fresh water is deteriorating rapidly. The reasons are clear: over-exploitation because of expansion of irrigated areas, population growth, higher consumption of goods and services per head, and pollution of aquifers.
In many developing countries the level and coverage of water-related services and the production of food is low. Governments feel the daily pressure to provide these services to the population, but do not have sufficient means to cope with the tremendous costs that these services involve.

Over the past decades the seriousness of the problems in the water sector has increasingly been recognised. A number of international conferences have provided forums for debate, and through these conferences an international consensus has emerged on the main issues in the sector and on the strategies for attempting to solve these problems.

The most important international conferences were the Mar del Plata Conference (1977), at which the International Water Decade was launched, the Dublin International Conference on Water and the Environment (1992) and the Rio de Janeiro Conference for Environment and Development (UNCED) (1992). Among the results of the Dublin and Rio conferences were the establishment of the World Water Council and the Global Water Partnership. The latter aims to encourage partners to adopt consistent and complemen-

tary policies and programmes for the solution of water resources management problems worldwide and to share information and experiences. The World Water Council has been created to increase awareness of critical water issues and their relationship to environmental sustainability. Under the auspices of the World Water Council a 'Long Term Vision for Water, Life and Environment' or 'World Water Vision' is being developed, which aims to outline the desirable state of water management in 2025 on the basis of different scenarios. This exercise is complemented by the preparation of a 'Framework for Action' by the Global Water Partnership. Outcomes and recommendations of these two exercises will be presented at the World Water Forum, an international conference to be held in The Hague in March 2000.

The thrust of the International Drinking Water Supply and Sanitation Decade (1981-1990) was to confirm and elaborate actions and to devote very substantial national and international resources to the expansion of coverage of water and sanitation services.
In 1987 the United Nations organised an international symposium in New York to review the progress made during the International Water Decade. This symposium concluded that, while considerable progress had been made in the preceding decade in terms of providing more people with safe water and sanitation facilities, substantially larger financial resources would be required to fulfil the targets of the Water Decade. Moreover, the recommendations and resolutions adopted at the Mar del Plata Conference had not had much influence on the direction of policies and institutional arrangements in most developing countries (Lee, 1992). The state continued to be the dominating player, regulating and providing water, usually far below cost levels, usually without a coherent policy framework, through inefficient and fragmented institutional arrangements and often without sufficient regard for environmental aspects. It had become clear that most developing countries faced a dramatic shortage of skilled personnel, that cost recovery policies were often highly inadequate and that financial planning at national levels was weak. These factors, combined with deteriorating water quality in many countries, led to major shortfalls in the availability of safe water.

Subsequently, water issues played a prominent role at the Conference for Environment and Development held in Rio de Janeiro in 1992. The preparations for this conference with regard to water issues included a meeting in Dublin, at which the so-called Dublin Principles were adopted. The most important of these principles were:

- Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.
- Water development and management should be based on a participatory approach, involving users, planners and policy makers at all levels.
- Women play a central part in the provision, management and safeguarding of water.
- Water has an economic value in all its competing uses and should be recognised as an economic good.

At the Rio Conference these principles were reformulated as focuses for government policies, with great emphasis placed on water quality and the integrated management and development of water resources.

The World Bank views on the development of and support to the water sector must be mentioned separately here, since its analyses are widely seen as state-of-the-art on technical and policy aspects and therefore feed and influence the discussions in both aid recipient and donor countries. Moreover, the World Bank has been the major lender to the water sector for quite some time now.

Although the World Bank had no agreed written policies before 1993, its lending operations indicate that policy was primarily supply-driven and dominated by the aim of extending water supply to all those currently lacking services, mainly in terms of potable water and irrigation water. With regard to irrigation and drainage, projects financed by the World Bank had until the 1970s a strong focus on establishing or expanding irrigation systems and rehabilitating existing systems. During the 1970s cost recovery for operation and maintenance and drainage became central issues in what were often rural development programmes. From the mid-1980s irrigation as a specific field of intervention became more distinct again, and projects more often covered the entire sector rather than being limited to specific sites. Public sector agencies continued to be the key players, with only modest attention given to the involvement of farmers, commercial agencies and local authorities (Jones, 1995). With regard to drinking water and sanitation, the World Bank during much of the early decades concentrated on supporting the vast expansion of facilities and, somewhat later, on enhancing the technical competence and efficiency of the government agencies directly in charge of water supply.

In its 1993 report 'Water Resources Management, A Policy Paper' the World Bank adopted a more integrated view of the water sector. Policy became more concerned with sustain-

able water supplies, ensuring that water was viewed as an economic good, understood and approached from a comprehensive policy framework combining decentralised management and delivery structures, greater reliance on pricing and fuller participation of a wide range of stakeholders (World Bank, 1993).

The World Bank paper advocates 'integrated water resources management' (IWRM) and calls for a rethinking of the ways in which society views and manages water. The document expresses concern over the fragmented nature of water resources management and the dominance of water provision by public sector agencies that are considered inefficient and unaccountable to the users of the services. It also echoes growing concern over the environmental costs of poor water resources management. Fundamental to the new policy is an effort to determine what consumers actually want and are willing to pay for, and to design services accordingly, since the bulk of financing for services is expected to come from users rather than from public funds. Pricing to ensure financial sustainability is advocated as a step in the right direction.

The policy paper stresses that the reform of water resources management will have major implications for the institutions that deal with water resources. Governments should concentrate on key tasks and refrain from operational roles where possible. The main task for governments is to establish a strong legal and regulatory framework for dealing with pricing, monopoly organisations, environmental protection and other aspects. Institutional structures at national and regional levels may need to be adapted to coordinate the formulation and implementation of policies for improved water management and public investment programmes. The upgrading of skills for policy analysts, planners, managers and technicians is considered as essential as the promotion of comprehensive policy frameworks and institutional reforms. Furthermore, the paper emphasises the need to encourage the privatisation of public water service agencies or their transformation into financially autonomous entities and the use of management contracts for service delivery. Finally, the document underlines that public sector responsibility is most effectively handled at the lowest possible level. River basins are put forward as the most appropriate geographical units for analysis and coordinated management.

In a reflection of the high profile the water sector has secured in recent years, many of the regional development banks have recently reviewed their water policies. Their policy statements tend to reflect those set out by the World Bank.

3.2 Policies in the four countries of studied

The water sector policies in the four countries and the dynamics of change in these policies since the 1980s vary considerably.

In India, the National Water Policy adopted in 1987 advocated a holistic and integrated approach based on a river basin concept for the management of water resources. It emphasised beneficiary participation in the development and management of infrastructure, and water pricing to cover operation and maintenance costs. Yet, for drinking water, policy continued to focus on the construction of supply schemes through state-led technical agencies. Because of widespread problems with the sustainability of the utilities, drinking water policy was revised in 1999 and policy documents now reflect priority for repair and rehabilitation of systems and for institutional reform based on decentralisation and community involvement.

In Bangladesh, policies focused on improved flood control by means of the construction and rehabilitation of embankments, pumping stations and irrigation canals. Growing doubts about the effectiveness of these measures after serious floods in the late 1980s led to a reappraisal of policies, but policy implementation continued to concentrate on the construction of works. It was only after strong objections from the NGO community and several donors that policies changed. The new National Water Policy approved in 1999 reflects a change towards integrated water resources management, decentralisation to local government level, involvement of civil society and the greater importance of socio-economic and environmental factors in water management.

Before Mozambique issued a new water policy document in 1995, activities focused on construction and rehabilitation of utilities, which largely involved repairs of war-damaged structures financed by donor aid. The National Water Policy's key policy principles are: satisfaction of basic water supply and sanitation needs; decentralisation by means of the creation of regional water authorities; end-user involvement in planning, operation and maintenance and cost-bearing in rural areas; and private sector participation in construction and operation and maintenance of urban drinking water utilities.

Egypt started to develop a strategy for a more effective use of water resources during the 1980s, which culminated in the National Water Master Plan of 1986. Interaction between the planning effort and policy decision-making bodies was weak, however, and activities

continued to favour high-profile land reclamation and irrigation schemes. Action was taken to increase water-use efficiency, including the reuse of drainage water in irrigation. Drinking water policies emphasised a strong expansion of water supply and sanitation services at low cost to the population. Enormous investments were directed towards expansion of facilities in urban areas in particular. In the early 1990s policies gradually changed and the government came to recognise the benefits of increased user participation in managing and maintaining the irrigation and drainage network. In 1996 there was a major departure in the policy on drinking water and sanitation services when Egypt started to set up autonomous regional companies.

In sum, the main thrust of water resources policies in all four countries has shifted from a predominantly sectoral and technical approach towards more integrated approaches which take account of social, economic, environmental and institutional issues.
The extent and details vary, but all the countries participate actively in international conferences and are aware of, and keen to align themselves with, international trends in this sector.

This dynamic of policy development in all four countries was a particular feature of the last decade, during which most policy-makers recognised that the traditional sectoral approach was not addressing the major problems they were facing in the management of water resources. The specific form these problems take varies from country to country.

On their own, however, these policies are not enough, for they will only be effective where there are mechanisms to translate them into action. In particular, the four case studies demonstrate the importance of having effective and appropriate institutions if policy intentions are to become development reality. All countries suffer from specific problems in this regard, which underlines the fact that issues associated with institutional development are an essential aspect of good water sector support. It is clear, then, that all four countries are characterised by a gap between the emergence of policies on decentralisation and integration and the institutional structures through which the sector is managed and through which the policies have to be implemented.

3.3 Trends in aid to the sector

The water sector, as defined in this evaluation, comprises the two subsectors of (i) irrigation and drainage and (ii) drinking water and sanitation. These have always attracted

extensive support from international agencies, especially during the first three decades of international development cooperation (i.e. the 1960s, 70s and 80s). It is only recently that donor support to the sector has been declining. This decline largely reflects a reduction in the volume of funding for expanding irrigation infrastructure and coincides with a greater emphasis on institutional strengthening by means of technical assistance. The decline is to some extent offset by the trend towards greater support for drinking water development, especially in urban areas.

Regarding the actual donor support to the water sector in general and institutional aspects in particular, three periods can be distinguished. Until the mid-1980s the emphasis in donor aid was on the expansion of infrastructure. This emphasis was replaced by a wider focus on managerial and social concerns around 1985. In the early 1990s two major shifts occurred: environmental concerns became much more pronounced, partly as a result of the Dublin and Rio conferences, and the World Bank put 'integrated water resources management' on the agenda.

The changes over time were related primarily to a changing perception of the problems in the water sector. In the 1970s water was regarded as a basic need and thus activities were financed within the framework of poverty alleviation. But this view changed gradually to a more ambiguous position: water was a basic need for all on the one hand and a scarce resource which should be maintained for sustainable use on the other. In recent years the donor agencies have treated water as a priced commodity to ensure sustainability of supply. In addition there has been a trend from a sectoral or subsectoral view to one of integrated water resources analysis and management.

This changing perception affected the types of activities that were supported by donors. From 1970 to 1985 most support was geared to the expansion of the systems for irrigation and drinking water supply, since the main problem was thought to be the lack of infrastructure and finance to increase the supply of water. In many countries it was assumed that water should be supplied free of charge to the population. After 1985 the maintenance and sound operation of the systems became the main concern of the donor agencies. Recently, it was found that assistance in formulating strategies and new responsibilities for governments, such as regulations and privatisation of the subsectors, were needed to ensure a sustainable supply of water and effective water management.

These changes had consequences for the types of institutions to which aid was directed. The earlier aid programmes concentrated on central public agencies as the institutions responsible for water supply in the countries concerned. Since the mid-1980s, users organisations were addressed, especially for operation and maintenance tasks, while NGOs were involved in setting up and training users organisations. It was not until recently that the donor agencies realised that all stakeholders, women in particular, should be involved in the efforts to secure water for irrigation and clean drinking water.

It was also gradually accepted that the management of water supply systems could not remain entirely in the hands of central public agencies, but should be decentralised to institutions at lower administrative levels. Recently, donor agencies have been increasingly directing their efforts to institutions covering river basins and watersheds as the geographical unit for interventions in the water sector within an integrated water resources management concept.

3.4 Comparison of views

Within both the donor community and developing countries there is a growing awareness that humanity's water demands exceed the medium and long-term supply. But opinions differ about the most effective way of addressing the problems, especially with regard to the role of public institutions. Donor agencies emphasise that the essential task of the government is not to ensure the provision of water as a physical entity, but to coordinate and mediate among the different sections of society. These days the task of governments is seen as one of medium and long-term regulation by way of an expanding range of administrative, legal, social and financial mechanisms. Most developing countries, however, continue to emphasise the provision of water to all as the essential process that has to be controlled and executed by the public sector. They feel that the provision of water for their populations should remain a responsibility of central government and should be part of internal political debates between the stakeholders at various levels.

There are also major differences of opinion within the donor community and between the donor community and many recipient countries about the role of the private sector. International financial agencies stress the problematic nature of public sector allocation, regulation and distribution, and point to the high level of transaction costs if the state attempts to plan, manage and control the use of water. These agencies seek the solution in economic terms: water should be treated as a commodity, with rational economic

allocation and transparent bargaining. Other donor agencies, while acknowledging weaknesses in the public sector, stress that the state needs to remain the key institution for regulation, allocation and control in view of the risk of the hijacking of essential services by special interest groups, widening inequality and an unbalanced exploitation of the environment.
Many developing countries fear that privatisation of drinking water supply opens the door to large foreign private companies, that environmental and sanitation aspects will be neglected, and that water will increasingly be restricted to those who can afford it.

Donors are often in favour of a more prominent role for the users of water-related services. These days they see users as clients, customers and co-producers of services. As clients they are important in planning facilities and shaping agencies; as customers they are responsible for meeting costs, in return for receiving services they value; and as co-producers they will have to mobilise their own resources and activities in order to generate maximum profits. Governments in recipient countries are reluctant to transfer responsibilities to users or even to decentralise to lower levels of administration. As the chairman of the Global Water Partnership put it: 'The experience of institutional reform without pricing has not been positive. A great deal of lip-service has been paid to the need to decentralise power and devolve responsibility for water management to the lowest levels. However, it is not something that seems to come naturally to utilities and ministries' (Serageldin, 1998). This may be because of political interests that benefit from central control, or out of a realistic awareness of the limited capabilities at lower levels of administration and of users organisations.

3.5 Main issues

At the various international conferences and in the donor agency policy documents, a number of issues have been raised which reflect the problems encountered in the water sector in the past decades. The following four issues crop up regularly: (i) the roles and responsibilities of public and private sector institutions; (ii) the role and involvement of users; (iii) cost recovery and cross-subsidising; and (iv) decentralisation and the incongruence of boundaries.

Roles and responsibilities of public and private sector institutions

There is a broad consensus that public sector agencies need to retain key responsibilities, which include: protecting water resources in relation to environment through flood

control, water planning (including wetlands) and measures against erosion and pollution; guaranteeing food supply; negotiating the sovereignty over water in rivers affecting neighbouring countries; and raising awareness among the population and institutions of the value and the critical situation of water resources.

Private sector resources, expertise and incentives, however, play a major role as well. There are no proven models for a balanced allocation of roles which capitalises on the respective strength of each sector, taking account of differences over time, of place and in subsectors. As many government agencies tend to suffer from centralised management, discipline-based biases and unresponsiveness to clients, the challenge is to preserve and enhance technical competence while finding effective strategies to transform these agencies.

Role and involvement of users

Since, in the end, all activities centre on the provision of water to individual or collective users, it is important to know and understand these users and prospective users, to find ways of involving them in design and planning, and to have them share responsibilities for operation and maintenance. Again, there are different concepts for defining users and facilitating their involvement and for distributing financial and other responsibilities. At this level, gender analysis can play an important role in identifying the involvement of women in the sector.

Cost recovery and cross-subsidising

While the supply of water requires various scales and types of investment and generates different types of benefits, there is a growing consensus that a substantial proportion of costs needs to be recovered from those who benefit. Usually a distinction is made between investment and recurrent costs, and between water supply for directly productive purposes (especially in agriculture, but also in manufacturing industry) and for human consumption (drinking water). For the latter, in particular, there are political dilemmas concerning the distribution of costs across users and the need for cross-subsidising.

Decentralisation and the incongruence of boundaries

There is an inherent tension between the need for longer-term and multidimensional planning for increasingly larger ecosystems and river basins on the one hand and the demand for decentralisation and lower-level participation on the other. In addition, and especially where environmental factors become increasingly significant in the context of water exploitation and consumption, the established administrative boundaries of state, province and district do not match the spatial pattern of ecological systems. The usual demarcation of roles over administratively defined regions increasingly clashes with the need to understand and manage watershed areas.

4 Dutch aid for the water sector and its institutional development: policies and policy implementation

4.1 Aid policy for the water sector

The water sector has received ample attention and support since the beginning of Dutch development assistance. This priority for the sector is based on the perceived importance of irrigation and drinking water supply for agricultural growth, food security and better living conditions, and on the available expertise in the Netherlands. Even so, the broad support the Netherlands provided to the water sector was not laid down in any sector-specific policy document until 1989.

During most of the period prior to the late 1980s the key problem was considered to be the major shortfall in water supply: the rapidly increasing population of most developing countries needed to be provided with irrigation and drinking water. This was essentially seen as a matter of establishing infrastructural facilities, using optimal and mostly imported technology and applying massive donor funding. Construction of infrastructure was often conceived in the context of detailed and ambitious master plans based on social targets, reflecting basic needs perspectives. Aid for the expansion of drinking water supplies was seen as directly related to poverty alleviation. The International Drinking Water Supply and Sanitation Decade (1981-1990) was very influential in setting high ambitions for expanding the coverage of water services and in defining this as mostly a financial, technical and managerial challenge.

The water sector evaluation of the Operations Review Unit (IOV, IOB's predecessor) evaluated the performance of development assistance to domestic water supply between 1975 and 1980. During that period a total of NLG 600 million was committed, a high volume of support. IOV concluded that the selection and design of projects was often not thorough and not guided by a clear policy. Aid resulted in improvements of facilities for poor sections of the population, but the effects on the improvement of health conditions were

undermined by not combining drinking water supply with sanitation facilities. Moreover, the long-term impact was unclear and sustainability often doubtful, and there was little attention to the strengthening of organisations. The evaluation report argued strongly in favour of a clear, precise and realistic sector policy with due regard for organisational and financial aspects (IOV, 1983).

In 1989 the Ministry of Foreign Affairs produced a sector memorandum on drinking water supply, sanitary facilities, drainage and waste disposal (Ministry of Foreign Affairs, 1989). It presented the first detailed statement of Dutch views on and approaches to this subsector. It took stock of the problems that still existed after the end of the International Water Decade and strongly endorsed the integrated approach in which improvements in water supply are linked to improvements in sanitation, drainage, solid waste disposal and hygiene behaviour. Furthermore, it emphasised the need for user participation, which was seen as an essential element in ensuring more appropriate technological choices, a much greater sense of responsibility among users and, in the long run, the devolution of the operation and maintenance tasks. Finally, the memorandum underlined the importance of economic and social sustainability. The former involves the preference for low-cost technologies and local production and the principle of covering recurrent cost locally in order to enhance the financial self-sufficiency of drinking water agencies. The latter implies the pursuit of knowledge transfer and the encouragement of and support for institution-building. To that end, the memorandum stated, institutional capacities should be properly assessed in the preparation phase and taken into account in planning and defining the tasks of agencies (Ministry of Foreign Affairs,1989a).

In 1989 the Ministry also published the policy document 'Women, Water and Sanitation', which specified the role of women in user participation. The paper described the traditional and new roles of women in the area of water and sanitation, and outlined practical steps to ensure women's involvement in order to arrive at better management and maintenance of facilities, safer hygiene behaviour and a reduction of women's workloads (DGIS, 1989b).

Policy was further specified in the general policy document 'Een Wereld van Verschil' ('A World of Difference') (Ministry of Foreign Affairs, 1990). This document emphasised the need for an integrated approach to water management and the importance of specifying local policies and instruments to that end. This integrated approach included linking the

construction of infrastructure, attention to the environment and the participation of users in managing water facilities. The principles of the general policy document were subsequently elaborated in a sector policy paper on water management and development cooperation drafted in 1996. This paper, which was never published as a formal policy document, reflected the views of the early 1990s and for the first time offered an integrated analysis of the whole sector.

Thus, after a long period of priority given to the construction of physical infrastructure, Dutch aid policies began to reflect greater attention to institutional development. Noticeable from the late 1980s onwards, this departure initially focused on user participation and improved operation and maintenance of drinking water and sanitation in particular. Subsequently, the emphasis shifted to integrated water management and strengthening of the overall institutional context, including delegation of authority to the lowest level, reduction of the role of central government institutions and financial autonomy for semi-public water utilities.

Therefore, in retrospect, three periods can be distinguished in Dutch development assistance policies for the water sector:

- 1970-1989: rapid growth in the volume of aid to the sector based on the general objectives of Dutch aid policy but without sector-specific policies; activities focused on construction of infrastructure to expand supply;
- 1989-1993: first efforts to formulate a subsector policy for drinking water and sanitation, with growing emphasis on improving access to and utilisation of water and on user participation;
- 1993-1998: specification of sector policy, with emphasis on an integrated approach to the water sector and institutional aspects, including cost recovery.

Until the early 1990s policy documents hardly ever referred to institutional development. Activities focused on improving human capabilities by means of various types of training. But since in many cases these activities did not lead to more effective organisations, attention was directed more and more to the strengthening of these organisations per se. This is reflected in 'A World of Difference', which mentions institutional development as a new form of development assistance and places it in the wider context of good governance, the redefinition of the role of public institutions, and privatisation (Ministry of Foreign Affairs, 1990).

Further specification of policy with regard to institutional development has been under discussion for some time now. A recent draft policy note broadens the concept by stating that 'institutional development is not only aimed at organisations, but also at the political, social, economic, legal and cultural context that determines the functioning of those organisations'. The policy note stresses the central importance of institutional development for the sustainability of the results of development interventions. It also observes that institutional capacities and the complex institutional context were often ignored by donors, which led to poor intervention performance.

4.2 Current policy

In 1998 three relevant policy documents were published, dealing with (i) drinking water supply and sanitation, (ii) sustainable irrigated agriculture, and (iii) water for the future: integrated water resources management (Ministry of Foreign Affairs / NEDA, 1998a, 1998b, 1998c). These documents form part of development cooperation policy, address practical issues and provide guidelines for implementation. Each refers to views and policy principles agreed at international conferences such as Mar del Plata, Dublin and Rio de Janeiro, and then outlines Dutch development cooperation policy.

The document on *integrated water resources management* places the emphasis in aid policy on capacity-building and support to different forms of water resources management. Capacity-building involves making contributions to the following:

- an appropriate national policy framework, covering such issues as water laws, rights and entitlements, institutional reform (specifying the roles of NGOs and the private sector) and water pricing policies;
- enhancing institutional capacities for integrated water management, which comprises the strengthening of different types of institutions, more specifically assistance to local communities to manage their water resources in an effective, sustainable and integrated manner, the reorientation of government agencies towards facilitating, monitoring and regulating agencies, and assisting the process of decentralisation;
- human resources development, which comprises the introduction of improved human resources management systems, strengthening local educational institutions, training trainers attached to relevant regional and local institutions for higher and professional education, and building a regional research capacity (Ministry of Foreign Affairs, 1998c).

The document specifies support to different forms of water resources management for the various subsectors, such as domestic water and sanitation, agricultural production and ecosystems maintenance. In the respective sections, policy priorities are reiterated and specified for institutional support. For domestic water and sanitation, the focus is on assistance to the development of community-level organisations, education and awareness programmes, support to small entrepreneurs, support to demand management and improvements in operational efficiency. For irrigation and drainage, priority is given to improving on-farm water management and the functioning of small-scale irrigation systems in particular, with due attention to participatory approaches.

The policy documents on drinking water/sanitation and irrigation/drainage provide a further specification of policies in these subsectors. The overall goal of development cooperation in the *drinking water* subsector is the improvement of access to safe drinking water. The central principle of aid policy for drinking water supply and sanitation is to ensure the sustainability of water supplies and sanitation facilities by designing, implementing and operating facilities which are desired by and can be managed or co-managed by the users themselves. The importance of participation by women at all levels is highlighted. The focus is on improving the operation of existing facilities, including rehabilitation of installations which are working badly, and consequently on institutional development, user participation, financial management and appropriate technology. The construction of capital-intensive infrastructure with a high service level and which must be financially viable is to be left to commercial banks and international financial institutions (Ministry of Foreign Affairs, 1998a).

The document on *sustainable irrigated agriculture* underlines the major contribution of irrigated agriculture to global food security and emphasises the need to plan, design and manage natural resources for irrigated agriculture in such a way that adverse environmental effects are avoided. Priority is given to improving water management, starting at the farm level. In areas which are suitable for irrigated agriculture, support focuses on improving the sustainability and efficiency of existing irrigation systems and on aiding small-scale local irrigation schemes. Sustainability will also be pursued by ensuring that water users participate in decision-making. The document emphasises that policies for irrigated agriculture in recipient countries need to be part of a coherent national policy for integrated water management. The Netherlands will therefore, if necessary, assist

with the development of institutional capacity for implementing an integrated approach to irrigation and drainage development (Ministry of Foreign Affairs, 1998b).

The documents outlining current policy complete the gradual change from support to the construction of physical infrastructure in the water sector to institutional development, covering all three dimensions of the concept, namely improvement of human capabilities, strengthening of organisations and reform of the wider institutional environment. These documents also reflect the trends in Dutch development cooperation concerning institutional development. These documents outlining overall aid policy for the sector and relevant subsectors serve as the framework for country-specific policies which take account of local conditions and priorities in the wider context of overall donor aid.

4.3 Policy implementation

It has not been possible to obtain a complete picture of all projects in the water sector, the types of activities covered in these projects and the volume of funding involved over the past 10-15 years. The Ministry of Foreign Affairs does not operate a single up-to-date and complete database that could provide such information. Based on several sources, total disbursements for support to the sector are estimated at NLG 2 billion or roughly USD 1 billion over the period 1989-1998, which is equivalent to around USD 100 million per year. Disbursements for drinking water and sanitation account for 45 percent of the total, and those for irrigation and drainage for 20 percent. Other subsectors include water transport, coastal protection, flood control and hydrological studies. Given the emphasis on the construction of infrastructure in the late 1970s and 80s, allocations and disbursements must have been higher during that period.

The most important instrument for support to the water sector was the regular bilateral country programme. It has been estimated that during the period 1985-1995 85 percent of total disbursements to the sector were channelled through the regional/country desks (50 percent of which were in Asia, 30 percent in Africa and 5 percent in Latin America), compared to 8 percent via special programmes and 6 percent via the co-financing programmes for NGOs and higher education (DGIS, 1996). A database system for the period 1992-1998 indicates that projects in the water sector were implemented in 46 different countries, with a total volume of NLG 1,221 million. Almost three-quarters of this amount was disbursed in nine countries, which are listed in Table 4.1.

Table 4.1 Main countries with bilateral water-related projects and disbursements,1992-1998

Country	Disbursements (mln NLG)		No. of	Aid to water sector as:	
	total	water sector	projects	% of Dutch aid	NLG per head per year
India	834.2	438.8	63	53	0.07
Bangladesh	537.3	278.5	48	52	0.35
Egypt	193.6	91.1	40	47	0.23
Pakistan	231.3	85.7	28	37	0.10
Mozambique	435.5	65.3	13	15	0.62
Yemen	372.5	41.4	19	11	0.42
Kenya	312.8	27.7	7	9	0.16
Tanzania	550.7	12.0	8	2	0.06
Zimbabwe	298.6	7.8	7	3	0.10

Source: DGIS

Most of these countries were already major recipients of Dutch aid for the water sector during the 1980s. In that period, average annual disbursements were substantially higher. For example, expenditure for major drinking water projects in Tanzania totalled NLG 63 million (IOV, 1994a). And support for drinking water and sanitation in India totalled around NLG 330 million for over 350 activities, and another NLG 107 million was disbursed for irrigation projects during the period 1980-1992 (IOV, 1994b). During the latter period Indonesia also received a high volume of aid for the sector.

Under the newly developed sector approach in Dutch bilateral aid, the water sector has been proposed as a priority sector in the recent annual plans for several of these countries: Bangladesh, Egypt, Mozambique and Yemen. Vietnam and the Palestinian Territories have been added, while the discussion on India continues. Pakistan, Kenya and Zimbabwe are no longer priority countries for bilateral aid.

Relevant special programmes include the programme for development-relevant export transactions, the fellowship programme for international education, and the bilateral

and suppletion expert programmes. The first programme enables developing countries to buy investment goods and services in the Netherlands for commercially unviable projects that enhance employment and economic activity and protect the environment. The contribution from the development aid budget covers the grant element of the transaction. Disbursements for water-related activities totalled NLG 97 million during the period 1994-1998 and were mainly used for equipment for sewage and waste water treatment (accounting for almost two-thirds of total grant disbursements for the sector). Ghana, China and Ethiopia were the main recipient countries. Drinking water facilities was the second component, accounting for almost 30 percent of disbursements, with again China and Ghana as the main recipients.

The other two programmes focus on institutional development and the improvement of staffing capabilities in particular. The main component of the Netherlands Fellowship Programme (NFP) is the one for international education: 1,200 fellowships per year, meant for mid-career professionals in both governmental and non-governmental organisations. On average 100 of these, or around 8 percent, are made available for participants in water-related courses in five relevant institutions for international education. The NFP is only one of the sources of funding. Over the period 1988-1998 these water-related courses attracted a total of more than 2,800 participants, of which 35 percent were funded under the NFP, 25 percent from bilateral project funds and the remaining 40 percent from various other sources, including the World Bank, the European Union and NGOs. The majority of the participants were men; only 17 percent were women, although all institutions reported a gradual increase in female participants.

The bilateral expert and bilateral associate expert programmes finance the deployment of experts predominantly at project level. A total of 11 experts and 70 associate experts – almost all male – were employed during 1988-1998 in the main recipient countries in the water sector, with a total input of around 2,500 person-months and an average contract duration of two to two-and-a-half years. The vast majority of these were associate experts, chiefly young graduates employed to gain experience and develop specialised skills. Pakistan, Egypt and Bangladesh were the countries with the largest number of this type of expert. Of the 31 suppletion experts, almost all (25) were employed in Mozambique. These experts operated at the level of government institution, with an average duration of service of three to four years, in some cases extending to five to seven years.

4.4 Organisation and management

During most of the period covered in this evaluation, i.e. between 1980 and 1996, the organisation of aid management within the Directorate General for International Cooperation (DGIS) of the Ministry of Foreign Affairs was structured around regional departments, including country desks, and sectoral and thematic sections. The regional or country desk was responsible for managing the regular bilateral country programme. Initially the country desks had a considerable degree of independence in planning and implementing the regular country programmes. In the mid-1980s a technical support unit was set up to advise regional and country units on programme implementation. This included the co-signing of project appraisals. Experts for the water sector started their tasks at headquarters, shortly after the start of the International Water Decade. Water-related activities were covered by five experts in the following fields: irrigation/drainage, drinking water/sanitation, health, environment and transport/port development/ dredging. For institutional development, the Ministry contracted one specialist in 1992.

Also in the mid-80s a number of tasks were delegated to the embassies. These became responsible for project identification and for supervising implementation, while policy formulation, appraisal and approval of projects and organisation of review and evaluation remained with the Ministry. Sector specialists were appointed for the implementation of the new tasks at embassies in the priority countries for Dutch aid. Sector specialists for water-related projects in priority countries for Dutch aid have been contracted since the late 1980s, after a period during which advisers closely linked to commercial consultancy firms operated, for example, in India and Indonesia. The first water sector specialist was appointed in Egypt in 1987. Others were appointed in other countries where the water sector was important in the Dutch aid programme, i.e. India (2), Yemen, Bangladesh, Mali and Mozambique. In several other countries the water-related projects have been covered by sector specialists in rural development (currently in Bolivia, Sri Lanka, Pakistan, Zimbabwe, Senegal, Kenya), or health/environment (Tanzania, Burkina Faso, Zambia). Nowadays, most sector specialists have local counterparts who are employed by and stationed at the embassy.

The review of foreign policy in 1995 had important consequences for the organisation and management of development aid to the water sector. First, due to the clustering of thematic specialists in departments, water-related subjects were covered by three depart-

ments: rural and urban development for irrigation and drainage, social and institutional development for drinking water and sanitation, and environment and development for integrated water management. In 1998 these specialists set up an informal task force to facilitate further policy development and implementation of integrated water management.

Second, the degree of delegation of management responsibility from headquarters to embassies was increased substantially in 1996. Embassies are now the main partners for the policy dialogue with the host country's authorities and civil societies, something which previously was the responsibility of headquarters. They perform their tasks in an integrated management model, which places policy implementation and financial and general management in the same hands. In addition to their existing tasks, embassies are now also responsible for project appraisal, approval, supervision, financial management and evaluation. In 1997 the annual plan cycle was introduced as the main instrument of the integrated management model. The embassies produce annual plans intended to provide insight into policy objectives, planned activities and resources required for the implementation of the plan. In annual reports the embassies provide information about the achievement of objectives and use of resources. Annual plans and reports are subject to assessment and approval by headquarters. As part of this assessment, sectoral and regional specialists comment on the relevant sections of the plan.

These changes affected the relationship between experts at headquarters and those at the embassies. Until the mid-1990s the involvement of specialists at headquarters in project appraisal stimulated the exchange of views about the implementation of policy at project level between headquarters and embassies. Since the reorganisation of the Ministry in the mid-1990s, experts at headquarters and sector specialists at embassies have no direct formal relationship. After appraisal and approval, responsibility for projects is now delegated to the embassies, and specialists at headquarters are only involved in the appraisal of the embassies' annual plans. Substantial differences in the presentation militate against comparisons and assessments of the proposals in the annual plans and hamper coordination at headquarters.

A final aspect of the organisation and management of the support to the water sector is the intensive use made of advisory services from outside the Ministry, primarily for techni-

cal aspects. Before the mid-98os the country desks relied heavily on these advisers for water-related activities. Advisory services were provided by individuals, groups of individuals and sector-specific institutions, and operated both at project and sector level. Some of these advisers were employed by universities, others by specialised research institutes, and others again had strong links with or were employed by commercial consultancy firms. They were primarily engaged by the various country desks with high aid volumes to the sector in question. But even after the internal advisory structures had been strengthened, these external advisers continued to play a crucial role in the implementation of policies in the water sector (IOV, 1989, 1993). After the delegation of responsibilities to the embassies, the increased workload prompted embassy staff to set up or expand their networks of advisers, both local and from the Netherlands.

5 Country case studies

This chapter presents the results of the case studies of the four countries – India, Bangladesh, Mozambique and Egypt – in which different aspects of Dutch support to the water sector have been assessed in relation to institutional development. It describes Dutch aid to the water sector as well as the implementation and output of the projects on which the assessment of the results is based. For the contextual understanding of the activities, general information on the institutions in the sector is also provided. For Mozambique and India separate working documents have been published as well as one document of the four case studies with more detailed descriptions of the various aspects in relation to the water sector.

5.1 Drinking water in Gujarat, India

5.1.1 *Institutions in the water sector*

There is an important division between the central and state levels in India in water management. The centre is responsible for policies and regulatory functions and allocates national budgets, while the states are responsible for implementation and setting state-specific policies and priorities. In the drinking water sector, the Rajiv Gandhi National Drinking Water Mission formulates national policies that are meant to be adopted and implemented by states.

In the state of Gujarat, planning and execution of the water supply and sewerage schemes was until 1981 the responsibility of the Public Health Engineering Department, an agency of the state government. New legislation which came into effect in 1981 set up the Gujarat Water Supply and Sewerage Board (GWSSB), whose jurisdiction extends throughout the state excluding the cities and covers a wide range of issues connected with the supply of water and provision of sewerage facilities. Recently, there have been significant reforms to state-level institutions reflecting the move towards a more integrated approach to water resources management. Since 1998 the Department of Narmada, Water Resources and Water Supply has dealt with policy matters, is responsible for the management of rural and urban water supply, and ensures budgetary allocations to the relevant institutions, including the GWSSB.

The GWSSB, the main agency for rural water supply, has four sections headed by chief engineers: monitoring and planning, materials, mechanical and civil engineering, and design. In addition to the headquarters there are project circle offices, zonal offices and divisional offices, with a varying number of subdivisional offices. In total the organisation employs more than 4,400 people. It has responsibility for 357 rural water supply systems covering around 3,700 villages. The GWSSB is primarily an engineering agency oriented towards design and construction rather than operation and maintenance of past investments. Its financial position appears to be weak, since it depends largely on percentage charges (18 percent of the cost of each scheme) to meet its administrative and operational expenditure.

The Gujarat Panchayat Act of 1993 provides for constitutions at the district, subdistrict and village levels. Village-level panchayats have a wide range of responsibilities concerned with the functioning and maintenance of social welfare, including water resources planning and drinking water supply. This latter function was more clearly specified in 1995, when the membership and responsibilities of village-level water committees were formulated. On paper these responsibilities include action to ensure that a water supply is available, maintain the water supply infrastructure, ensure the efficient use of water, enhance health and hygiene awareness and ensure payment of the water tax. There are no mechanisms for linking village-level institutions to the GWSSB, which remains centralised and does not channel funds to the panchayat institutions.

5.1.2 *Dutch aid*

The Netherlands is one of the 22 donors in the water and environmental sanitation sector (DFID, 1999). In urban water supply, the Asian Development Bank, Japan, the United States and the World Bank are the major donors. In rural water supply and sanitation, besides the Netherlands, the United Kingdom, Denmark, Germany and the World Bank top the list. However, donor dependency is very low in India: despite all these agencies, overseas development assistance amounts to only 3 percent of central and state government expenditure (World Bank, 1998).

The Dutch assistance to rural drinking water and sanitation in Gujarat totalled NLG 35 million in the period 1988-1998. Support was concentrated in areas with extreme water scarcity. Of the four districts covered by Dutch projects, the northern two (Banaskantha and Mehsana) have unsustainable levels of groundwater extraction, and although

concerns in the other two (Amreli and Bhavnagar) are less acute, trends in all districts are towards accelerating growth in demand. There are also serious water quality concerns (in particular related to fluoride levels and salinity). The GWSSB has been the counterpart agency for all the Dutch projects, while a number of NGOs have been involved in different aspects of their implementation.

5.1.3 *Implementation and output of projects*

The water supply projects that received Dutch assistance over the years evolved in three stages (for details of disbursements, see Annex 3, Table 3.1).

First-generation project

The Santalpur I project was implemented in three subdistricts in Banaskantha from 1978-1988 to supply drinking water to 72 villages (later 98) through a centralised piped water scheme. Water was extracted from six tube wells on the banks of the Banas river, pumped to overhead reservoirs and conveyed to the villages through pipes. There were construction delays and the project was eventually completed some four years behind schedule. The progress evaluation mission (in 1985) felt that completion dates had been unrealistic.

At the time of the present evaluation, village-level facilities in Santalpur were in poor condition due to insufficient operation and maintenance. Faults included missing or damaged taps, poor drainage, leaking cisterns and unprotected valves. There were also system-wide problems of leaking pipes, poorly maintained distribution infrastructure and poor management of the systems as a whole. Hydraulic pressure was affected by extension of the scheme without replanning and consequently villages at the beginning of the network received more water, and more regularly, than those at the end (some of which received almost none). Groundwater levels at the source are falling rapidly, and there are major concerns over the future viability of the project.

Second-generation projects

These projects were located in Banaskantha, Amreli and Mehsana districts and started in 1987. Projects consisted of the construction of two new pipeline schemes (Lathi-Liliya and Sami-Harij) and an extension of the existing Santalpur project. The major change to Santalpur I was the attempt to introduce an integrated approach which focused on NGO

activities and was directed towards involving the local population. The NGOs were commissioned to implement income-generation activities for women and health education. They had limited remits and resources, and little was done to further integrate them with the piped water supply component.

The Santalpur Extension project (1987-1997), located in Banaskantha district, was designed to provide drinking water to 48 additional villages and the town of Radhanpur. The works consisted of an extension to the storage capacity, construction of a radial well at source, reinforcement of the mains, and construction of village-level facilities. Because monitoring showed that the increased rate of pumping meant that the permissible level of fluoride had been reached, a checkdam was constructed to increase the flow with low-level fluoride water. The supply to the downstream villages did not improve, however. This was to some extent due to insufficient transmission capacity and illegal connections, but primarily reflected the connection of more villages to the scheme and the wastage of water in the distribution system and at village level.

The Sami-Harij project (1988-1996), located in Mehsana district, covered 111 villages. The region is arid and has no perennial river. The existing resources rely on groundwater, which has a low fluoride level (although it is high in the surrounding area), but salinity and a continuous drop in water levels affected the sources. Here and elsewhere in the state, the unsustainable extraction of water for irrigation seriously affected the groundwater level and thus domestic water supplies.

The project experienced a wide range of problems. First, there was strong competition for the available water and a dam constructed for irrigation water supply, and the growing number of tubewells, reduced the capacity of the well field to supply drinking water. There was consequently a serious concern about the sustainability of the source. Second, there were persistent leaks in the main pipeline, reportedly due to the use of unsuitable couplers. Third, operation and maintenance of the facilities appeared to be a problem in many places. Consequently, water frequently did not reach tail-end areas and villages located at a higher elevation.

The Lathi-Liliya project (1987-1997) was located in Amreli district, an area of higher rainfall than Santalpur and Sami-Harij. Intended to address fluoride problems in existing groundwater sources, it initially covered 36 villages. The piped water provided was sup-

posed to complement existing supplies, to be used for drinking and cooking only. The scheme relied on surface water from the Kalubhar dam reservoir (allocated to the GWSSB for the scheme), but the catchment area was sensitive to variations in the monsoon, creating supply problems during pre-monsoon periods.

The strengthening of village-level institutions was pursued by means of the Dutch embassy engaging NGOs in the implementation phase of the second-generation projects. NGOs first became involved in the late 1980s, with the contracting of the Self-Employed Women's Association (SEWA) and the Centre for Health Education Training (CHETNA) in the Santalpur project area. SEWA was commissioned in 1988 to develop income-generation activities among poor women in the project villages as a means of encouraging local involvement in the management of water supply facilities and as a means of enhancing the potential for cost recovery. CHETNA's activities started in 1989 with the initiation of a health education programme in the villages covered by Santalpur I. The overall approach was to create a capacity within the communities to understand and manage health and hygiene awareness. Initially, CHETNA undertook its field activities itself and worked through water committees. The programme was affected by the delays and problems in establishing these groups and the lack of clarity as to their role once they were established.

Third-generation project

The Gogha project (1997-2002) is designed to provide water for 80 villages and one town. It is located in Bhavnagar district, in the south of the state, an area prone to saline intrusion. A conventional water supply scheme was proposed by the GWSSB in 1994, but after a long period of discussion and consideration of the lessons of past projects, a different type of project approach emerged. Also reflecting changes in policy, this concentrates on the development of local institutional capacities to plan and manage local resources. Villages will only be provided with external sources where no viable local resource exists, and a range of water management approaches will be developed. Villages have been classified according to the adequacy of their groundwater potential. Implementation is through the GWSSB, supported by a resident technical assistance team, linked to three NGOs, responsible for village-level mobilisation. Once a community base is established, the NGOs will assist in developing a village water management plan.

When all three generations of projects are examined together, the implementation record reveals that there were problems in all phases of the projects. Moreover, requests from the Netherlands for revised estimates to accommodate the final technical works to be carried out and to reconcile advance payments for the first and second-generation projects did not receive positive responses. The Netherlands thereupon decided to decommit the outstanding balances and close the projects administratively.

Despite the absence of completion reports and final audits, it is clear that at present the first and second-generation projects are beset by a number of generic problems, in particular in the area of water delivery. (The Gogha project, which has only just started implementation, has fundamental differences which suggest that this conclusion will not apply to it.) Water delivery within the villages is extremely variable. It is effective in some villages, but in others there are severe problems and, in extreme cases, tail-end villages receive no water at all. The seasonal variations in particular are an issue, with many villages (and in Lathi-Liliya the whole scheme) having no water through the pipes for two or three months over the summer and relying on inadequate tanker deliveries by the GWSSB or using alternative local sources of dubious quality. This in part reflects uncertainties over where responsibility lies: formal responsibility lies with the village panchayat, but villagers generally act as if responsibility lies with the GWSSB. This leads to many delays in repairs and difficulties in operation, including the maintenance of hygiene standards around the water supply facilities. The Board's approach to operation and maintenance is also inadequate, in that it responds to individual problems but has no overall system perspective.

Over the years, institutional development activities were directed towards the GWSSB and towards village-level institutions, the water committees in particular. Although strengthening of the GWSSB was not an explicit objective of the above projects, several activities involved its institutional development, such as the training of staff in the Netherlands and the on-the-job training of project staff. Between 1990 and 1998, 24 GWSSB engineers undertook postgraduate training in the Netherlands.

5.1.4 *Assessment at programme level*

Effectiveness

The Dutch support to drinking water systems has achieved its immediate objective of constructing utilities in villages which were in need of an increased supply and better quality of drinking water. This involved a total of around 350 villages (or around 10 percent of the villages with a piped water supply system in Gujarat). Most of these villages are located in areas with serious drinking water problems. Moreover, many of the villagers belong to the poorer sections of the population and the improvements in water supply were widely appreciated.

At the time of this evaluation (1999), no village had fully functional facilities. One of the most widespread problems was the number of broken taps, with no standpost fully operational and some out of service for months. Other problems included broken pipes, broken valves and floats, and poor drainage around the standposts. One reason for these problems was that the village panchayats rarely formed the legally required water committees to manage, operate and maintain village supplies. And because GWSSB staff sometimes repaired broken taps and other equipment, the 'ownership' of the facilities at the village level remained unclear to the villagers.

The direct output of the NGO subprojects with respect to health and hygiene was negligible. The activities met with limited success, with few of the groups surviving and no widespread awareness of their messages in the village communities visited during the fieldwork.

The human resources development component of the Gujarat (and overall India) programme concentrated on fellowships to the Netherlands for technically oriented courses and on-the-job transfer of skills through technical assistance support missions. In general the engineers appreciated the lecturers' expertise, but much of the courses' content could not be applied, namely in those areas concerned with advanced technology, policy and senior-level management. The engineers reported that the training had not influenced their careers much and that the content had on the whole not reflected the realities of their organisation's operations. The support missions contributed to improving technical knowledge, increased awareness among GWSSB staff of non-technical aspects of drinking water supply and involvement of NGOs. However, the results

of the activities with regard to strengthening of the GWSSB and the village panchayats were marginal.

The overall picture with respect to institutional development, then, is not a positive one (for details, see Annex 5). But there has been a significant change in approach in the development and implementation of the third-generation project. This project is based on a process of community-level resources planning and management and does not start out with a presumed technical preference. It is being implemented through the close integration of NGOs into the core project structure, and it is working to develop village-level capabilities and institutional processes.

In part, the lack of effectiveness of the Gujarat programme reflects structural weaknesses in the overall Dutch programme and has parallels in other states. In particular, there has been insufficient effort to reflect Dutch policies in the design of programmes and projects, too passive a stance with regard to the technical orientation of counterpart agencies, and a lack of any coherent country-level strategy for the sector which has meant that individual projects exist in isolation and have no clear strategic direction. Current steps to develop such a strategy are encouraging and suggest that there will be greater coherence in the future.

Efficiency

The projects themselves were typically problematic in terms of the time taken to complete the planned investments made. This was as much a reflection of unrealistic project design as of deficiencies in implementation. The concentration on infrastructure development, with no serious attempt to secure an institutional context for the efficient management of the infrastructure once constructed, meant that many of the investments failed to deliver the intended services. The specific institutional development components (and especially the community-level tasks assigned to NGOs) made little impact on the ground.

The problems in terms of the efficiency of the programme accordingly reflected its structural characteristics, with a series of discrete projects that were not designed primarily for institutional development. In particular, until recently no attempt was made to understand and include an approach to institutional development that would achieve policy priorities and development goals.

Sustainability

In terms of investments and service delivery, sustainability is questionable because of the relatively low quality of construction and the lack of operation and maintenance capabilities. Where sustainability has been more positive is in terms of the secondary effects of the Dutch programme on institutional involvement and relationships within Gujarat. The inclusion of participatory approaches in past projects may have been partly ineffective, but it has resulted in a greater appreciation of the need for such approaches both within the GWSSB and in the wider stakeholder community. Similarly, the involvement of NGOs has led to an increase in their wider participation in water sector activities.

To enhance sustainability, conceptually valid goals are required for institutional development and changes in the design of future support, which should be explicitly related to the Dutch and Indian policy frameworks (which are similar in many ways). Where institutional processes are ancillary to projects of a technical character, goals are unlikely to be realised. In particular, the attempts made at participatory development in the projects tended to be inadequate and failed to build on the diverse and vibrant local institutions that already exist, including both panchayat institutions and traditional forms of social organisation. The approach adopted in the Gogha project goes some way to rectifying these problems, but it is too early to say whether this approach will be more widely adopted by the Gujarat authorities. Discussions with the Gujarat state authorities on the continuation of Dutch aid to the drinking water subsector are ongoing.

5.2 Irrigation and flood control in Bangladesh

5.2.1 *Institutions in the water sector*

The Ministry of Water Resources is the administrative and controlling agency for all water resources planning and development in Bangladesh. It also defines and administers policies for the sector, including the 1999 National Water Policy, and is assisted by the Water Policy Advisory Group (WPAG) of independent experts. The Bangladesh Water Development Board (BWDB) is a semi-autonomous public agency under the administrative control of the Ministry. It is responsible for the planning, design, implementation and operation and maintenance of flood control, drainage and irrigation (FCD/I) projects as well as for urban protection.

After the floods in 1987 the Flood Action Plan Coordination Organisation (FPCO) was established within the Ministry of Water Resources. It was merged with the Water Resources Planning Organisation (WARPO) in the same ministry in 1995. WARPO functions as the secretariat of the National Water Resources Council (NWRC), which supervises the water resources management activities in the country at the highest level of government. WARPO is the exclusive government institution for macro-level water resources planning. It is currently drawing up the National Water Management Plan, which is intended to define strategic directions for the sector over a 25-year period.

The Ministry of Local Government, Rural Development and Cooperatives in 1992 set up the Local Government Engineering Department (LGED). The LGED is responsible for providing technical support to the local government bodies in rural and urban areas and for implementing small-scale infrastructural projects for agriculture and drinking water supply.

The National Water Policy (1999) proposes the development of 'a legal and a regulatory environment that will help the process of decentralisation'. To ensure participation of all stakeholders in planning, design, implementation and operation and maintenance of publicly funded surface water resources development plans and projects, 'local authorities (parishads) will be the principal agencies for coordinating these efforts'. Community self-help groups and NGOs will also be relied on to assist in the participatory process.

The private sector is increasingly responsible for implementation, while the BWDB undertakes planning and design and performs regulatory functions. Around 25 local and 15 international consulting firms are involved in water management projects, mostly as subcontractors to assist the BWDB. The local consultants often act as counterparts to the international firms. Most focus on engineering, but increasingly they also make use of economics specialists. Former officials of the BWDB are strongly represented among the staff of these private consultants.

5.2.2 *Dutch aid*

The volume of Dutch aid to the water sector totalled NLG 116 million until 1995 and NLG 97 million in the period 1996-1999. Since 1974, the Dutch approach to water management projects has evolved in three stages, stressing successively technology, rural development and integrated water management.

The technical approach of the 1970s was characterised by direct implementation of construction of physical infrastructure with a low level of expatriate technical assistance. This approach was mainly represented by the Early Implementation Project (EIP), established when there was a perceived need to develop water management infrastructure.

The rural development approach of the 1980s focused on flood control and irrigation. The success of the construction works did little to tackle persisting poverty. The donor community was increasingly inclined towards a more integrated development in flood control and irrigation. The Delta Development Project and the Land Reclamation Project were examples of the new approach. The diverse needs of the intended target groups were addressed, with substantial financial resources and technical assistance concentrated on a limited geographical area. However, the serious floods of 1987 and 1988 led to a renewed emphasis on structural interventions and to the formulation of the Flood Action Plan (FAP). This plan was to dominate the development of the sector and led to major controversies that would ultimately act as catalysts for the reforms that characterise the water sector in Bangladesh today.

The early part of the 1990s was dominated by FAP. Initially quick answers were sought, but gradually the focus turned towards a sectoral approach emphasising water management that included socio-economic and institutional aspects. The integrated water management approach seeks a balance between technical and socio-economic objectives, notably operation and maintenance and participation. This approach acknowledges that projects take place in a complex hydrological system and address a host of institutional issues at the local and central levels. This group of projects includes Environmental Geographic Information Support (EGIS) and the Meghna Estuary Study, which focus exclusively on planning, knowledge generation and institutional development issues. The 1990s also saw the broadening of government agencies involved in the sector (especially the LGED) and the widening of NGO involvement in different aspects of projects funded by the Netherlands.

5.2.3 *Implementation and output of projects*

According to the IOB evaluation of 1996, the Dutch water sector programme in Bangladesh had a mixed set of results in terms of the overall effectiveness of the different projects. In most cases, the investment aspects of the projects were achieved, but often with considerable delays, reductions in targets and higher than planned unit costs. The

quality of construction was generally good, but time and again concern was expressed over sustainability of projects in view of the lack of effective operation and maintenance systems.

Projects that were primarily concerned with knowledge generation and/or the development of analytical and planning capabilities were generally good at the core tasks within the framework of the project, but there were serious problems in the institutionalisation and sustainability of their outcomes. This was a reflection of the tendency for such projects to be consultant-led and to operate in isolation from the BWDB (and to an extent WARPO). This tendency has become less pervasive in recent years, however, as institutional reform of the sector has gathered pace and the Bangladesh authorities become more challenging about consultant-led activities.

The structural problems that characterised a number of projects reflected limitations in conceptualisation and design (including unrealistic expectations and insufficient time and resources). Further limitations were related to the extent to which institutional development was regarded as a secondary issue by both the BWDB and the technical assistance consultants, and poor monitoring and evaluation (for details on disbursements, see Annex 3, Table 3.2).

Human resources development

No overall assessment was ever made of the BWDB's training needs, except for the direct counterpart unit in the Early Implementation Project (EIP) in 1991. Since 1957, 272 Bangladeshis have been trained at the International Institute for Infrastructural, Hydraulic and Environmental Engineering (IHE). Traditionally the course had an engineering focus and complementary disciplines were given less emphasis. Consequently, integrated approaches remained weak. Technical skills could be applied only to a limited extent. Recently a number of staff from water sector organisations studied at the Institute of Social Studies (ISS) in The Hague. These courses covered issues such as multidisciplinary planning and showed the BWDB's interest in changing to a more integrated approach. However, the application of new approaches within the BWDB was limited.

Organisational strengthening

With regard to the strengthening of organisations, the focus was the BWDB. With some notable exceptions, all the main projects were executed jointly with the BWDB. Projects in Bangladesh were based on technical and hydrological considerations. Within the EIP this was adapted to include socio-economic aspects (including 'rapid rural appraisal', RRA, and 'participatory rural appraisal', PRA). DPS-IV, the direct counterpart of the EIP, was the only planning cell within the BWDB to include and use socio-economic expertise for multidisciplinary planning, a consequence of experiences gained in this planning cell and the wider lessons gained from projects with an integrated rural development approach.

No improvements were introduced with regard to the design of schemes and structures, except that the EIP developed a design for specific types of infrastructure (closures) that was used extensively within the BWDB. The EIP also introduced guidelines for Labour Contract Societies (LCSs) and Embankment Maintenance Groups (EMGs) and a procedure to allocate work to them, sanctioned and applied by the BWDB. The System Rehabilitation Project (SRP) introduced a system to monitor the implementation of construction. Despite initial difficulties, this is operational and generally appreciated. These innovations, though perhaps small in themselves, do represent a departure for the BWDB in their acceptance of the need for interaction with local communities.

Operation and maintenance

In pilot locations the SRP introduced operation and maintenance divisions. The financial constraints on these were tackled by exerting pressure to raise the BWDB operation and maintenance budget. Thus during the 1990s the budget allocation for operation and maintenance increased substantially, in part due to the SRP, which developed practical concepts for operation and maintenance. As a result of the experiences with the SRP and the urgings of the Dutch embassy and other donors, the BWDB and the Ministry of Water Resources became convinced that greater attention to operation and maintenance was vital.

Cost recovery

Some experiments with cost recovery were conducted within the context of the SRP, but they were abandoned after two years. The main reason was the fact that the arrangements made for the recovery of the fees paid by farmers to pump owners (who failed to pass them on to the BWDB) were inadequate. There is no tradition of paying government agencies for surface water, and no serious attempt at cost recovery for flood control and drainage has been made. One of the main intentions of the sectoral reforms, including substantial decentralisation, initiated by the New Water Policy is to develop a sustainable financial basis for water management activities. The mechanisms through which this will take place are not clear, but a number of projects are aiming to develop local-level institutions which will be involved in this process.

System development

Involvement of NGOs

A special budget to fund NGO activities was established in the 1980s, and cooperation between NGOs and the BWDB is now accepted. The role of the NGOs is to assist social mobilisation through scheme selection, to involve the rural poor and destitute women in construction and maintenance activities, and to participate in the training of the target group and officials. NGOs also play a pivotal role in the wider debate on, and policy reforms for, the restructuring of the water sector. In a number of cases, part of the funding for these activities is provided by the Netherlands.

User participation

In the 1980s the major donors saw user participation as a key factor for sustainable projects. Experiments with participatory management were conducted and 'guidelines for people's participation' were drawn up. Users groups were established and the Dutch-assisted projects supported the participation of landless and marginal farmers in construction and maintenance, by developing models and providing training. The BWDB approved guidelines for the LCSs and regulations to allocate prescribed proportions of earthwork construction and maintenance contracts. The effectiveness of these participation efforts has been limited and is widely questioned, however. The Small Scale Water

Resources Development Sector Project, implemented through the LGED, has developed a different approach to participatory mobilisation by forming local cooperatives, and it appears to be having a greater degree of success. This in part reflects the more central place and higher level of resources given to this dimension of the project.

5.2.4 *Assessment at programme level*

The donor community in Bangladesh has had a range of influences on what in recent years has been an extremely dynamic policy environment. This has taken the form of both specific effects on issues which are the direct result of particular project activities and a wider contribution to the debates and innovations which have characterised this policy development. Policies in the water sector have been greatly influenced by the discussions between the Bangladesh government and donors in the context of the Flood Action Plan (FAP). Policies have changed from a top-down approach practised by the BWDB to a more participative policy including operation and maintenance, institutional development and moves towards integrated water resources management. The World Bank, among others, has been an important influence in the development of the sector. This has been largely achieved through close coordination with other donors, including the Netherlands as a leading partner. The coordination is channelled through a formal structure, the Local Consultation Group (LCG). The Dutch embassy is the coordinator of the LCG on water. The purpose is to share information and ideas on development issues and to strengthen coherence in donor approaches to the same sector and institutions.

The overall Dutch influence on the changes of approach in the country's policy is difficult to identify. But the Netherlands has been a major donor for an extended period in Bangladesh and some specific, limited contributions can be attributed to the Dutch support.

Attention was given to training and provision of a regulatory framework to include Labour Contracting Societies (LCSs) and Embankment Maintenance Groups (EMGs), and these have become accepted partners in earthwork construction in BWDB projects. In the Compartmentalisation Pilot Project (CPP) and the Char Development and Settlement Project (CDSP), the component of strengthening water users groups was not successful and sustainability is doubtful. This attempt has nonetheless been important in influencing the acceptance of this concept within the BWDB and the wider sector.

Support to water users groups was usually conducted by NGOs and local consultants, but hardly any use was made of existing social systems for water management. A number of projects were involved with the development of the guidelines for people's participation. These are now being consolidated by the BWDB, but are still seen as having problems and are being revised. Similarly, the introduction of the multidisciplinary approach to scheme planning developed by the Early Implementation Project (EIP) has been integrated into the BWDB.

There were a number of structural problems in the development of the new policies, problems that Dutch projects are now helping to resolve. An inadequate legal framework and omissions in consultation and planning of some projects (such as the CPP) hampered decentralisation. The willingness of officials to contribute was not assured, the consultation process was defective and concerned government organisations were not able to mediate in emerging conflicts. These and other challenges still remain, but projects such as the CDSP (which assists in the development of local groups and is providing a structure for multi-agency collaboration) and EGIS (which provides clearer procedures and information for local-level participatory planning) are helping to resolve the problems. The New Water Policy will also go a long way in this direction.

Effectiveness

The effectiveness of the contribution of the Dutch projects to the development of the core processes and capabilities of the BWDB has been limited but generally positive. There has been a significant influence on policy development as both a direct and an indirect consequence of Dutch-funded activities. The coordinated donor position created by the Local Consultation Group (LCG) has played an important role in this. The contributions have included the introduction of key issues such as user participation, improved operation and maintenance systems, sectoral cooperation and multidisciplinary approaches (including the move from purely construction interventions). There have also been contributions to the acceptance of and first steps in the implementation of decentralised approaches, and significant contributions to knowledge generation and the development of strategic planning capabilities within WARPO.

The past tendency to work through projects that were largely conceived and implemented in isolation has not helped the overall effectiveness of the programme. This is particularly

true for its institutional aspects, where a more coherent approach reflecting the overall dynamics of what has been a rapidly changing sector would have significantly enhanced the overall impact of Dutch support. Despite this, and in part through the effects of activities such as evaluations and NGO support, Dutch support is widely regarded as having made an important contribution to the development of the sector in Bangladesh.

Efficiency

The results of the evaluation suggest that, in the field of human resources development, the efficiency of tailored courses was higher than that of general training through fellowships to the Netherlands, although the overseas training is appreciated by the participants. In particular, tailored courses are able to provide a content that is more specific to the needs of the organisation (here usually the BWDB) and the individuals involved.

The improvements made to the internal capabilities of the BWDB in fields such as planning and construction supervision have made a positive contribution to the operational efficiency of the organisation. This includes the effects of initiatives such as water users groups and maintenance groups, which both lead to wider community involvement and result in better structures at a lower cost.

Despite this, a number of the Dutch projects with a substantial construction component overran in both time and costs, suggesting that there is considerable room for improvement. The interventions of the System Rehabilitation Project (SRP) in developing an implementation supervision monitoring system and introducing the operation and maintenance concept were seriously delayed. The institutional consequences were underestimated and sufficiently qualified staff were not deployed. This appears to be more to do with project design and wider management issues (such as land acquisition) than with any problems in the actual construction process itself, and the BWDB is generally regarded as an efficient institution.

The development of community participation in the sector through forming water users groups or other types of local organisation has been problematic, and the general approach appears to have been inappropriate. In particular, the failure to recognise and build on existing social structures has led to much wasted effort and the resources used here could clearly have been deployed more efficiently.

Sustainability

There are serious concerns over the sustainability of a number of the specific institutional development components of Dutch projects. Thus the cost recovery pilot in the SRP was conducted at a time when the BWDB intended to enhance the collection of fees, but the viability of cost recovery for flood protection is now questioned. In the New Water Policy, fee collection for operation and maintenance purposes in projects with an explicit irrigation component is maintained, but the idea of wider cost recovery has been dropped.

A number of steps to improve the effectiveness and efficiency of the BWDB were developed in several projects, but their sustainability is mixed. In particular, specific initiatives such as the introduction of new operation and maintenance and construction quality monitoring systems in the SRP rarely endured in their full detail beyond the life of the project in question. However, they did create greater awareness of such issues and have, cumulatively, led to improvements within the BWDB on such issues.

The contribution of the Netherlands to the establishment of relationships between the BWDB and NGOs has been vital, since the BWDB did not possess the necessary skills and capacity to mobilise water users groups, LCSs and EMGs. This has also contributed to the

development of a wider consensus on the way forward for the sector. Dutch-funded activities on knowledge generation also played a role here.

The developments in the recent water policies in Bangladesh have been the result of a joint discussion between the donors and the Bangladesh government. Although the World Bank and the Asian Development Bank have the lead in these discussions, Dutch water management policies are to a considerable extent being incorporated into the emerging policies of the Bangladesh authorities, and the Dutch programme has had a positive influence on this process.

5.3 Water management in Mozambique

5.3.1 *Institutions in the water sector*

In 1975 the first constitution of Mozambique declared that all inland water resources were state property and therefore public. Management of all water resources and the provision of water and sanitation services were taken over by the central government. In 1991 a new legal and regulatory framework was introduced, the Water Act, which put greater reliance on decentralised delivery of services and offered opportunities to transfer existing government-managed systems to private firms, financially autonomous utilities or water users associations.

The basic 1991 legislation was followed by a series of ministerial decrees which defined the composition and functioning of the National Water Council (CNA) and, more importantly, the creation of regional water authorities (ARAs). Under this structure, daily operation of, and management responsibility for, the country's water resources are delegated to five organisationally and financially independent bodies, each covering a series of basins.

At the central level, the Ministry of Public Works and Housing is responsible for water supply. Within the Ministry, the National Directorate of Water (DNA) is in charge of policy-making and implementation, overall planning of water resources management and the provision of water supply and sanitation services. In accordance with the New Water Policy, the DNA is in the process of withdrawing from direct implementation of services in the water sector and delegating operational management of water resources to the newly created or future regional water authorities and local service providers. Its new role will be in

policy development, transforming existing service providers into effective and efficient autonomous agencies and taking care of inter-ministerial sector coordination.
The newly created regional water authorities are organised on a hydrographic basin basis. They are public institutions with legal status and administrative, financial and patrimonial autonomy. Their main functions are to prepare and implement hydrological basin development plans, maintain and operate hydrological infrastructure such as dams and waterways, maintain a register of water users, collect water users' taxes and fees, issue water use and effluent licences, and operate the hydrological measurement network.
As yet, only one of the five ARAs is fully operational (ARA-Sul) and one is being formed (ARA-Centro). The establishment of ARA-Sul represented a first step towards a more decentralised and user-oriented water sector advocated under the New Water Policy.

At the provincial and local level, responsibilities are shared between the main stakeholders: the Provincial Directorate of Public Works and Housing (DPOPH), the water companies, the Provincial Workshops for Rural Water (EPARs) and the city councils. The DPOPH is the responsible authority for water resources management at the provincial level.

In the urban sector, piped water systems are operated and managed by water companies. With the exception of the Maputo and Beira water companies, which are more or less autonomous state enterprises, they have no clearly defined legal status. Over the years, the utilities were stripped of their budgeting, planning and financial autonomy and became subordinated to a multiplicity of agencies and levels of government, including the DPOPH, the provincial governor, the municipalities and city councils and the central agency DNA/DAS, which administers most of the donor-funded investment schemes.

In the rural sector, the institutional framework is less complicated but still confusing. The rural water supply service remains a centrally funded programme with daily management delegated to the provincial workshops for rural water (EPARS). The EPARs are nominally independent bodies, but they possess no clear legal definition. The EPARs' work is supervised by the provincial director of the DPOPH.

5.3.2 *Dutch aid*

In 1980 Mozambique became the main beneficiary of the Southern Africa Programme. Since 1989 the volume of Dutch aid to Mozambique has fluctuated around NLG 100 million per year. Mozambique is now the second-largest recipient of Dutch bilateral aid in Sub-Saharan Africa (after Tanzania). From the Mozambican point of view, the Dutch

contribution represents only around 5 percent of all assistance received. The volume of Dutch aid to the water sector totalled NLG 88 million over the period 1989-1998.

During the first years of independence and the following civil war the Netherlands decided to provide humanitarian and emergency aid and balance-of-payments support for a rapid recovery of the economy. And the Netherlands together with the Nordic countries lined up technical assistance for rebuilding the principal institution of higher education, Eduardo Mondlane University. During this period, regular project funding was relatively limited and focused on the improvement of urban services in Maputo and Beira and the rehabilitation of the port of Beira, the country's second port.

After the peace settlement in 1992, a more structural development cooperation emerged in a number of sectors, such as water and sanitation, agriculture, education, health and environment. In addition, an integrated development programme was identified and formulated for the northern province of Nampula, and the process of political reconciliation and economic reform was supported through a number of projects and interventions. The main structure of the Dutch aid programme has not changed much since 1992, despite the far-reaching changes unfolding in Mozambique. This is partly because of the long project cycle and partly because the Mozambican authorities have asked donors to concentrate on their ongoing programmes and not to branch out into new sectors.

5.3.3 *Implementation and output of projects*

Following a series of floods affecting large areas of Maputo in 1977, the Netherlands responded to a request by the director of the DNA to assist in the preparation of a master plan to upgrade the city's drainage network. This request marked the beginning of the Maputo Drainage and Sanitation Programme, which stretched over a period of fifteen years. A similar but smaller programme was funded in Beira (Beira Sanitation Project). Furthermore, a long-term institutional and human resources development programme was launched to strengthen the planning and implementation capabilities of Hydrology Project Mozambique (DRH), the DNA department responsible for water resources assessment, and the Coordination Organisation for Urban Water Supply (UDAAS) (UDAAS Technical Assistance Programme). Project assistance was complemented by emergency funding for small-scale drinking water and sanitation investment schemes sponsored by international relief organisations such as UNICEF, the Red Cross, Médecins sans Frontières and CARE.

Following the promulgation of the 1991 Water Act and the announcement of the New Water Policy, the ongoing DNA/DRH training and institutional development effort was brought in line with the DNA's newly defined role in a decentralised water sector (Water Resources Assessment and Planning Project). In the absence of a clear policy framework for the urban water and sanitation sector, the UDAAS Technical Assistance Programme was phased out and two new stand-alone capacity-building projects were formulated with the aim of strengthening planning and implementation capacities at the regional and provincial level. The ARA-Sul Institutional Support Project addresses capacity problems at the level of one of the newly created ARAs (ARA-Sul), and the SURN/SAS Project seeks to enhance institutional capabilities at the provincial level (in the provinces of Nampula, Cabo Delgado and Niassa). All three projects are ongoing.

For analytical purposes, the sector portfolio has been divided into five modules. The first module consists of three sanitation projects, two of which have a local urban character (Maputo Drainage and Sanitation Programme, Beira Sanitation Programme) and one also has an urban but national character (National Low Cost Sanitation Programme). The second module is a cluster of institutional and investment support projects in the urban and rural water supply sector. The third module is composed of two major institutional capacity-building projects at the central level (DNA/DRH) and regional level (ARA-Sul) respectively. The fourth major activity is the Delft University of Technology - Eduardo Mondlane University cooperation programme in water resources engineering. The fifth cluster is a small residual group of activities, which is not covered in this evaluation (for details on disbursements, see Annex 3, Table 3.3).

5.3.4 *Assessment at programme level*

Over the years the Dutch assistance programme followed standardised bureaucratic procedures, characterised by an overriding concern to manage a 'project cycle'. The culmination of this style of operation was a relatively formal model of a development project that was designed to deliver a preconceived (and often over-optimistic) solution to problems confronting the target constituencies and to dissect the aid intervention into discrete, consecutive stages. The discrete project preparation phase usually resulted in a project document specifying objectives, resources and means, and recruitment of consultancy services. The subsequent stages of project implementation tended to have a standardised duration of four to five years, punctuated by monitoring and evaluation. In nearly all cases, this rather mechanistic approach conflicted with the 'organic' rhythms and dynamics of the unfolding institutional development processes in the sector. The result

was a pattern of over-ambitiously if not unrealistically formulated project documents, primarily serving the purpose of mobilising donor funds.
It appears that little attention has been paid by the donor community in general, and by the Netherlands in particular, to the downside of Mozambique's high aid dependency. A corollary finding is that more attention should have been given to sustainability indicators that presuppose declining high aid dependency.

Effectiveness

Institutional weaknesses in Mozambique are frequently cited as a persistent problem. For example, current training is fragmented. Resources for training exist in bits and pieces, but they are not organised or directed to achieve sector goals or meet sector needs. There is no dialogue between sector institutions and technical schools or universities to work out a common strategy.

To overcome these shortcomings, several project interventions contained a significant institutional development component. Efforts focused on the transfer of technical skills by means of on-the-job training and were primarily directed towards improved planning techniques and better operation and maintenance. Some of the more recent projects included elements of strengthening of the counterpart organisations, mainly by addressing core management processes. (For details, see Annex 5). However, the record on effectiveness has been mixed and on the whole disappointing. Factors having an adverse effect on the outcome can be grouped into three main categories: the external policy environment, constraints imposed by governmental policies and organisational practices, and weaknesses in project programme approach, design and delivery.

In general, the effectiveness of sector support programmes has been undermined by the absence of a broader water resources development strategy spelling out priorities in the provision of water and sanitation services, pricing and cost recovery, public investment and the role of the private sector in water sector development. The problem is particularly urgent in the periurban low-cost sanitation subsector, where donor funding has been or is being phased out without an organisationally self-supporting and financially sustainable development strategy in place. The same applies to the smaller urban and rural water supply subsectors in Nampula and Zambézia provinces, where mechanisms for sustained autonomous development have yet to be introduced.

Efficiency

A problem commonly flagged for most projects is the high turnover of local staff. In Mozambique, government staff are transferred frequently, depriving projects of trained staff familiar with the recipients and their organisational environment. As is true for the entire government, organisations in the water and sanitation sector face serious problems in their compensation policies. Extremely low salaries force many employees to find supplementary sources of income, diverting attention and energy and thus reducing performance. Entry requirements and staff selection procedures lack performance criteria. This is particularly true of staff at the operation and maintenance level, where most employees cannot read or write.

Donor coordination has been and continues to be very demanding on the resources of Mozambique's weak central administration. The influx of donor agencies keeps the state apparatus occupied with meetings and missions. But the problem is not only one of quantity. There is a major deficiency on the Mozambican side in terms of inadequate procedures and a lack of agreed priorities. There is no coordinating body imposing priorities and allocating aid projects and programmes in terms of activities, sectors and regions. The role of the Ministry of Cooperation is limited, and different ministries have been designated to head and coordinate the cooperation process with different donors. Each ministry therefore applies its own priorities in its relations with the various donors. On the donor side, the situation is not much different from that prevailing in other developing countries, with a wide variety of donors all insisting on using their own systems of projects, agreements, payments and accounting.

Initiation and execution of projects was invariably delayed or disrupted by late mobilisation of expatriate and local project support staff. Direct recruitment or attachment of individual experts sometimes produced a less than homogeneous technical assistance team, with varying levels of experience, different nationalities and sometimes (in the case of NGO staff) different ideological backgrounds. Implementation assistance and control by backstopping missions and the Dutch embassy was superficial and reactive rather than planned. As a result, the credibility of the technical assistance effort suffered and the lack of a coherent approach sometimes prevented technical assistance teams from being fully integrated into the existing institutional structures of the recipient entity.

Sustainability

The sustainability of the project results are in all probability rather low.
Like many other donors, the Netherlands generally expected recipient organisations at least to cover basic recurrent running costs (local staff, maintenance of fixed assets, consumables), while aid funds were earmarked primarily for capital investment and to cover the costs of technical assistance. Recipient contributions were not systematically monitored and mechanisms for monitoring the provision of counterpart funds were lacking. The volume of reports on file, often on repetitive implementation issues, attests to a general lack of adequate progress in the quality of the relationship between the Netherlands and Mozambique.

The unsatisfactory performance of the urban water companies prompted the Mozambique government to examine the deeper institutional issues. The Dutch-funded Provincial Towns Water Sector Study confirmed the sector's poor performance and formed the platform for the fundamental sector reform programme initiated by the World Bank. The World Bank appropriately took the sector leadership role and the Netherlands played a supportive role.

While the project-based training approach has been effective in achieving the immediate objective of a better-trained staff, an opportunity to build local training capacity for the future (beyond the Eduardo Mondlane University programme) has been lost. The Dutch approach tended to promote several small-scale and short-lived efforts rather than consolidate training bases that already exist in the country.

In spite of its considerable achievements, Eduardo Mondlane University continues to find itself in a precarious situation. It faces severe problems of staff retention, which undermine its ability to offer an acceptable education within a predictable time period.
Its success in attracting donor funding has placed it in an unstable and unsustainable position, in that it is now dependent on continued foreign assistance for the bulk of its operating and investment budgets.

5.4 Drainage and drinking water in Egypt

5.4.1 *Institutions in the water sector*

In Egypt, as in most other countries, government activities are organised in such a way that each type of water use is dealt with by a separate department or agency.
The Ministry of Public Works and Water Resources occupies a pivotal position, with overall responsibility for the management and administration of the national water resources. The Ministry schedules releases from the High Aswan Dam, approves diversions from the system and has the authority to implement national water quality legislation. It is organised into four authorities and three departments. The Irrigation Department, the Egyptian Public Authority for Drainage Projects (EPADP) and the National Water Research Centre (NWRC) are part of the Ministry.

A number of other ministries and agencies play a role in the water sector. The Ministry of Agriculture and Land Reclamation initiates policies related to farm production, cropping patterns, implementation of irrigation works downstream of the branch canals, and desert reclamation schemes. The Ministry of Housing, Utilities and Urban Communities is responsible for the drinking water and sanitation sector. It entrusts daily management of drinking water and sanitation services to local institutions, which have widely differing levels of capacity and authority. The General Organisation for Industry, under the Ministry of Industry, is responsible for discharges and/or treatment of industrial effluent. The Ministry of Transport and Communications oversees navigation requirements and disposal of oil and waste from river vessels. The Environmental Authority has a coordinating role in all aspects of environmental protection, including legislation, environmental impact assessments and monitoring and dissemination of information.

The wide range of projects supported by the Netherlands in the water sector has been grouped into two main categories: (i) projects in the water management and drainage sector undertaken under the authority of the Ministry of Public Works and Water Resources, and (ii) projects in the drinking water and sanitation sector undertaken under the authority of the Ministry of Housing, Utilities and Urban Communities.

5.4.2 *Dutch aid*

Egypt has received Dutch bilateral aid since 1975. Initial discussions with different ministries yielded project ideas mainly in the field of land drainage and irrigation. These discussions were followed by project identification and formulation missions and formed

the basis for the first country assistance policy paper, which was drafted in 1977. Besides outlining the general principles of assistance policy, the document emphasised the need for sectoral and geographical concentration and expressed a preference for project aid and for projects producing rapid and tangible results. Agricultural infrastructure was listed as a priority sector. However, no comprehensive analysis was made of Egyptian policies and sector development constraints, and no reference was made to the activities of other donors. Moreover, the three country programme documents produced since 1985 included only vaguely formulated statements on the drainage and irrigation sector.

In formulating projects, an approach was adopted involving learning from experience, emphasising feedback and the correction of errors rather than trying to eliminate deficiencies in design. While there was certainly a rationale for this pragmatic approach during the first five or ten years of the cooperation programme, there was little justification for it subsequently. This not least because a water sector specialist was permanently stationed at the Dutch embassy from 1987, a highly respected advisory panel of sector experts had been in place since 1975 to advise on sector policies and priorities, and the longer-term presence and availability of quality expertise in the sector offered ample opportunity to assess sector development constraints and its institutions.

During the period 1976-1998, Dutch bilateral assistance to the water sector, comprising both irrigation/drainage and drinking water/sanitation, amounted to around NLG 200 million (around USD 100 million at the current rate of exchange). For details of disbursement, see Annex 3, Table 3.4.)

5.4.3 *Implementation and output of projects*

Support for *water management and drainage research* was given to four of the twelve research institutes of the National Water Research Centre (NWRC): the Drainage Research Institute, the Research Institute for Ground Water, the Canal Maintenance Research Institute and the Hydraulics Research Institute. Many research activities were innovative, such as the development of mathematical models for water management and hydrographic survey and data-processing techniques.

By and large, the institutes became leading research organisations in their respective fields and established a valuable network of international contacts. The drainage-water-monitoring network contributed to government policy in optimising the use of available water resources through the construction of a reuse pumping station. The production of

hydrogeological maps was central to licensing groundwater extraction and to planning land reclamation schemes in desert areas. Most of the research was commissioned to support investment projects in the field of power generation and infrastructure. And river sediment and hydraulics studies played a role in maintaining navigability of the Nile.

The support to *drainage execution* was channelled through the Egyptian Public Authority for Drainage Projects (EPADP), which is charged with constructing and maintaining the national drainage network. Over the years an arrangement developed whereby the investment component of the national drainage programme was covered by World Bank loans and the Netherlands provided funds for technical assistance to improve EPADP's construction planning and management practices and to raise its drainage system design and supervising capabilities. By and large, the technical assistance programme was instrumental in training substantial numbers of EPADP engineers and other staff. The focus was originally on the transfer of technical knowledge, and, in general, the trainees appreciated the training effort. The most important achievement, however, was the establishment of a sustainable in-house technical training centre.

World Bank appraisal documents observe a positive impact of technical assistance on performance, but the actual evidence for this is rather thin. Since 1993 the average yearly rate of drainage works has been raised from the pre-programme level of around 70,000 hectares to around 85,000 hectares at present. Construction standards reportedly improved, but it is difficult to verify this because of the lack of uniform standards of quality control and a lack of statistical evidence that drainage equipment has been better maintained or utilised by contractors. Various studies, including World Bank appraisal documents and farmer surveys, indicate increased yields and farm income in areas with field drainage. Attempts to accurately assess economic benefits were unsuccessful, however, and the question of financial and economic viability of the national drainage programme remains unanswered.

The *Fayyum Water Management Project* addressed the issues of inequitable and ineffective water distribution in Fayyum governorate's irrigation system by the following means: establishing a well-functioning monitoring network and building a mathematical water management model; rectifying major bottlenecks in the distribution network; introducing improved methods of mechanical and manual weed control; and carrying out on-farm studies and testing of integrated water management techniques in selected pilot areas.

The impact of the project is difficult to assess. The monitoring network allows for timely adjustment of the water flow to crop demand in the main distributors of the system. The assistance familiarised the technical staff of the Irrigation Department with the preparation of new designs and reconstruction of main irrigation structures. Through the rehabilitation of works, the assistance programme was instrumental in creating the conditions for greater equity in internal water distribution. However, there are indications that primary distribution imbalances still persist, and improvements in the supply of water to tail-end areas and improvements in overall irrigation efficiency (from 65 percent to 73 percent) were achieved mainly by raising drainage water reuse.

Institutional support to the *Ministry of Public Works and Water Resources* began in the 1990s with the objective of providing the knowledge and tools to enable the Ministry to develop its policies and strategies. The project introduced various planning and water quality management models and trained staff in their use. Due to institutional constraints, a viable planning unit was not established, however, but the project was extended and now focuses on the formulation of a national water resources plan.

Support to *urban drinking water supply* was intended to support the Alexandria Water General Authority (AWGA) in improving its water production facilities and operation and maintenance practices. Difficulties were encountered during the initial years (1990-1991) in formulating technical assistance packages for institutional development with clearly identifiable outputs, and the project team was engaged mostly in 'creating a climate' for the introduction of a preventive maintenance system at the level of one of the Authority's six water plants. Subsequently (from 1992-1997) formal procedures for equipment maintenance were established, but implementation was thwarted by organisational and financial bottlenecks. The plan to introduce the system to a second water plant was abandoned, as the new plant remained idle in the absence of a reliable primary water supply. AWGA also received technical assistance through a German-funded project with identical objectives, but interaction between the two projects was minimal.

Assistance to *rural drinking water supply and sanitation* focused on Fayyum governorate. During the first phase (1990-1994) the project assisted the Al-Azab water company in surveying and mapping the entire water distribution network and setting up customer information offices and maintenance centres in the five district capitals. A series of taskforces was also set up to strengthen Al-Azab's technical and financial departments.

With respect to sanitation, assistance focused on organising a series of baseline surveys which provided the basis for a master plan study, the formulation of an emergency pipeline and public standposts rehabilitation programme, and the preparation of detailed designs for three village sewerage schemes.

Over the years the project team produced a massive number of reports dealing with nearly every aspect of drinking water and sanitation development in Fayyum. The most prominent was the Fayyum Drinking Water and Sanitation Master Plan. By the end of the project period, household connection coverage stood at around 55 percent (up from around 40 percent in the early 1990s). Water service to the remaining population was improved through the public tap upgrading programme.

With regard to sanitation, the Fayyum Governorate Sanitation Department was integrated into the newly established Fayyum Economic General Authority (FEGAWS), and project support was continued to the ongoing on-site sanitation and village sewerage programmes.

5.4.4 *Assessment at programme level*

The selection of the *water management and drainage* sector for Dutch support was in line with Egyptian priorities. The sector is crucial for Egypt's economy, food production and food security and the living conditions of a large proportion of its population. The contribution by the Netherlands was complementary to the assistance provided by the two main donors, USAID and the World Bank, which offered basic investment support for improvements in the irrigation and drainage systems respectively.

There were two main feedback mechanisms for the bilateral results of Dutch support to Egyptian government policy, namely the regular bilateral consultations and the Advisory Panel of Experts. The former provided a forum in which to review past experiences and to set the agenda for future cooperation between the two countries. The latter focused on technical aspects of cooperation in the sector. The actual policy framework in the irrigation, drainage and water management sector was established under USAID and World Bank covenants, which contributed almost two-thirds of donor support to the sector.

The *drinking water and sanitation* assistance programme was characterised by a progression from supplies of equipment and essential inputs to technical assistance and then to institutional development. The priority for urban areas was justified because of the mas-

sive environmental health hazards that threatened the quality of life of a quarter of the country's population. By taking up the Fayyum project, the Netherlands addressed the even more alarming (albeit quantitatively less important) environmental health problems in rural areas.

In the late 1980s, when institutional weaknesses became more and more evident, the emphasis in Dutch aid shifted to technical assistance. This was in line with a general trend in the aid programme for Egypt, namely to abandon programme aid and to address constraints in the service delivery of recipient organisations.

During the initial 10-15 years, there was complete congruence between Egypt's expansion-oriented sector policy and the aid priorities of the Netherlands. On the Egyptian side, preference was given to high-profile capital investment schemes requiring massive external funding without addressing the possibilities for more cost-effective technologies. This policy was endorsed by the international donor community, including the Netherlands, and meant that the wider institutional issues of the projects were relatively neglected.

Effectiveness

In the water management and drainage sector, assistance to the research institutes has been instrumental in strengthening the technical capabilities of the recipient organisations. The programme was there at the birth of three of Egypt's leading research institutions. The drainage execution programme helped to strengthen the recipient organisations by training large numbers of staff and through operational investment support. The goal of speeding up the implementation rate of the field drainage programme was partially achieved, since from 1992 there has been a gradual upward trend in the area annually brought under drainage. It is said that technical assistance has had a positive impact on performance quality, but the evaluation found little concrete evidence of this.

In Fayyum, the assistance programme did not lead to a more equitable water distribution system. Irrigation efficiency improved mainly through the increased reuse of drainage water. Testing of new participatory water management models (i.e. water boards) is ongoing and has yet to be institutionalised at both the national and regional level.

All projects in this subsector addressed institutional development through improving human capabilities. In general, technical assistance support enhanced technical capabilities, but its overall effectiveness was reduced because it was insufficiently embedded in properly formulated institutional development plans and because of persistent institutional and managerial constraints. Since the mid-1990s some projects have focused explicity on organisational strengthening, human resources management and improving relations with clients in particular. Most of these activities are still being implemented and the actual outcome is as yet unclear. Among the factors which affected and still affect institutional performance are low salary levels and lack of motivation, the government's seniority-based staffing and career development policies, and highly centralised decision-making and management traditions. The support to the water sector has also contributed to the strengthening of the legal and policy framework: experiments in participatory water management by establishing water boards, improved regulations for the use of groundwater and decentralisation of drinking water supply to Regional Authorities.

In terms of the immediate project outputs, overall effectiveness of the drinking water and sanitation support programme has been relatively good. By and large, funds were committed for supplying goods that were needed, were not locally available, and could not be imported on commercial terms because of a lack of foreign exchange.

The effectiveness of technical assistance to drinking water and sanitation is difficult to gauge, but in general has been positive. It heightened Egyptian awareness of the need for institutional and corporate reform, and progress was made in strengthening financial management systems, introducing a customer relations service, and improving maintenance practices and technical skills in both water supply and sanitation. But little progress was made towards the establishment of a viable economic authority. With respect to sanitation, the Fayyum project was instrumental in building up an institutional capability. This was a major achievement which benefited the ongoing sanitary drainage programme. Solid waste and other environmental sanitation activities (such as a latrine programme) had an experimental character, while the first project-funded village sewerage scheme has only just entered production.

In sum, the support has concentrated on capacity development since the mid-1970s. The overall effects of this support were less than might have been expected due to the lack of a comprehensive policy framework, the interpretation of institutional development as

improvement of technical skills until the mid-1990s, and the absence of a systematic analysis of institutional development constraints. Since the mid-1980s emphasis has shifted to strengthening organisations both at national and sub-national level. Efforts have been particularly successful but implementation was confronted with vested interests against change in the organistions concerned, related to a strongly hierarchical system and reluctance to decentralise in a state-dominated economy. (For details at the level of organisations, see Annex 5).

Efficiency

In the water management and drainage sector, project identification and formulation took up a substantial amount of time and effort. Few if any project appraisal documents included a comprehensive review of staffing resources, training needs and other forms of staff development in the institutions concerned, or of the activities of other donors. Programming of activities and output was often over-optimistic, and little attention was paid to the wider sociopolitical and institutional context.

Project implementation was characterised by recurring problems in the mobilisation of consultants, contract approval, recruitment and training of local staff, procurement of goods and civil works, and cooperation with other governmental and donor agencies. Consequently, most projects were not completed within the time originally planned and frequent project extensions and additional funding were needed to complete planned activities. Implementation problems were particularly severe in the three main investment projects. Despite these problems, implementation was generally characterised by excellent working relationships between the staff of recipient organisations and the expatriate and local consultants.

During the early stages of the drinking water and sanitation assistance programme, project identification and appraisal efforts were minimal and implementation was inefficient. The efficiency of technical assistance operations was low. In both Fayyum and Alexandria, project identification and negotiations on various sets of terms of reference dragged on for four years, while the project implementation time of the first phase was nearly double the original estimate. At the level of the Alexandria Water General Authority (AWGA), the lack of interaction and cooperation with the German-funded project reduced efficiency. Even though aid coordination is one of the AWGA's prime responsibilities,

there was little evidence of the two donors trying to design a joint strategy or formulate a joint project which could have yielded much better results and achieved greater impact.

Sustainability

The period 1975-1995 saw great technological changes in the water management and drainage sector in Egypt. The most relevant developments were: the mechanisation of field drainage construction involving the use of high-capacity trenching machines and plastic pipe technology; the development of new weed control technologies replacing traditional silt removal and chemical weed control; and the large-scale introduction of computerised data processing and modelling techniques, enhancing the management capabilities of all organisations in the sector.

The Netherlands played an important role in the introduction of these new technologies: they had to be imported; there was an acute shortage of foreign exchange; government revenues were inadequate to finance these technologies; and staff were insufficiently trained to make optimum use of them. In the meantime, Egypt's foreign exchange position has improved substantially and there are now a considerable number of well-trained Egyptian engineers. Therefore, in terms of technology, the results of cooperation in the sector are sustainable.

With respect to the water research sector, the maintenance of a high quality research capability hinges on the Egyptian government's ability to introduce institutional and managerial reforms that will improve motivation as well as the salaries of productive staff, enhance the role of the end user throughout the whole research cycle, and reduce dependency on government funding through contract research. The outlook is best for those institutes which have started to develop structural links with society and the economy and which have secured a more solid financial basis to retain and/or recruit motivated staff.

The organisational and financial sustainability of the Egyptian Public Authority for Drainage Projects (EPADP), the executive agency for the drainage sector, is fairly secure. The technical assistance programme has made a valuable contribution to institutionalising the in-service training effort through establishing the self-sustaining Drainage Training Centre and Human Resources Development Department. In view of the high

priority which the Egyptian government attaches to the field drainage programme, future operational and investment support for EPADP is assured.
At the level of the Fayyum water management authorities, organisational and financial sustainability of the results of the assistance effort is a point of concern. Neither the water management nor the weed control assistance effort has as yet been sufficiently integrated into the regular organisational pattern to sustain benefits in the longer term as well. There is also uncertainty about the financial sustainability of project operational support in Fayyum. Complete transfer of financial ownership will involve a substantial increase in the Irrigation Department's current operational and investment budget (perhaps even a doubling), which has yet to be sanctioned by the government or otherwise secured through direct cost recovery.

Until 1995 there was a widespread consensus, at least among the donor community, that massive investments in the drinking water and sanitation sector were threatened by chronic underfunding by the Egyptian government and by the continuing weakness of local entities responsible for operation and maintenance of water and waste water facilities. The sector reform and decentralisation law adopted in 1995, which allows regional utilities to decide on their own personnel and internal regulations and retain revenues, is generally expected to lead to better service delivery. The new policy is particularly relevant to the Fayyum drinking water and sanitation project.

6 Synthesis of country studies

6.1 Introduction

This chapter synthesises the key findings of the four country case studies undertaken as part of this evaluation. It draws out the main findings and identifies a range of generic conclusions that apply to the experiences of these four countries and may have implications for Dutch support to institutional development in a wider setting. The discussion and conclusions presented here focus on the impact, direct and indirect, of the country programmes on institutional development and change.

The specific form of water sector problems varies from country to country. In Egypt, they relate primarily to absolute water scarcities and problems of allocation between different needs and users. The problems in India as a whole are too varied to summarise easily, but in Gujarat – the state studied in detail here – they are a combination of serious absolute scarcity (especially seasonal shortages) in some areas, over-extraction of and conflicts over the management of groundwater, and serious, widespread quality problems caused by both anthropogenic influences (especially human waste and industrial pollution) and natural influences (salinity, fluoride). Mozambique has abundant resources but faces serious problems in providing secure access to them. The serious floods in February 2000 have had a devastating effect on the already weak infrastructure in this country. Water problems in Bangladesh have traditionally been seen as synonymous with flooding, but it is becoming increasingly clear that scarcity (of both surface and groundwater), quality and other forms of natural hazard (especially cyclones) are of equal or greater significance.

In particular, the four case studies demonstrate the importance of having effective and appropriate institutions if policy intentions are to become development reality. All countries suffer from specific problems in this regard, which underlines the fact that issues associated with institutional development are an essential aspect of good water sector support.

6.2 Institutional framework

The four countries are different in terms of their specific institutional characteristics, but they share some common characteristics in these areas. All four have a tradition of centralised bureaucracies, hierarchical social, political and institutional structures, and heavy state involvement in and regulation of the economy. These traditions are being

modified through decentralisation, civil service reform, economic liberalisation and the stronger development of civil society participation in decision-making, but the extent of the changes varies greatly from country to country.

This is true of the specific institutional structure of the water sector. Reforms are being implemented in all countries, but there are still strong traditions of technically oriented and hierarchical bureaucratic structures and generally low levels of wider participation in decision-making (though the levels of technical competence and human resources capabilities vary widely). The direction of contemporary reforms accords with the policy frameworks of both the Netherlands and the partner governments, which is encouraging, but it is also clear from all countries that such reforms are a slow process which encounters many problems, including in most cases certain levels of resistance from the technical agencies themselves.

The existing institutional structures and mandates of the relevant organisations of all countries presented problems over the years. In particular, many agencies were (and often still are) characterised by strong sectoral divisions (with responsibilities for different aspects of water resources management divided between different agencies); and they were strongly technical in character, with often little experience in or orientation towards social, environmental or economic aspects of water resources management. These emerged as the key institutional challenges, in terms of creating processes whereby policies concerned with sustainability and integrated approaches could be realised.

Many of these technical agencies were also characterised by inefficiencies and capacity deficiencies even within their existing mandates. In short, they were often ineffective at the technical jobs they set out to do. Again, the specifics varied, but they included problems in strategic planning, design of interventions, operation and maintenance of all types of facilities, the monitoring and evaluation of performance, aspects of cost recovery and (where they were introduced) approaches to participatory development. There were also significant problems in terms of human resources capabilities, although these tended to be less of an issue in Egypt, India and Bangladesh in terms of engineering proficiency (which were weak in Mozambique) than in wider management skills and expertise in other disciplines.

One area where the organisations tended to be stronger was in the actual process of construction and infrastructure development. This was particularly true of organisations such

as the Gujarat Water Supply and Sewerage Board (GWSSB), the Bangladesh Water Development Board (BWDB) and the Egyptian Public Authority for Drainage Projects (EPADP), which had strong engineering traditions and effective, if top-down, construction management processes. The physical results of many projects, in terms of construction, were better than the subsequent management and impacts of those investments.

6.3 Aid approach

The specific forms of Dutch assistance varied in the four countries, although the origins of and rationale for these differences were not obvious. In Egypt and Bangladesh, the assistance was primarily contracted out through consultancy contracts to, in nearly all cases, Dutch consultancies. These were then responsible for providing the technical assistance and the administrative management of any investment provisions made. Most projects were characterised by long-term resident consultant teams, often with separate offices from the counterpart agency. In Gujarat and much of the rest of the India programme, assistance was until recently (the Gogha project) provided as financial support to the counterpart agency, with any technical assistance in the form of contracts to NGOs administered by the embassy or short-term inputs (including six-monthly support missions) from expatriate consultants. In Mozambique, most support was through the provision of suppletion experts directly hired by the Dutch Ministry of Foreign Affairs at the request of the counterpart organisations in which they were placed.

These differences appeared to reflect a range of local institutional capabilities and attitudes. The Bangladesh and Egypt models were the 'normal' ones, in line with Dutch policies of contracting out. The Indian case reflected the entrenched resistance of the counterpart organisation (and many Indian government institutions) to long-term residential consultancy contracts and the desire to take direct administrative responsibility for donor funds. In Mozambique, the use of suppletion experts appeared to have started at a time when there was structural institutional weakness and direct support to the counterparts was necessary; the model then appeared to have become entrenched through a combination of familiarity and continued institutional weakness.

Despite these different modalities, there were some common themes running through the programmes. The sectoral and technical character of the institutions in the four countries was not usually challenged by, and tended to be reinforced by, the Dutch assistance to the water sector. In particular, two characteristics of the support were crucial here. The first was that the support was generally in the form of projects with specific time and

place-bound targets which were themselves often technical and sectoral in character. The second was the nature of institutional relationships, which for most projects (and in some cases, such as Gujarat, for whole programmes) were linked to one counterpart government agency which was itself technical and sectoral in character. This tendency to channel support through one institution militated against integration, as both parties found advantages in the relationship.

Projects were identified and selected in response to requests from counterpart organisations, thus providing a legitimisation of responsiveness to demands. There are, of course, virtues in this, but the process failed to recognise that agencies that were sectoral and technical in nature were part of the problem and would be unlikely to come forward with coherent proposals for structural reform. This was compounded by much of the technical assistance, which was similarly technical in character. This process had two major consequences.

First, where non-technical issues were included in projects, they tended to be largely add-ons to engineering-based investment activities. The approaches adopted and resources allocated to these activities were inadequate and they were often seen as an inconvenient, donor-imposed, distraction from the real task of construction. This is clearly shown in the earlier drinking water projects in Gujarat, in flood control and drainage projects in Bangladesh, in the infrastructure projects in Egypt and in the sanitation and rural water supply programmes in Mozambique.

Second, where any institutional development activities were included, they were mostly concerned with the enhancement of the capacities of the direct counterpart agencies to undertake the technical tasks that were seen as their main reason for existence. Considerable efforts were made in this field, often with some success, but there were few attempts to provide an analysis of or support to the types of structural institutional changes needed to realise the stated policy goals of either the Netherlands or the partner countries.

These statements do need some qualification, for a number of more recent projects have a far more considered approach to these issues and do demonstrate that these conclusions have in some cases been arrived at independently and been taken into account in the development of new projects. These projects, many of which are innovative and are helping development partners to realise policies for institutional reform and decentrali-

sation, give cause for optimism. However, they are more the exception than the rule, and none is based on a jointly agreed and coherent country strategy for Dutch assistance to the sector that reflects policy priorities.

6.4 Scope and type of support

This section provides an overview of the scope of Dutch assistance in relation to the main donors and the proportion of technical assistance in Dutch support. It is important to realise that there are substantial differences in the country programmes and development contexts within which programmes are implemented. The specific characteristics of different countries (and often different areas within a country) mean that conclusions need to be contextualised to the specific time and place in which the assistance programme is implemented.

The overall Dutch assistance programme and the size of water sector support in each country are summarised in Table 6.1. As can be seen, all four countries were major recipients of Netherlands assistance. In all of them, except Mozambique, assistance to the water sector was a major component of the overall programme, comprising 29 percent of total support in India and 20 percent in Bangladesh and Egypt, although in per head terms the assistance to the water sector in Mozambique was by far the highest.

Table 6.1 Dutch assistance in total and to water sector (in USD millions)

	India * 1980-92	Bangladesh * 1972-96	Mozambique 1989-98	Egypt 1975-98
Total assistance	1425.0	592.0	497.9	500.0
Water sector assistance	408.5	120.5	41.0	100.8
in % of total	28.7	20.4	8.2	20.0
annual average	31.4	5.0	4.1	4.6

** project aid only*

This support was a significant, although never dominant, proportion of total donor assistance to the sector in each of the countries.

In India, the range of donor support and differences between the states mean that it is not possible to give a comprehensive overview of assistance to the water sector. No less than 22 bilateral and multilateral donors have significant programmes in the sector. However, donors are funding only a fraction (i.e. less than 5 percent) of India's own financial input. In Gujarat, the Netherlands and UNICEF are at present the major donors. Within Gujarat's water supply sector, the Netherlands is the principal counterpart of the GWSSB.

In Bangladesh, the World Bank and the Asian Development Bank are by far the largest donors in the water sector. The Netherlands has consistently been the largest bilateral donor in the sector and has for several years chaired donor coordination. There have also been several multi-donor projects where the Netherlands has provided technical assistance (along with some investments) and other donors the majority of investment capital. Because of these commitments, along with the length of the support programme, the Dutch programme in Bangladesh has tended to have a major influence on the development of the sector as a whole.

In Mozambique, figures on the relative contribution of different donors are not available, but several others are as or more prominent than the Netherlands in the water sector. Multilateral agencies (e.g. the World Bank), UN agencies (e.g. UNICEF) and several bilateral donors have all financed major water sector projects. One of the main problems confronting the sector in Mozambique is the very high level of donor dependency linked to the issue of donor coordination.

In Egypt, USAID is by far the dominant donor, followed by the World Bank. These two donors have done much to mould the development of the sector, including structured support to changes in legislation, policies and institutional processes. Dutch support to institutional development in the sector has taken place within this framework. Apart from the high level of aid, the Egyptian government finances a substantial part of investments in the sector.

Table 6.2 summarises the data available on the development over time of Dutch support to the sector in the four countries. In all cases, Dutch support has been consistently high for a long period. In Bangladesh, Mozambique and Egypt it has also tended to increase over time, with annual allocations showing an upward trend both before and during the last decade. In Gujarat, as in India in general, the programme has contracted in the

period shown. As has been noted, this continuity of support to the sector is appreciated in all of the countries.

Table 6.2 Dutch water sector support, 1970-1998 (annual average in USD million)

	Gujarat	Bangladesh	Mozambique	Egypt
Until 1988	1.1	3.9	1.8	0.8
1989-19993	2.7	5.8	3.5	10.3
1994-1998	0.5	7.5	4.7	12.5
Total	36.6	120.5	72.7	100.8
Average/year	1.3	5.0	2.6	4.6

The structure of the support is significant in terms of the focus on institutional development, for which the proportion of technical assistance is considered a proxy indicator. For a more detailed typology of projects, reference is made to Annex 4. The balance between investment capital and technical assistance is very different for the three countries for which data are available (see Table 6.3). Dutch support to the water supply sector in India – and Gujarat, where the proportion of investments, at 86 percent of total support, is similar to that for the whole country – has been dominated by investments, and technical assistance has only played a minor role. This was especially true of earlier projects, where almost all support was in the form of investment capital. More recent projects have had a consistently higher proportion of the total support in technical assistance. The importance of improving institutional capacities through this form of assistance has now largely been accepted by Indian institutions, at both state and central levels. Previously they had tended to be reluctant to have this form of assistance.

Table 6.3 Investments and technical assistance in Dutch support * (in USD million and %)

	India ** 1978-98	Mozambique 1978-98	Egypt 1975-98
Investments (in %)	84.9	57.8	35.4
Technical assistance (in %)	15.1	42.2	65.6
Total (in USD million)	201.1	68.9	100.8

* *no data are available for Bangladesh*
** *India = drinking water supply*

In contrast, a major part of the programme in Egypt has always been in the form of technical assistance, which comprises 65 percent of total support. This includes a number of projects which have provided long-term structural support to government research institutes and the authority for the implementation of drainage projects in particular.

The programme in Mozambique has been fairly balanced between investment and technical assistance, with the latter comprising 46 percent of the total aid volume. This has included a number of specific institutional support projects to government agencies, a significant training and scholarships programme and a major programme of suppletion experts (comprising 39 percent of total support to the sector), who have provided essential expertise to support Mozambique government agencies.

Although exact data for Bangladesh are not available, many of the larger projects have either been predominantly investment oriented or have had major technical assistance components. The latter category includes multi-donor projects where the Netherlands has provided technical assistance (from grant aid) to support investments which are predominantly loan aid from multilateral agencies. For the total donor support the technical assistance component has been estimated at 3 percent for 1987/88, 21 percent in 1992/93 and 15 percent in 1997/98.

6.5 Project results

Many projects in all of the countries had a predominantly investment-oriented character, with the main objective seen (certainly by the country partners) as the construction of water management infrastructure of various sorts. The success rate in achieving these physical objectives was mixed. In most cases, the envisaged structures were built, but there were frequent cost and especially time overruns, with the process of construction itself typically far behind schedule. This was a reflection of a rather naive approach to the non-engineering aspects of the work, with substantial delays caused by matters such as contractual or procurement problems, bureaucratic budget and disbursement procedures and, in Bangladesh especially, delays over the acquisition of land.

Where the infrastructure was medium-to-large scale, with a number of different elements to it (such as the regional water supply schemes in Gujarat and the flood control and drainage structures in Bangladesh), in most cases there were problems with the whole system design. Individual elements, such as regulators or pipelines, were often good in technical design terms, but insufficient attention was paid to how the different elements

would fit together. The result was infrastructure that did not function effectively and did not reflect the specific needs and opportunities of different locations within the schemes. These system design problems were generally less problematic where the infrastructure was smaller in scale and could be more effectively adapted to local circumstances.

Despite these problems, in all cases large numbers of people were provided with improved facilities for water supply, sanitation, drainage, flood control etc. These were often well-targeted to reach the most urgent needs and reflected real priorities among these target populations. Because of the fundamental importance of the programme objectives, all parties were, and still are, keen to keep the collaboration going despite the problems encountered in project implementation.

The relative success in construction was often undermined, however, by problems in the operation and maintenance of the facilities, caused by insufficient funds allocated for, and the low priority assigned to, operation and maintenance. This typically led to a deterioration in the integrity of the infrastructure and, in consequence, the service provided. Examples of this were found in all four countries. The results were problems such as very high levels of leakage, tail-end communities not receiving reliable (or in some cases any) supplies and major seasonal problems in delivery.

There was a range of problems in the execution of the construction, or 'hardware', aspects of many of the projects, but despite these problems most of the countries did eventually realise some achievements. The same cannot be said for the non-construction, or 'software', aspects of many projects, which in most cases had very low levels of success. This was particularly true where these aspects of the projects were effectively add-ons to what were essentially construction projects. Projects which were either solely concerned with 'software' issues or that had these issues properly integrated into their design were relatively more successful.

These failures were most apparent in cases where 'software' components went beyond the organisational development of the immediate counterpart agency to include participatory planning and development among the target populations. This was a consistent feature of all but the most recent projects in Gujarat, several projects in Bangladesh, the programme in Mozambique and, to a lesser extent, some of the Egyptian projects. The approach was typically target-driven, technically poor and imposed on the population concerned, while insufficient attempts were made to build on existing forms of water

resources management or social relations. It can consequently be concluded that all four country programmes had a number of structural problems in the implementation of key aspects of the projects.

These problems were often similar where the types of projects were comparable. (Examples were the rural drinking water projects in Gujarat, Mozambique and Egypt, although the Mozambique projects tended to be less effective in infrastructure development than those in the other countries.) This suggests that the relative success or failure of the different programmes was only partially a reflection of local conditions. There were also fundamental features of projects similar in conception and design that led to implementation problems regardless of the circumstances in which they were implemented. In particular, problems with cost recovery, operation and maintenance and local-level participation characterised nearly all of the water supply and sanitation and irrigation projects in all four countries. This in turn reflected the basic characteristics of the institutions involved (i.e. supply-oriented technical agencies) and the nature of project design and implementation procedures.

6.6 Institutional development support

The details of the approach to institutional development varied greatly from country to country, but in all except Egypt specific activities and a more structured approach have been relatively recent. Because they are more recent, many of the activities are still being implemented at the time of writing, so drawing conclusions on their effectiveness and impact is difficult. Those that are drawn here are as much based on judgements concerning approaches and design as they are on the outcomes of the activities.

The institutional development activities varied widely in character. The analysis throughout this study has made a three-fold distinction in the nature of institutional development activities between human resources development, organisational strengthening (typically focused on the direct counterpart government agencies) and system development (concerned with structural change to the sector as a whole and including reforms to laws, policies and institutional mandates).

An important general point that should be made before considering the activities under these headings is that none of the Dutch programmes under consideration had a clear strategy or long-term vision on either the objectives of institutional development or the processes through which institutional change takes place. This lack of a coherent per-

spective on what institutional development means and how it can be supported has been a major flaw. The approach has been driven by the 'projectism' that has characterised the programmes as a whole, and in consequence the net impact of individual activities has been significantly smaller than would have been the case if a more coherent approach had been adopted.

Human resources development

All the country programmes contained specific human resources development activities. These were typically technically oriented and took various forms, such as formal training courses provided locally, fellowships to formal training programmes in the Netherlands, and the establishment or strengthening of training facilities in the country concerned. There were also a wide range of less formal, ad hoc human resources development activities in many projects, including extensive learning-by-doing activities that were often not specifically programmed but significant nonetheless.

In Bangladesh, Egypt and Mozambique, long-term structural support to the development of in-country training capacities was given through specific projects. The approach in all three countries was primarily technical, with the goal of assisting partner institutions to develop and maintain facilities, curricula and staff resources which would ensure that they could train future generations of water professionals. In Egypt there was growing attention to management issues in training programmes. Within this approach, the programmes in Egypt and Bangladesh did achieve their main goals and the effectiveness of the different institutions has certainly increased. This in turn translated into an enhanced national capacity to train engineering professionals. The programme was less successful in Mozambique, reflecting the wider institutional weaknesses and development constraints of a country racked by war and severely lacking institutional capabilities of all types.

Many projects also included more tailored training, both as courses and through other media, in their activities. For example, projects in Bangladesh and Egypt trained both project staff and people from other water sector institutions in environmental impact assessment and geographical information systems (GIS) techniques, with both widely appreciated. Similarly, several projects in the different countries provided training in topics such as participatory rural appraisal, improved monitoring and construction management and similar issues closely concerned with project implementation. These tailored

activities were generally felt to be more effective and immediately relevant and were far more economic to run, but they did not carry the same prestige or other attractions as overseas scholarships.

Through projects and through the Netherlands Fellowship Programme (NFP) around 250 government employees in the sector participated in training programmes in the Netherlands, including MSc education. These programmes were primarily engineering courses, which increasingly paid attention to non-technical subjects. However, the number of trainees was relatively small and the knowledge and skills gained were often not immediately applicable in the context of the counterpart organisations and their prevailing systems and procedures. Consequently, the immediate effect in the organisations was limited. Proposals for more focused tailored courses developed by the Dutch institutes in India, for example, did not receive a favourable response.

There was a consistent tendency for staff who had been trained as part of Dutch projects to be placed in a work environment where the new skills were not employed. This was in part because the training was not relevant, but also because of the highly centralised decision-making structures of many institutions, which gave little scope for staff to use their initiative in employing newly acquired skills.

Finally, there were a wide range of additional human resources development activities in different projects, including more formal ones such as study tours and informal on-the-job skills development, which were a consequence of working alongside internationally competent professionals. These were again often effective within the limits of the individual projects, but they did not take place within any systematic assessment of needs or strategy for human resources development within the counterpart organisations. As in the case of the more formal training activities, they were also mostly oriented towards technical aspects of human resources development, with an emphasis on civil engineering issues.

Organisational strengthening

As has been noted, there were few instances of any systematic strategy for organisational strengthening in any of the national programmes. But this does not mean there have been no activities centring on the development of organisational capacities, because a number of projects were wholly or partially aimed at this. The details of these were as

varied as the organisations concerned, but in most cases the general character of the organisational development undertaken was to strengthen capacities within the existing character of the counterparts (which were mostly technically oriented and centralised in structure).

The programme in Egypt was by far the most oriented towards organisational strengthening, with a long-term programme of support to government research institutions and implementing agencies at national and sub-national level. The programme included steps to improve management information systems and internal procedures, financial management within the institutes, and external relations with both clients and similar organisations. It also included components intended to enhance planning and implementation capabilities in both central and local government organisations and semi-public authorities. For example, the Fayyum Drinking Water and Sanitation Project sought to address a range of technical, managerial and financial constraints that affected the performance of the water and sanitation authority in Fayyum governorate. Similarly, several projects started in the mid-1980s were intended to improve the planning and management capabilities of the Ministry of Public Works and Water Resources. The emphasis in Egypt was consequently almost entirely on government agencies, which was a reflection of the very modest NGO involvement in the sector.

Until recently the Gujarat programme contained only incidental organisational development components. These were concentrated on the Gujarat Water Supply and Sewerage Board (GWSSB), primarily through external review and support missions provided by a Dutch consultancy. The effect of these activities was minimal and important deficiencies in areas such as operation and maintenance and systematic planning (not to mention more complex issues such as participatory development) were hardly addressed. Also the attempts to establish and strengthen village-level institutions for improved water management had little effect in terms of creating lasting institutional change.

The focus of organisational development activities in Bangladesh was the Bangladesh Water Development Board (BWDB), the main counterpart for most Dutch projects. Some significant contributions were made. However, almost all of these were made through individual projects that were predominantly implementation-oriented, and many of these contributions did not last beyond the lifetime of the projects. Despite this, the consistent message from a number of projects for higher standards of construction management, tendering of works, operation and maintenance and even the involvement of NGOs in

implementation had a cumulative effect. The situation is now one where these issues are at least taken seriously and some efforts at improvement are being made. For other activities the outcome is mixed, however. The attempt to introduce cost recovery in one of the projects was completely unsuccessful, while numerous attempts at developing participatory approaches led to the acceptance of the concept but have yet to result in effective change. Organisational development activities outside of the BWDB tended to be more effective, with one of the projects contributing to the development of capabilities within the Local Government Engineering Department (LGED) and other providing structural support to the development of the main water sector strategic planning agency.

The programme in Mozambique contained four projects specifically targeted at building capacity in water sector organisations. The original national-level capacity-building project, which was largely ineffective, was phased out in the early 1990s and replaced by three new projects intended to develop sector capacities at national, regional and provincial levels. This was in line with changed institutional mandates in the sector and represented a clear attempt to relate organisational development to policy changes. This included an ongoing effort to enhance the strategic planning and regulatory functions of the National Directorate of Water (DNA). All three projects are still being implemented and, if successful, have the potential to make a significant contribution to organisational strengthening in the sector.

Across all four countries it is clear, then, that organisational strengthening activities have been an important, but usually not central, part of Dutch-supported water sector activities. Initial efforts were typically ancillary to projects which were primarily investment-oriented, and they were far less effective as a result. The situation was not static, however, with the 1990s seeing a new phase of support in all of the countries in which organisational strengthening was more central and more carefully considered. A number of projects specifically designed for the strengthening of organisations have emerged; these are more closely in line with both Dutch and national policies.

System development

This section considers in more detail the extent to which the different programmes have been instrumental in the development of the wider structure of institutional relationships, capacities and processes in the water sector in the different countries. The individual country evaluations identified a wide range of such influences, but these were not the

result of a clear institutional development strategy in any of the four countries. Instead, in most places they were a side-effect of activities implemented for more immediate reasons.

In several instances, these effects centred on the opening up of participation in the sector to a wider range of organisations other than the main line agency involved. In particular, the programmes in Gujarat (as elsewhere in India) and Bangladesh were important catalysts in the participation of NGOs and the development of better GO-NGO relationships in the sector. This initially occurred in response to the contracting of NGOs to undertake specific activities such as participatory organisation or health education. In both instances, the NGOs demonstrated to somewhat sceptical government organisations that they were able to undertake these activities and that their involvement improved the quality of the projects. This in turn led to the wider participation of NGOs in the sector and, in particular, significantly improved relationships between what had too often been mutually suspicious or even hostile types of organisation.

Dutch projects contributed in varying degrees to the process of decentralisation and devolution of responsibilities to stakeholders, which all four countries are taking faltering steps towards. In Mozambique, the Dutch projects aimed at supporting regional and provincial water management institutions and an emphasis on participatory approaches and/or private sector involvement in the rural water supply and low-cost sanitation programmes encountered a range of problems, but they at least demonstrated the relevance of such approaches.

India's national water supply and sanitation policy places great emphasis on decentralisation and the role of communities and local government. There is an obvious reluctance in the Gujarat Water Supply and Sewerage Board (GWSSB) and the state government as a whole to accept this, but a number of examples where village councils and local government are seeking to realise their rights were encountered in the fieldwork. The Gogha project, which is based around a participatory planning process, is a major innovation in this field. The programme in Egypt also offers a few tangible advances in this area. Projects in Fayyum governorate enhanced the drinking water and sanitation authority as a semi-public agency and emphasised the benefits of improved beneficiary participation and the introduction of innovative water management techniques in irrigation and drainage. Although the Bangladesh programme has not made major advances in this field, two of the projects emphasised innovations in community-based organisation and established links to local government institutions that are of wider significance.

Dutch support has also contributed to the development of legislation, policies and approaches in a number of cases. In Bangladesh, specific initiatives emerged from Dutch projects, such as guidelines and procedures for stakeholder participation, the establishment of income-generation activities focused on the poor and concerned with the maintenance or construction of infrastructure, and rules governing project and environmental impact assessment. There has also undoubtedly been a wider contribution to the development of policies and strategic planning in the sector as a whole. In Egypt, the support provided to the Ministry of Public Works and Water Resources is designed to significantly enhance the overall policy and administrative framework for the sector, including the formulation of a National Water Resources Plan.

In Mozambique, the Dutch capacity support projects have as yet had few wider system development effects. This reflects the general structural problems faced by Mozambique since independence, with a protracted period of conflict and destabilisation followed by severe problems in recovery and reconstruction. The existing projects do have the potential to make a significant contribution to both policy development and institutional restructuring through decentralisation, but it is as yet too early to tell whether this potential will be realised.

Wider systems effects of Dutch aid in Egypt are a reflection of the far more established institutions involved and the more dominant influence of USAID and the World Bank in the sector. However, there have been some positive effects on the policy and regulatory framework, including the introduction of innovations in water recycling and stakeholder participation. These have been most significant where they are linked to or paralleled by other donor initiatives, and the overall effect of the Dutch programme on the system as a whole is hard to single out but is in all probability rather limited.

Where the Netherlands has made a major contribution in Egypt (and elsewhere) is in the enhancement of the knowledge and research base. The support to four government research institutes has been important in enhancing their capacities and has greatly improved the national capacity to research issues such as hydrogeological mapping, groundwater monitoring, hydrographic surveys, mechanical and biological weed control and others.

Similarly, in Bangladesh the Dutch programme has made major contributions to the knowledge base in the water sector. This is most clearly demonstrated by projects which

developed a strong hydromorphological database and introduced innovations such as geographical information systems (GIS) and remote sensing analyses for the water sector. In contrast, to date the Gujarat and Mozambique programmes have not contributed significantly to knowledge development. However, the Gogha project in Gujarat has recently developed innovative approaches for the assessment of local-level groundwater resources. In Mozambique, the support to Eduardo Mondlane University has yet to result in any development of research capacities.

One aspect of system development which has consistently performed poorly has been the development of cost recovery activities. There have been a number of attempts to introduce these across the different programmes (and in particular in activities such as drinking water provision in Gujarat and Egypt and irrigation in Bangladesh), but these attempts achieved very low recovery rates during the project lifetime and often even lower rates once project interventions ended. This means, of course, that prospects for long-term sustainability and efficient resources allocation are diminished. There is no doubt that the issue of cost recovery will continue to be a major challenge in the future in Dutch programmes, as in other programmes around the world.

There are consequently a wide range of impacts of the different Dutch programmes on system development in the four countries, but these have been piecemeal, partial and often accidental. They are important, but do not add up to a well-structured and coherent impact on the overall development of institutional processes and relationships in the water sector in any of the countries studied. The main reasons for this are the resistance of recipient countries to donor interference in the wider structure of institutional relationships, policies and related power structures, and more particularly the relatively small volume of Dutch aid to the sector compared to total investments in the sector and the support of other donors.

6.7 Assessment

This section presents a series of general points concerning Dutch assistance to institutional development in the water sector. It starts with an analysis of the relationship of the evaluated programmes to wider policy and development processes, followed by an assessment of effectiveness, efficiency and sustainability.

Policy context

The dynamics of policy development have been stressed above, in particular the limited extent to which the individual projects that make up the country programmes have reflected the water sector policy process of either the Netherlands or the partner countries. Some of this was inevitable, since there is always a time lag between policy changes and the planning of and agreement on new projects to enact these changes, but this on its own cannot explain the findings.

In some cases, new projects that did not reflect policy changes were being designed and agreed several years after the changes came into force. This was particularly true with regard to Dutch policies, which have emphasised issues of environment, poverty, gender and institutional change for some time. Similarly, in the different countries, policies have changed significantly to reflect the international consensus on issues such as environmental integrity, decentralisation and participation, but these are not adequately reflected in the actions of the government agencies with jurisdictional responsibility in the water sector.

New policy directions will only have real meaning and content, will only generate sustainable change on the ground, where there are institutional structures through which they can be realised. The investment-oriented and technically based approach which has characterised so many past, and too many present, projects does not provide a mechanism through which these types of structures can be developed. In particular, there has been a lack of coherent and articulated country programmes, with projects poorly coordinated and not enough learning from each other. Project selection was often ad hoc and reflected the technical orientation of counterpart organisations rather than policies for the sector of either the Netherlands or the host country. Overall, the programmes suffered from a clear 'projectism'. In many cases the development objectives were lost and the focus was on more limited issues of implementation and achieving targets.

The picture is not entirely negative, however, for there has been a gradual evolution in approaches, with technical and sectoral projects giving way to more integrated approaches which place greater emphasis on institutional and social issues. These were often initially add-ons to projects that still retained a technical structure, and consequently the results tended to be poor and even at times counterproductive. More recently, a new generation of projects is emerging in which issues of institutional change linked to

social and environmental objectives are more central. These give cause for optimism, but need to be more clearly structured into wider country programmes. Their effectiveness also needs to be closely monitored. Project design is critical in this regard and projects must have sufficient flexibility to adjust to changing circumstances.

Where decentralisation has been attempted, it is typically linked to structural change to the roles and mandates of different organisations. It is not just a question of subsidiarity within an organisation, but also concerns different bodies (both governmental and civil society) adopting new responsibilities. For example, the changes to the water sector in both India and Bangladesh include local government assuming a core role in managing local-level water supply and control structures; and in both Bangladesh and Mozambique decentralisation has also entailed new technical agencies (the Local Government Engineering Department, LGED, and regional water authorities, ARAs, respectively) taking over activities from the traditional centralised agencies. It is clear that devolution is more effective where there is a conscious attempt to harmonise these two aspects of the process, with the newly mandated decentralised bodies of local government or civil society supported by a decentralised technical agency. Where this has not happened, as in Gujarat, where the local government bodies have very poor links with the still centralised GWSSB, then the effectiveness of devolution efforts is far weaker. Where donor support recognises and operates at the different levels in a more decentralised system, there is a far more effective impact on institutional change, since the different levels have the capability of learning from and informing each other. This has happened in Egypt. In Bangladesh there has also been an effective level of interaction within the country programme, which has increased its overall effectiveness. Consequently, while individual projects may have a less discernible direct impact on the dynamic changes which have happened to the programme there, the accumulation of insights and experiences across the programme does have a discernible impact.

Despite very different patterns of resources availability, use and needs, the core objective of these policies and projects – to improve the sustainable management of water resources – is a very high priority and reflects real needs and problems on the ground. The field appraisals and national reviews undertaken in all four countries emphasised the importance of these problems and parallel the international consensus in forums such as the Commission on Sustainable Development (CSD), which see challenges over water resources as pivotal to the development prospects of many parts of the world. The recent policy development in the four countries studied (and in many others) reflects the

urgency of these challenges and a heightened political willingness to undertake the types of policy and institutional reforms needed to address them. The time is consequently ripe for defining processes of institutional development in this sector and ensuring that development assistance from the Netherlands and other donors assists such processes in the future.

It is clear that all four countries were characterised by a gap between the emergence of policies on decentralisation and integration and the institutional structures through which the sector was managed. There was a similar gap between the declared objectives of Dutch policies (which from the late 1980s emphasised participation, integrated approaches, gender, environmental sensitivity and institutional change) and the form that Dutch assistance took. In particular, the different programmes were dominated by discrete projects that were often themselves technical in character and were not linked together in a coherent country programme or strategy. Indeed, the lack of a country-specific strategy for Dutch assistance relating to these policies meant that little attention was paid to them despite their acceptance within the Dutch system as the rationale upon which assistance should be built.

Effectiveness

The different country programmes have different profiles in terms of the specific details of their effectiveness, but overall the results have been disappointing. Where there have been positive experiences, they have tended to be ad hoc and effectiveness is often confined to individual projects. This meant that even where activities were relatively successful (including successes in meeting technical goals), their wider impact on the sector and the institutions involved was marginal. For example, several of the projects in Bangladesh developed more effective construction management and monitoring systems, but these were not institutionalised within the main counterpart. Similarly, in Egypt, the support to research institutes led to notable improvements in their technical capabilities, but this had a limited impact in terms of generating improved research or uptake of research findings. Comparable examples were found in all the country programmes, most of which were production-oriented and target-driven rather than having the type of process orientation necessary to bring about institutional change.

One of the main reasons for this generally disappointing performance which emerged from all the individual country evaluations was the absence of a coherent programme

strategy on institutional development that would provide a conceptual and policy basis and set priorities and the direction for institutional development activities. The effects of this lack of coherence and direction came up time and again and are a key finding of this evaluation.

The most consistently evident institutional development activity in the different countries was human resources development, with an emphasis on technical training and on fellowships to the Netherlands. The effectiveness of these activities was generally low, with no evidence found to suggest that this type of training made any significant difference to institutional performance. Tailored in-country human resources development activities were generally found to be more effective (and considerably cheaper).

The extent to which the programmes improved the involvement of organisations beyond the immediate counterpart (which were mostly technical line agencies) was limited. Some efforts were made, but they tended to occur within a project framework. This did at times (for example, with NGOs in Gujarat) lead to a wider process of participation, but this was often an unforeseen side-effect and the barriers to wider involvement were typically still very high.

Similarly, participatory mobilisation and development activities, where they were found, were mostly extremely ineffective. In particular, examples of real participatory planning or empowerment were rare and the vision of what participation meant in institutional terms was extremely limited. This was particularly characteristic in the frequent cases where these activities were add-ons to construction-oriented projects.

In quite a number of cases the programmes and individual projects were more effective in improving the performance of the technically oriented counterparts in terms of their existing orientation. This often resulted in more effective technical organisations, something that did lead to improvements in their ability to deliver the services they were already oriented to (in particular, to build infrastructure). This did lead to more facilities being available to those in need (often an important achievement), yet these activities tended to reinforce existing institutional structures rather than further their reform.

One of the clear trends across the four countries studied was that the impact (both direct and indirect) of Dutch assistance on institutional strengthening was more noticeable where the organisations involved had a higher level of autonomy. Where, as with most of

the core government agencies, they were hierarchical in character and operated with strict standards and procedures, then action to enhance one aspect of their capabilities (whether human resources development, organisational improvements such as new monitoring systems or more policy-oriented approaches such as encouraging participatory approaches) had an extremely limited impact on their overall character and capacities. This was particularly true where, firstly, the drive for change was external (such as from the Ministry of Water Resources to the BWDB) and met internal resistance or, secondly, where key aspects of change (such as budgetary procedures or staffing policies) were beyond the control of the particular organisation.

The overall picture with regard to effectiveness is consequently disappointing. This pessimistic picture does need to be tempered by two more positive conclusions, however:

- the Netherlands' long-term commitment to the sector in all the countries has had a cumulative effect where institutions have been given a consistent message on participation or improved performance; this has at times led to the internalisation of the message within the counterpart institutions;
- this has been strongly reinforced where there has been a development of project design towards projects with more effective and structured approaches to issues such as participation or operation and maintenance; the counterparts have been more receptive to these messages because of the trust that a long relationship brings and the shared achievements and failures of the past.

For these reasons the overall effectiveness of the different programmes has improved over time and could be significantly improved further through the development of coherent programme strategies based on Dutch and national policy frameworks and on a more flexible approach to institutional development and change.

Efficiency

In terms of efficiency of the different projects and programmes, there is considerable room for improvement. This in part reflects the ways in which the projects were identified, designed and implemented, which in turn reflected Dutch procedures and institutional norms.

Although all projects had broad development goals that were their justification (goals that typically had major implications for institutional change if followed through) these

were often treated rhetorically with no serious attempt to relate the actual project activities to the realisation of the goals. This was reflected in project design, which in particular failed to understand the institutional implications of the project. This in turn reflected a combination of the character of counterpart organisations and the professional orientation and, at times, commercial interests of consultancies which were themselves technically based.

Once agreed and contracted, most projects were target-driven and focused almost entirely on realising physical outputs and demonstrating financial progress. This led to a concentration on the expedient at the expense of the more important but also more difficult challenges associated with structural change.

All of these problems were compounded by frequent inadequacies in the supervision process. Often the external monitoring and management of projects was more concerned with achieving expenditure targets than realising development goals. For this reason there were structural problems with all aspects of the project process that militated against efficient performance in realising institutional development intentions. Questions need to be asked here about the overall procedures and culture, for while policies emphasising broad development processes (including institutional reform) existed on paper, there was little or no attention to working their implications through in terms of internal processes and priorities. It is not realistic to expect highly efficient performances within individual projects and country programmes when the institutional 'signals' from the centre militate against this.

The above points are the core conclusion on efficiency, but other points have also emerged from the country evaluations. The overall efficiency of training programmes was often low. There is a clear need for more focused human resources development, with emphasis on assessment of the needs of the specific institutions involved, more tailored in-country courses and structured follow-up to ensure that lessons learnt are used.

Many projects were inefficient even within their construction orientation, with considerable time and cost overruns. Some of this reflected design faults, but there were also obvious problems with the organisational capacity of implementing agencies. Too often these deficiencies were not addressed by the projects.

There were positive examples of enhanced community participation in water resources management that brought efficiency gains in resources use. This included changes which were both consciously planned (as with the water boards in Egypt and group formation for embankment construction and maintenance in Bangladesh) and examples of improvements which were not planned but emerged when people responded to the changed context created by projects (a process identified in detail by fieldwork in Gujarat and through evaluation studies in Bangladesh). These types of responses are of great potential significance and need to be better integrated into future project designs.

The level of coordination among donors in the different countries was extremely mixed. In Bangladesh, there were clear and effective structures for donor coordination (through the Local Consultative Group, LCG, chaired by the Netherlands), which were instrumental in bringing about substantive changes to the sector observable to all donor approaches. In contrast, the extent of coordination in both Gujarat and India as a whole was extremely limited. This meant that the impact of the Dutch programme was far more limited than it would have been if more effective articulation had existed. In Egypt, the dominance of the USAID and World Bank was such that they set the context within which others, including the Netherlands, operated. Finally, in Mozambique, donor coordination was again weak. Coupled with the fundamental limitations of the government agencies in the sector, this meant that the Mozambican authorities tended to be responsive to the procedures and approaches of individual donors but found it difficult to manage and reconcile the differences between these procedures and approaches.

Sustainability

Assessing the sustainability of such diverse and complex institutional processes under consideration here is extremely difficult. The overall sentiment expressed in the four country studies was that the levels of sustainability in the different programmes was low, but this reflected problems with project implementation (and especially the operation and maintenance of investments) as much as an appraisal of the institutional processes involved.

The human resources development activities are mostly assessed as having reasonable levels of sustainability. The experiences on the courses have also been instrumental in raising consciousness on a number of important institutional issues. The tailored courses are generally assessed as producing sustainable results, while the projects that developed

training capacities in Egypt and Bangladesh have produced significant changes to the institutions involved.

The sustainability of improvements to organisational capacities appears to be extremely mixed. In many cases, improvements were confined to project activities, were not more widely institutionalised and rarely lasted long after the project finished. There were exceptions to this, with the institutional changes in Egypt especially notable here, but overall there was a tendency for such changes to be resisted within organisations. They were rarely followed through with necessary changes to mandates and procedures and were even more rarely given adequate budget allocations to be sustainable. This was especially true for areas such as operation and maintenance, which have long-term budgetary implications.

There were a number of attempts at participatory development, which mostly centred on establishing users organisations in some forms. These organisations rarely proved sustainable, with the earlier attempts particularly problematic. More recent initiatives have greater potential, however. Where these initiatives have been linked to issues such as cost recovery and operation and maintenance, they have soon collapsed, and the level of financial and operational sustainability of investments made has in almost all cases been poor.

Despite this, there have been tangible changes in attitudes towards issues such as participation, integrated approaches, operation and maintenance and environmental protection in a number of the counterpart organisations - something that is as important as more formal organisational changes. This is noticeable at all levels, from officials involved in project implementation on the ground to more senior officials.

Those system-wide changes that have come about are often likely to prove enduring. Among these are the participation of NGOs and better GO-NGO relationships, community-level resources management, and moves towards decentralisation where these are part of a wider national process. The improved understanding of the need for structural change and integrated approaches, as reflected in policy changes, are also broadly sustainable and are of great significance for the future.

The overall sustainability of the impacts of Dutch assistance to the water sector on institutional change is thus mixed. There have been positive and dynamic changes to policy

frameworks, a limited improvement in understanding and a change in attitudes towards reform, but very few concrete results in terms of actual institutional restructuring. Many of the preconditions for change now exist, but they still have to be actively developed into a concrete programme.

6.8 Impact on institutional development and change

The different country programmes reviewed have had a range of impacts on institutional development in the sector, including (as we have seen) impacts on the development of the immediate organisations which were the project counterparts and impacts on wider systems development. There were many similarities here, with all countries characterised by sectoral government agencies with expertise and internal cultures dominated by technical, especially civil engineering, traditions. In most cases, the overall water sector was subdivided into subsectors, with different agencies covering issues such as irrigation, water supply and others. The coordination between these subsectors was typically very poor or absent altogether.

The characteristics of these institutions were consequently at odds with the development needs and priorities of the sector. Processes directed at reforming them and/or changing the overall institutional structure to include organisations with very different orientations should have been the basis of institutional development strategies. This has tended not to be the case, however. Most institutional development activities, where they existed, instead placed emphasis on organisational improvements designed to enhance capabilities within their existing mandate rather than on more structural reforms to the sector as a whole.

In particular, in several cases institutional development components of projects were confined to training activities. This predominance of formal training is clearly too limited a concept of institutional development. Human resources development, although important in many instances, is not enough on its own, and where it does take place it needs to be set within a wider process of institutional reform that forms the basis for defining the necessary skills development.

In most cases these institutional reforms need to work in two directions: decentralising institutional processes to empower communities and local government on the one hand, and opening up the process to integrate the private sector, NGOs and the wider civil society on the other. Progress here has been extremely mixed and mostly disappointing.

There were good examples of the inclusion of NGOs, with the programmes in Gujarat and Bangladesh notable here. Their role within projects was often limited, however, and the reasons why they were included were usually instrumental (i.e. to improve project performance) rather than structural. Nevertheless, their inclusion has had structural impacts, with NGOs now widely involved in the sector and accepted as legitimate partners by government agencies.

The inclusion of NGOs apart, wider institutional involvement has been weak. Attempts at participatory development have mostly been disappointing (although some more recent projects give some cause for optimism). This is a reflection of the very limited concept of participation that most projects employed. It was usually restricted to organising communities in forms dictated by external agencies for specific purposes such as operation and maintenance or cost recovery. Genuine examples of participatory planning and empowerment do exist but are rare. What is encouraging is that the good examples are more recent and have learnt from past failures in this field.

One aspect of the approach to participatory development which has been particularly weak has been the inclusion of and building on informal institutions, including traditional forms of social organisation which are often the basis for existing patterns of water resources management. Few projects recognised the potential of these institutions, and little attempt has been made to develop participatory structures based on them. There is also little recognition of such forms of social organisation by the government agencies which are the direct counterparts of Dutch projects. The result is that, where participatory components do exist, they tend to assume a need to create new forms of organisation rather than build on what already exists.

One of the key directions of political and institutional change in all four countries, as in so many other parts of the world, is towards greater decentralisation. This is often linked to broadening local-level democracy. In all the country programmes there are some projects that seek to advance decentralisation processes within government. Several of these projects are of recent origin and their approach is at times limited (with local government simply replacing line agencies), but support to these initiatives is important and should be seen as a focal point for the future.

Private sector involvement in the projects has been very rare, but this is widely regarded as a key issue in both improving efficiency and long-term sustainability. Much the same is

true for the wider engagement of civil society; again, this is identified as essential in the wider debate on institutional development. The key issue here is to integrate reforms into the wider institutional fabric of society, both state and non-state, and especially to build on existing capacities rather than create parallel institutional structures (such as project-based water users groups). This in turn requires a coherent vision and conscious strategy on future institutional structures. Thus far this has been notable by its absence in the countries studied.

A further key institutional issue within the structure of government is better coordination among different agencies. This has two dimensions: better links between sectoral agencies (and including related agencies such as agriculture and fisheries) on the one hand, and better links between levels of government (central, regional, local) on the other. These horizontal and vertical links were weak in all the countries studied, and the different projects had done little to improve them. Some efforts were made, but these were sporadic and limited in scope and had little impact.

Of course, there have to be realistic limits to what any one project (or even programme of projects) can do in an area as complex, long-term and widespread in its implications as these types of structural institutional reform. This again means that effective coordination among donors is important. Where this has occurred, as in Bangladesh or to an extent at the national level in India, the cumulative impact of this combined voice is far more effective at encouraging structural change.

A further factor that has been important in the different programmes and which enhances the ability to encourage reform processes is the long-term involvement of the Netherlands in the sector. This has been the case in all four countries studied and has been instrumental in improving effectiveness in this area. Such long-term commitment is seen as extremely important by the development partners, and is essential if any involvement in long-term processes such as institutional reform is to be meaningful. The long-standing commitment of the Netherlands is an important asset for the programmes in the countries studied and creates a context in which institutional change can be supported more effectively than has occurred in the past.

Annex 1 The Policy and Operations Evaluation Department (IOB)

The Policy and Operations Evaluation Department (Inspectie Ontwikkelingssamenwerking en Beleidsevaluatie, IOB) is responsible for conducting evaluations of Dutch foreign policy.

The IOB is part of the Ministry of Foreign Affairs. It is an independent unit which reports directly to the Minister of Foreign Affairs or the Minister for Development Cooperation. The minister concerned submits the IOB reports to Parliament, where they are discussed within the Permanent Committee on Foreign Affairs with respect to follow-up action.

The predecessor of the IOB, the Operations Review Unit (IOV), was established in 1977 and carried out evaluation studies of Dutch aid policy only. Following a review of Dutch foreign policy in 1996, the mandate of the evaluation unit was broadened to include other fields of foreign policy as well. In the early years IOB's emphasis was on individual project evaluations. About 250 such evaluation reports were produced. Since then the emphasis has shifted from individual project evaluations to comprehensive thematic studies focusing on policies and modalities of implementation and covering sectors, themes or programmes. External independent experts participate in the various phases of the research under the authority of the evaluation department. Increasingly, institutions or experts in the recipient countries are invited to participate in the fieldwork.

The final reports, based on the various field and desk studies, are written by IOB's own staff and published under its authority. Among issues examined in recent thematic studies are women and development in Kenya and Burkina Faso, the Matra programme of assistance to Central and Eastern Europe, co-financing between the Netherlands and the World Bank, and export transactions relevant to development (ORET/MILIEV Review).

In 1994 studies were published on the Dutch country programmes in India, Mali and Tanzania. Similar studies were initiated on the programmes in Bangladesh, Bolivia and Egypt, followed in 1999 on a study of the Dutch development programme for the Palestin-

ian Territories. These latest studies also paid attention to non-aid bilateral relations between those countries and the Netherlands, in accordance with IOB's new mandate. Authorities in recipient countries are kept abreast of the evaluation process and are invited to comment on draft reports. A reference group consisting of external experts and Ministry staff is appointed for each study. The reference group has three functions: to advise on methodology and approach, to counsel on relevant development theories, and to give feedback on evaluation results.

Increasingly the IOB participates in multi-donor evaluations. Examples are the evaluations of the World Food Programme, the European Union Programme Food Aid and Emergency Assistance to Rwanda, and the United Nations Capital Development Fund (UNCDF).

Annex 2 Organisation of the Study

1 Terms of reference

An evaluation of the Netherlands support to the water sector and its institutional development

1.1. *Introduction*

The Policy and Operations Evaluation Department (IOB) of the Ministry of Foreign Affairs is responsible for evaluations of Netherlands foreign policy. IOB is part of the Ministry of Foreign Affairs and reports directly to the Minister concerned, who then submits the studies to Parliament. The current IOB programme of evaluations includes an evaluation of the Netherlands development assistance to the water sector with special reference to institutional development.
The evaluation covers the bilateral development activities registered as official development assistance (ODA) with the Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development (OECD).

International thinking on development assistance to the water sector has shifted over the last decades. In the 1970s and 1980s the debate on drinking water supply was focused on water and sanitation as a function of public health; in the 1990s the discussion included a wider focus on water management and on the use of water as part of environmental protection and sustainable development. Similar discussions on irrigation and drainage took place. These complementary trends provoked a search for a new and holistic approach to water resources management which includes environmentally sound water management, food security, appropriate technology, decentralisation, user participation, reforms of institutions and regulatory frameworks, cost recovery and pricing.

The international consensus on water sector issues and aid policy has been reached at a number of international conferences during the last decades. The Netherlands policy follows in general the views and policy development of the international water dialogue as formulated in the documents of the international water conferences. The Netherlands policy on support to the water sector and to the institutional development has been formulated in a number of general policy papers and recently in some specific documents on integrated water resources management and on institutional development.

The rationale for the present IOB evaluation study is the high priority attached to the activities in the water sector by the Ministry and the volume of aid for this sector. During the 1980s about 15% of the total number of project activities and of the disbursement of the Netherlands' bilateral aid were related to the water sector. For the past decade the volume of aid to the water sector has been estimated at some NLG 200 million per year. Although much emphasis has been given to the water sector itself, less attention has been paid to the institutional framework within which the activities took place. Hence the interest of the Ministry in an evaluation in this field.
The findings of the evaluation may offer information relevant to the World Water Council Conference to be organised in the Netherlands in the year 2000.

1.2. *Objective and scope of the study*

(i) Objective and key questions

The general objective of the study is to assess the significance and role of the Netherlands development aid to the water sector and its institutional development. The evaluation focuses on policy relevance, effectiveness, efficiency and sustainability of the support to the sector.

The holistic view on interventions in the water sector broadened the scope of the activities financed by the Netherlands. Water is no longer seen solely from the user perspective, but became increasingly a matter of policy discussions on the scarcity of the resource and its distribution over the different functions: for agricultural and animal production, for drinking water, for power generation and fisheries, for transport and recreation. Drainage and sanitation are directly related to these functions. Projects and programmes in the water sector were meant to contribute to these functions of water and to the institutional development in the subsectors.

The Netherlands policy with regard to support to the water sector changed over time. From mainly technical interventions with high capital input, the activities focus increasingly on capacity building and support to institutional development. This also had consequences for the types of interventions and for the participation of beneficiaries.
A relevant question is the adequacy of these institutions at the various levels to address the main problems affecting the effectiveness of services provided and the need for institutional strengthening.

In the context of the evaluation, institutional development may be defined as the process by which individuals, organisations and institutions increase their abilities and performance in relation to their goals, resources and environment. In this definition three dimensions can be distinguished: human resources development, organisational development and system development.

This offers possibilities for distinguishing between capacity building at the levels of individuals and groups, organisations, network linkages and the sector as a whole. A further distinction can be made at the national, sub-national and local level of interventions. The Netherlands contribution to the sector has been manifold: technical advice on the implementation of projects and programmes, financial assistance to the sector and fellowships. A comparison can be made between the available expertise and the actual support which has been delivered.

The objective of the evaluation can be specified by the following key questions:

- How did the Netherlands policy on activities in the water sector and in institutional development evolve in relation to international tendencies in this field ?

- How did the Netherlands aid programme relate to the recipient countries' development priorities in the water sector and to what extent did the programme respond to these priorities.

- How did the activities supported by the Netherlands contribute to improvements in the provision of services and to strengthening of the related institutions and to what extent are the results sustainable?

- How was the decision process on policy and implementation of development cooperation in this sector organised and managed with the recipient country and with other donors?

The first key question deals with the policy level and includes a focus on the position of the water sector and institutional development in Netherlands development cooperation policies. It also includes trends with regard to the water sector and institutional development in these policies in relation to international developments and to main donor policies.

The second key question covers the general situation and main problems of the water sector in the selected countries, the institutional and legal framework for the sector, the governments' policies for dealing with the main problems and improving the situation, the role of donor support in relation to government policies and the main characteristics of Netherlands development assistance in relation to specific Dutch expertise in the sector.

The third key question focuses on the approach followed by the Netherlands in supporting the water sector and its institutional development, the direct output of the supported activities, the degree to which objectives have been achieved and the identification of factors influencing output and effectiveness. This question also deals with the institutional, financial and environmental sustainability of the results of the activities supported.

The fourth key question covers the way the support in the sector was organised both in the Ministry in The Hague and at the Netherlands Embassies, the instruments applied to achieve the objectives for the sector and institutional development, the available expertise and the advisory services procured for the support to the sector.

(ii) Scope of the study

The evaluation focuses on the Netherlands support to the water sector. Special attention is paid to institutional development in the sector. This means that at the policy level the evolution of the Netherlands policy with regard to support to the water sector and in relation to institutional development will be analysed and compared with international tendencies in this area.

At the level of the activities supported the evaluation will be limited to the aid made available for the water sector through the regular bilateral programmes and those special programmes which are particularly relevant for institutional strengthening (e.g. the scholarship programme). In addition, the evaluation will concentrate on the main recipient countries and cover the period 1988 to 1998.
This focus is based on the following considerations:

- The regular bilateral programmes cover approximately 85% of all disbursements for the water sector (50% of these in Asia, 30% in Africa and 5% in Latin America)

- The bulk of the disbursements is made available to some 6 to 8 countries which are all classified as priority countries for Netherlands aid; India, Bangladesh and Egypt are the main recipients of aid in the water sector;
- The 10-year period takes account of the time required to assess relevant changes in aid policy and the effects of interventions on institutional development.

As the duration of the study is approximately one year, the number of countries for studied will be limited to four main recipients of aid: India, Bangladesh, Egypt and Mozambique. In this way, use will be made of recent IOB evaluations of which the water sector has been part, i.e. Egypt and Bangladesh. The country programme evaluation of India in 1990/92 also covered support to land and water, and drinking water. In view of the magnitude of the support to the water sector in India and the size of the country, the evaluation will concentrate on one or two states in this country.

Due to the geographical distribution and the percentage of total activities in the sector, one African country should also be included. Mozambique has been selected because of the volume of aid and the special attention to water management and institutional development of the water sector in this country.
The line of approach in each of these countries is to the main national institution(s) responsible for the water sector.

1.3. *Methodology*

The information required for the evaluation will be collected through desk studies complemented with field evaluations in the four selected countries.

In general the following methods for data collection will be used:
- Analysis of relevant literature and policy documents concerning development assistance policies in the water sector and institutional development;
- Desk study of policy documents, projects and programme files, progress reports and evaluation studies for Mozambique and India. For Bangladesh and Egypt the desk studies will be limited to an up-date of the information in the recent country programme evaluations. For recent information, files will be consulted at the Netherlands Embassies in the selected countries.
- Field studies in the selected countries include:
- An analysis of the main characteristics and problems in the sector;
- A review of government policies for the water sector and the institutional framework;

- An identification of the main technical and institutional bottlenecks in the water sector;
- An overview of the main donors to the sector and their approach in providing support;
- An overview of the Netherlands-financed projects in the institutional framework of the country's water sector.

Then the main activities supported by the Netherlands will be assessed with regard to their effectiveness, efficiency and sustainability. The starting point for the selection is the institutional framework of the sector at various levels of scale (national, regional and local, including user/client organisations). The selection includes both activities with and without specific attention to institutional development. The latter will be assessed as to their implications for institutional development.

- An analysis will be made of the role of scholarships for the water sector and their effects on capacity development and institutional strengthening;

Information will be acquired by administering a questionnaire.

The results of the studies will be made available in the following consultant reports:

- A report on the Netherlands policies with regard to support to the water sector and its institutional development;
- Report on water management and institutional development in India and Mozambique;
- Reports with an up-date on water management and institutional development in Bangladesh and Egypt;
- A synthesis report with a comparative analysis of the results of the four country studies.

These reports will be the basis for the IOB report on the water sector and institutional development.

1.4. *Organisation and time schedule*

The evaluation will be directed and coordinated by A.A. Bartelink and J.J. Sterkenburg and assisted by consultants for the analysis of the policy documents, for the inventory of the Netherlands expertise, for the field studies and update of IOB studies in Egypt and Bangladesh and for the synthesis report. The IOB staff members will direct the desk study based on studies of the project and programme files by junior researchers. The Terms of

Reference for the various studies will be compiled in close collaboration with related departments of the Ministry and with external experts in the area of study.

The study will be advised by experts at various levels:
- key team of IOB staff for the methodology and discussions on consultants reports;
- water group within the Ministry and the responsible departments DSI/MY, DSI/SB, DCO, DML and the country desks of the field studies;
- independent experts in the sectors of water management and institutional development for comments on the draft IOB reports.

In addition, the findings of the field studies will be discussed at a seminar in the recipient countries with decision-makers, other donors and users of the projects and programmes.

The evaluation study will be carried out between January 1999 and February 2000. The deskstudies start in January 1999 and will be completed in April/May. The policy review will be made in February-March and will be an important input into a workshop with the consultants for the field study to be held in April. The main purpose of this workshop is to arrive at a common approach and similar evaluation criteria for the field studies.
The field studies are scheduled between May and July 1999.
The reports of the field studies are expected to be finalised one month after the end of missions. The draft final reports will be compiled in the period between October and December 1999.

The recipient countries and the Netherlands Embassies will be involved in the studies as soon as the general Terms of Reference have been endorsed. During the orientation missions of IOB staff members the draft Terms of Reference for the field studies will be discussed with the relevant authorities, with the Netherlands Embassies and as far as possible with representatives of users' groups in the countries concerned. In collaboration with the Embassies, local experts will be contracted to cooperate in the field studies.

2 Execution of the evaluation

A first step in the evaluation was a brief literature review on institutional development, with particular reference to donor support and the water sector. Subsequently, an inventory was made of Dutch aid projects for the water sector in order to identify the main recipient countries and the volume of aid to these countries. Two junior researchers, Ms Renate Zondag and Ms Hannah Apell, prepared project files for Mozambique and the

state of Gujarat, India respectively. Both visited the Netherlands Embassies in the countries to complete the information and Ms Apell prolonged her stay in Gujarat to collect data at village level. For Bangladesh and Egypt the recent IOB country programme reports and the consultants' reports on support to the water sector were the basic documents for further analysis of the contribution of Dutch aid to institutional development.

Before the studies in the selected countries started, a seminar was organised to discuss the TOR of the evaluation and those of the country studies. In the seminar' special attention was paid to designing criteria for the assessment of institutional development. The field studies were also preceded by a desk study in which international views on the water sector and its institutional development were analysed. Moreover, these views were compared with documents specifying Dutch development cooperation policies for the water sector and for institutional development. This study was carried out by Martin de Graaf (BMB/Arcadis) and resulted in a report entitled 'Policies and Approaches to Institutional Development in the Water Sector.'

The field studies in the four countries were contracted out to:
- Roland Rodts (Rodts B.V.) for Mozambique and Egypt
- Dr John Soussan (Leeds University,U.K.) for Gujarat, India
- Bert van de Putte (Saltet & van de Putte) for Bangladesh

On the basis of the four country studies, a synthesis was prepared with the assistance of John Soussan.
The IOB evaluation study was coordinated by Alex Bartelink and Jan Sterkenburg with the assistance of Dr M.G. Bos (International Institute for Land Reclamation and Improvement).
The evaluation results are published in four reports: an IOB report and three working documents. These working documents are:

(i) Roland P.A. Rodts, Netherlands support to the water sector in Mozambique. Evaluation of sector performance and institutional development.
(ii) J. Soussan, I. Smout, A. Clemett and H. Apell, Netherlands support to the drinking water sector in India: impacts on institutional development and change.
(iii) J. Soussan, Institutional development in Netherlands support to the water sector 1988-1998, Case studies.

The various draft chapters of the IOB report were commented upon by experts on the water sector and on institutional development in the Ministry of Foreign Affairs, by water sector specialists in the Netherlands Embassies in the four countries covered in the evaluation, and by a small group of external experts. This reference group consisted of M.W. Blokland of the International Institute for Infrastructural, Hydraulic and Environmental Engineering, E. Schulze of Schulze BV, and Mrs C. van Wijk-Sijbesma of the International Water and Sanitation Centre.

Annex 2 Organisation of the Study

Annex 3 Disbursement of Netherlands aid to four countries

(An average conversion rate of 1 US$ = 2.0 NLG has been used in this study)

Table 3.1 Disbursements in the Netherlands Drinking Water Programme in Gujarat, India 1987-1998 (US$ x million)

Projects	Up to 1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total
Santalpur I	9.80	-	-	-	-	-	-	-	-	-	-	-	9.80
Santalpur II	1.50	0.85	1.05	1.45	0.35	-	-	-	-	-	-	-	5.20
Lathci Lilya	1.00	0.90	1.20	0.55	0.35	-	-	-	-	-	0.02	-	4.02
Sami Harij	3.50	-	4.00	1.90	1.05	-	-	-	-	-	-	-	10.45
Health education	-	0.06	-	0.01	0.01	0.02	0.02	0.01	0.03	0.03	0.03	0.22	0.44
Socio-econ. research	-	-	0.05	0.05	0.05	0.30	0.30	0.10	0.20	0.50	-	0.01	1.56
Gogha	-	-	-	-	-	-	-	-	-	-	0.15	0.40	0.55
R&S mission	3.10	0.10	0.05	0.10	0.20	0.15	-	0.23	0.21	0.10	0.02	-	4.26
Others	-	-	-	-	-	-	-	0.55	-	-	-	-	0.55
Total:	18.9	1.91	6.15	4.06	2.01	0.47	0.32	0.89	0.44	0.63	0.22	0.63	36.86

Table 3.2 Netherlands project aid to water management in Bangladesh 1995-1999 (in US$ x million)

	Up to 1995	1996	1997	1998	1999	Total
University BD/Delft	0.55	-	-	-	-	0.55
Compartmentalisation	5.6	0.45	1.6	1.0	1.85	10.5
System Rehabilitation	11.6	0.8	1.2	0.8	-	14.4
Char.Dev.and Settlement	1.2	1.3	3.7	2.9	1.6	10.7
Small-scale water resources	-	-	1.0	3.0	1.2	5.2
Delta development	1.0	-	-	-	-	1.0
Land reclamation	5.9	-	-	-	-	5.9
Early implementation	31.0	2.9	5.0	5.1	2.7	46.7
Flood Action	0.1	-	-	-	-	0.1
Meghna Estuary	0.9	-	1.1	2.6	0.5	5.1
Environmental GIS	0.3	0.9	2.5	1.4	1.5	6.6
Total	58.2	6.4	16.1	16.8	9.4	107.1

Table 3.3 Netherlands assistance to the Water and Sanitation Sector in Mozambique (in US$ x million)

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	Total 89-98
Sanitation	1.30	0.88	0.74	0.22	0.63	0.10	0.52	0.82	0.89	0.22	6.32
Urban and rural water supply	0.29	0.39	0.70	1.01	1.35	1.36	2.80	2.37	1.52	1.15	12.96
Institutional support to DNA/ ARA-Sul	0.16	0.16	0.07	0.26	0.38	0.41	0.34	0.38	0.76	1.11	4.04
Mondlane University	0.21	0.19	0.22	0.37	0.33	0.36	0.45	0.30	0.54	0.04	3.00
Miscellaneous	1.22	0.58	0	0	0	0	0	0	0	0	1.80
Bilateral suppletion experts	1.49	1.43	1.37	1.47	1.51	1.35	1.58	1.78	2.02	1.88	15.89
Total	4.61	3.63	3.09	3.33	4.21	3.59	5.72	5.66	5.73	4.40	44.01

Table 3.4 Netherlands Support to the Water Sector in Egypt (US$ x million)

	up to 1988	1989-92	1993-96	1997-98	Total
Drinking Water					
Cairo Water Supply					
Investment	0	3.85	0.55	0	4.40
Alexandria Water Supply					
Investment	5.20	5.80	0	0	11.00
Technical assistance	0	0.30	3.05	0.45	3.75
Fayyum Water Supply Investment	0	0	0	4.25	4.25
Technical assistance	0	1.65	5.20	2.85	9.70
Sanitation	0.20	6.30	0.30	0	6.80
Irrigation & Drainage					
Water Research Investment	0	0.65	0.25	0	0.90
Technical assistance	1.50	7.45	7.05	3.50	19.50
Drainage Execution Investment	0.10	4.80	0.15	0	5.05
Technical assistance	0.35	2.90	5.15	1.50	9.90
Fayyum Irrigation Investment	1.95	1.15	0.10	0.10	3.30
Technical assistance	0	5.25	6.60	3.85	15.65
MPWWR					
Technical assistance	0.40	1.95	2.40	1.05	4.85
Other Technical assistance	0	0	1.05	0.75	1.75
TOTAL:					
Investment	7.50	22.55	1.35	4.35	35.70
Technical assistance	2.25	18.45	30.40	14.00	65.10
Total	9.75	41.00	31.75	18.35	100.80
% Investment	76.8	55.0	4.2	23.7	35.4
%Technical assistance	23.2	45.0	95.8	76.3	64.6

Annex 3 Disbursement of Netherlands aid to four countries

Annex 4

Typology of projects in the water sector of selected countries

Type of project	Mozambique	India	Bangladesh	Egypt
Construction and rehabilitation of infrastructures	- Rehabilitation facility	- Santalpur I	- Early implementation: 1970s and 1980s	- AWGA(1975/90) - Drainage V
Construction and rehabilitation plus technical assistance as add-on for operation and maintenance (O&M)	- Low-cost sanitation - DNA/UDAAS - Maputo drainage - Beira drainage - Zambesia Rural Water & San. - Nampula Rural Water & San.	- Santalpur II - Sami Hari - Lathi Lilya	- Early implementation: 1990s	
Construction and maintenance plus technical advice for O&M and social/rural development			- Char Development and Settlement - Systems rehabilitation - Compartmentalisation (FAP 20) - Delta development	
Free-standing TA: studies and transfer of chiefly technical knowledge (on-the -job training)	- DNA/DRH (78/98) - Provincial Towns Water Sector Study		- Meghna Estuary Study - Environmental Geographical Information System - Land reclamation	- AWGA TA(1991/96) - DEMP (1986/92) - Research Institutes - Fayyum Water Management - Fayyum Drinking Water (1990/94)
Free-standing TA for human resources development/training	- Mondlane/ Delft University Cooperation		- Bangladesh / Delft University Cooperation	- DEMP (92/96) /Training Institute - NOPWASD Manag. Training
Free-standing TA for organisational strengthening	- DNA/DCRN (98/..) - ARA-SUL - SURN/SAS	Gogha		- DEMP(1997-present) - Fayyum drinking water (1994-present) - Planning project MPWWR - Water Boards project MPWWR

Annex 4 Typology of projects in the water sector of selected countries

Annex 5 Contribution of projects to institutional development*

Table 1 Improvement of human capabilities/technical skills

1.1 Egypt

project	
DRI	• Design and implementation of field drainage studies • Installation and monitoring of drainage water monitoring network • Design and implementation of computerised data storage techniques • Design and implementation of mathematical models to assess the impact of different water management scenarios • Improved database design and programming • Computer/English language training
RIGW	• Computerised groundwater flow modelling skills • Design and implementation of groundwater development plans. Production of hydrogeological maps • Installation and monitoring of groundwater monitoring network • Improved computer/English language knowledge
EPADP	• Identification and computerised design of field drainage projects • Development and operation of management information system • Modernisation of drainage-laying techniques • Improved computer/English language knowledge
FID	• Computerised water distribution modelling techniques • Installation and use of irrigation monitoring network • Design and implementation of computerised data storage techniques • Improved mechanical and manual weed control techniques • Improved designs and construction methods • Improved computer and English language knowledge
FEGAWS	• Design and implementation of network, water production plant, public tap and sanitation improvement schemes • Improved computer and English language knowledge
MPWWR-SPS	• Computerised water resources management planning models • Improved computer and English language knowledge

* *n.a.= not addressed*

1.2 Bangladesh

EIP	• Training in multidisciplinary planning • Tailor-made staff training in RRA/PRA • Training of LCS/EMG
SRP	• Training of 1200 BWDB staff in O&M
SSWRDP	• Staff training in participatory aproaches • Training of members of water user groups
CDSP	• Limited training of NGOs and members of water user groups
EGIS	• Training in geographical information systems • Training in environmental aspects • Developed database and executed research
BUET-DUT	• Training in technical aspects • Training in curriculum development • Training in some Integrated water management concepts

1.3 Mozambique

Maputo drainage and sanitation	• Maintenance and operation of open drainage and sewerage system
Beira sanitation	• Maintenance and operation of sewage pumping stations
National low-cost sanitation	• Introduction of low-cost latrine-building technology • Management of low-cost sanitation programme • Production of latrines
UDAAS technical assistance	• Design and construction standards for urban and rural water supply systems
SURN/SAS	• Planning, design and implementation of urban and rural water supply systems
Zambesia Rural Water Supply	• Improved planning, design and implementation of rural water supply system
Nampula Rural Water Supply	• Improved planning, design and implementation of rural water supply systems
DNA Hydrology Sector	Limited on-the-job training for: • Geo-hydrological database management • Collection, processing and storage of rainfall and geo-hydrological data • Planning and implementation of geo-hydrological studies • Introduction of GIS technology • Water resources planning techniques
ARA-Sul	• Geo-hydrological database management • Collection, processing and storage of rainfall and geo-hydrological data • Water resources planning techniques • Set-up of water user database
Mondlane University	• Curriculum development for water resources engineering specialisation • Installation of hydrological and water quality laboratories • Improved teaching and research capability in water resources engineering

1.4 Gujarat/India

Santalpur RWSS I	n.a.
Santalpur RWSS II	• Transfer of technical and management skills through review and support missions
Sami-Harij	No significant contribution
Lathi Liliya	No significant contribution
Gogha	No significant contribution
Netherlands Fellowship Management Programme	• Improved technical skills and appreciation of integrated water resources

Table 2 Strengthening of organisations

2.1 Egypt

Project	*Improved human resources management*	*Improved core management processes*
DRI	• Set-up of a Human Resources Unit and HRU database • Design of Training Needs Assessment and Planning System • Design of computerised personnel Performance Appraisal System	• Design of Organisational Manual and job description system • Introduction of monthly/bi-monthly internal meetings routine • Set-up of computerised Data Information System (publications and equipment database)
RIGW	• Set-up of Human Resources Development DataBase • Development of Training Needs Assessment System • Set-up of Staff Performance Appraisal System	• Set-up of Management Information System
EPADP	• Set-up of Human Resources Development Unit • Set-up of Drainage Training Centre	• Set-up of Management Information System
FID	n.a.	• Decentralisation pilot programme (strengthening district offices)
FEGAWS	• Introduction of output-oriented staff incentive structure • Introduction of staff grading system	• Set-up and implementation of Economic Management Plan • Set-up and implementation of Management Information System • Simplification and streamlining of procurement procedures
PMWWR-SPS	n.a.	n.a.

2.1 (cont.) Egypt

	Improved financial management	*Improved external relations*
DRI	• Design of computerised financial project accounting and reporting system FINDAT	• Set-up of external relations database • Formulation of marketing strategy
RIGW	• Set-up of Planning Budgeting and Monitoring System	• Set-up of client and external relations database • Regular plan of stakeholder consultations through workshops, the preparation of brochures and dissemination of research findings
EPADP	n.a.	n.a.
FID	n.a.	• Improved cooperation with other governmental departments such as EPADP and Ministry of Agriculture • Increased farmer participation through the set-up of Water Boards at the secondary canal level
FEGAWS	• Introduction of cost centre accounting • Computerisation of billing and payroll system • Regular production of financial and revenue reports	• Establishment of customer relations desks at district level • Production of brochures on safe use of water and hygienic behaviour and on-site sanitation
MPWWR-SPS	n.a.	• Establishment of a regular framework of inter- and intra-ministerial consultation and cooperation

2.2 Bangladesh

Project	*Improved human resources management*	*Improved core management processes*
EIP	• n.a.	• Introduction and operationalisation of multidisciplinary scheme planning
SRP	• n.a.	• Introduction and operationalisation of O&M • Improved tendering and construction supervision procedures • Translated the importance of O&M into institutional structure (O&M sub-divisions)
SSWRDP	• n.a.	• Introduced O&M for small schemes • Strengthened decentralised planning and implementation
CDSP	• n.a.	• Strengthened O&M • Indirectly the project promotes decentralised planning and implementation
CPP	• n.a.	• Introduced local-level water management to the concept of compartmentalisation
EGIS	• n.a.	• Strengthened overall water resources planning • Developed the concept of an independent organisation to promote studies and data collection in the water sector
BUET-DUT	• n.a.	• Strengthened education in water resources management aspects (mainly technical) • Improved teaching methods • Enhanced laboratory facilities

2.2 (cont.) Bangladesh

	Improved financial management	*Improved external relations*
EIP	• n.a.	• Establishment of cooperation with NGOs • Introduction of people's participation
SRP	• Experiment with cost recovery failed • Structural increase of O&M budget	• Strengthening of cooperation with DAE (not achieved) • Limited cooperation with BRDB
SSWRDP	• Contributed to increased O&M budgets	• Strengthened participation in scheme planning and O&M • Strengthened contractual relations for water user groups
CDSP	• n.a.	• Cooperation with NGOs promoted • Cooperation between BWDB and LGED established
CPP	• n.a.	• n.a.
EGIS	• n.a.	• Established relationships with organisations outside water sector
BUET-DUT	• n.a.	• Strengthened working relationships between BUET and BWDB/LGED

2.3 Mozambique

Project	*Improved human resources management*	*Improved core management process*
Maputo drainage and sanitation	• n.a.	• Set-up of maintenance organisation
Beiro sanitation	• n.a.	• n.a.
National low-cost sanitation	• n.a.	• Set-up of Management Information System
UDAAS technical assistance	• n.a.	• Set-up of rural water supply programme
Rehabilitation facility	• n.a.	• n.a.
SURN-SAS	• n.a	• n.a.
Zambesia rural water supply	• n.a.	• Improved store management system
Nampula rural water supply	• n.a.	• n.a.
DNA hydrology sector	• n.a.	• Introduction of regular department meetings
ARA-Sul	• Set-up of human resources database	• Introduction of regular department meetings
Mondlane University Engineering faculty	• Set-up of staff development plan	• Set-up of internal management structure

2.3 (cont.) Mozambique

	Improved financial management	*Improved external relations*
Maputo drainage and sanitation	• n.a.	• n.a.
Beiro sanitation	• n.a.	• n.a.
National low-cost sanitation	• n.a.	• n.a.
UDAAS technical assistance	• n.a.	• Establishment of structural relationship with donor community
Rehabilitation facility	• n.a.	• n.a.
SURN-SAS	• Set-up of financial accounting spread-sheet model • Introduction of external accounting control	• n.a.
Zambesia rural water supply	• n.a.	• Local community participation
Nampula rural water supply	• n.a.	• n.a.
DNA hydrology sector	• Introduction of annual budgeting exercise	• Improved communication with donor community, regional and local authorities
ARA-Sul	• Introduction of annual budgeting exercise • Introduction of regular accounting practices	• Improved communication with water users and/or participation by water users
Mondlane University Engineering faculty	• Set-up of financial administration system	• Enhancement of or relationship with international scientific community

2.4 India

Project	*Improved human resources management*	*Improved core management process*
Santalpur RWSS I	n.a.	n.a.
Santalpur RWSS II	• Involvement of NGOs: SEWA, CHETNA, Bhansali Trust and CEE in water and health education • Formal adoption of pani semities (although this is not complete)	• Attempt at establishing a socio-economic unit in GWSSB (worked for some years, but no longer functioning)
Sami-Harij	n.a.	n.a.
Lathi Liliya	n.a.	• Amreli Division: Strengthening GWSSB at Head Office and at divisional level
Gogha	n.a.	• Inclusion of community-based resources and infrastructure planning

2.4 (cont.) India

	Improved financial management	*Improved external relations*
Santalpur RWSS I	n.a.	n.a.
Santalpur RWSS II	n.a.	Involvement of NGOs
Sami-Harij	n.a.	n.a.
Lathi Liliya	n.a.	n.a.
Gogha	n.a.	• Wider involvement of NGOs and community groups in water planning and management

Annex 6

Regular courses on water management, irrigation, drainage, drinking water supply and sanitation held in the Netherlands

Legend
- • Shows course contents
- ↑ Arrow pointing to summed data
- – No data available

Name of the Course	Duration of the Course in months	Total number of participants since 1988	Participants from Governmental organisations	Participants from Non-Governmental Organisations	Participants from "the North"	Participants from "the South"	Number of female participants	Number of male participants	Funded through the Netherlands fellowship programme	Funded through DGIS bilateral projects	Drinking water supply and sanitation	Irrigation and drainage	Water Management
IHE													
International master programme in Land and Water Development	18	204	190	14	3	201	16	186	109	51		•	•
International master programme in Sanitary Engineering	18	846	751	95	30	816	95	751	342	282	•		
International master programme in Water and Environmental Resources	18	164	152	12	4	160	49	115	73	63	•		•
ILRI													
International course on Land Drainage	4	267	227	13	24	243	27	240	160	80		•	
International course on drainage execution and maintenance	1	29	24	3	5	24	1	28	0	27		•	
International course on computer applications in irrigation	1	36	20	7	7	31	3	33	0	18		•	
International course on micro-computer applications in land drainage	1	55	43	4	3	52	6	49	23	18		•	

Annex 6 Regular courses held in the Netherlands

Legend
- • Shows course contents
- ↑ Arrow pointing to summed data
- – No data available

Name of the Course	Duration of the Course in months	Total number of participants since 1988	Participants from Governmental organisations	Participants from Non-Governmental Organisations	Participants from "the North"	Participants from "the South"	Number of female participants	Number of male participants	Funded through the Netherlands fellowship programme	Funded through DGIS bilateral projects	Drinking water supply and sanitation	Irrigation and drainage	Water Management
IRC													
Management for sustainability in water supply and sanitation programmes	1	220	most	few	few	most	115	335	n.a.	n.a	•		
Monitoring for effectiveness	1	60	↑								•		
Hygiene education	1	140	↑								•		
Gender in water and sanitation programmes	1	40	↑								•		
WUA													
MSc programme Soil and Water	17	127	–	–	30	97	20	107	27	40		•	•
MSc programme Environmental Sciences	17	155	–	–	66	89	73	82	25	50			•
ITC													
Environmental systems analysis and monitoring	18	60	50	10	5	55	↓						•
Watershed management and conservation	18	147	132	15	10	137	↓						•
Hydrogeology	18	172	157	15	10	162	70	408	241	87			•
Water resources survey (tailor-made)	12	99	99	0	0	99	↑						•

Annex 7 Abbreviations

ARA	Regional Water Authorities
AWGA	Alexandria Water General Authority
BWDB	Bangladesh Water Development Board
CDSP	Char Development and Settlement Project
CHETNA	Centre for Health Education Training (India)
CMRI	Channel Maintenance Research Institute
CPP	Compartmentalisation Pilot Project
DAR	Rural Water Department
DAS	Department of Water and Sanitation
DFID	Department for International Development, formerly British Overseas Development Agency, ODA
DGIS	Directorate General for International Cooperation
DNA	National Water Agency
DPOPH	Provincial Directorate of Public Works and Housing
DRH	Hydrology Project
DRI	Drainage Research Institute
EGIS	Environmental Geographic Information Support
EIP	Early Implementation Project
EMG	Embankment Maintenance Groups
EMU	Eduardo Mondlane University
EPADP	Egyptian Public Authority for Drainage Projects
FAP	Flood Action Plan
FCD/I	Flood Control, Drainage and Irrigation
GIS	Geographical Information System
GoM	Government of Mozambique
GPP	Guidelines for People's Participation
GWSSB	Gujarat Water Supply and Sewerage Board (India)
HRI	Hydraulics Research Institute
IHE	International Institute for Infrastructural, Hydraulic and Environmental Engineering
ILRI	International Institute for Land Reclamation and Improvement
IOB	Policy and Operations Evaluation Department, formerly IOV

IOV	Operations Review Unit (now IOB)
IRC	International Water and Sanitation Centre
ISS	Institute of Social Studies
IWRM	Integrated Water Resources Management
LCG	Local Consultation Group
LCS	Landless Contracting Societies
LGB	Local Government Body
LGED	Local Government Engineering Department (Bangladesh)
MOPH	Ministry of Public Works and Housing
MoWR	Ministry of Water Resources (Bangladesh)
NEDA	Netherlands Development Agency
NFP	Netherlands Fellowship Programme
NGO	Non-Government Organisation
NWP	National Water Policy
O&M	Operation and Maintenance
ODA	Official Development Aid
PRA	Participatory Rural Appraisal
PRONAR	National Rural Water Supply Organisation
RIGW	Research Institute for Groundwater
RNE	Royal Netherlands Embassy
RRA	Rapid Rural Appraisal
RWDP	Reuse of Drainage Water Project
SEWA	Self-Employed Women's Association (India)
SRP	Systems Rehabilitation Project
SURN/SAS	Support Unit Region North/Sustainable Water Systems Project
TA	Technical Assistance
UDAAS	Coordination Organisation for Urban Water Supply
UN	United Nations
UNCED	United Nations Conference for Environment and Development
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WARPO	Water Resources Planning Organisation (Bangladesh)
WB	World Bank

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