Workshop on Water Action Plans - Experience with Alternative Implementation Strategies.

Eigtveds Pakhus, 9 September 1998.

Arranged by:
Danida and Danish Water Resources Committee.

Preface

On 9th September 1998 Danida and Danish Water Resources Committee arranged a workshop held at Eigtveds Pakhus. The subject for this workshop was "Exchange of experiences between Danish consultancy firms and Danida regarding implementation strategies of water action plans.

The workshop was arranged for an invited/selected group of companies and institutions actively working with water and environment in the developing countries.

The reasons for this workshop were amongst others that water action plans within Danida-assisted sector programming are moving in several different directions, and as a consequence of the character of the sector programming, the water action plans are now better adapted to local condition. These facts make a heavy demand on the consultants regarding knowledge of local institutional conditions, the condition between the public and private sectors, the local legislation, etc.

The exchange and reception of experiences from amongst others adaptation to the local conditions, the demands on the consultant, etc were discussed. The discussion was based on 3 selected water action plans, respective Nicaragua, Ghana and Uganda.

59 persons from 25 different companies participated in the workshop.

The workshop was arranged by a working group consisting of representatives from both Danish Water Resources Committee and Danida. The working group has also been in charge of the editing of the material for the workshop and completion of the report.

The working group consisted of the following persons:

Jan Møller Hansen, Danida Torkil Jønch-Clausen, Global Water Partnership Jan Hassing, VKI Jesper Knudsen, DHI Thorkild Thomsen, Hedeselskabet Lonny B.K. Hansen, Hedeselskabet

Table of Content

PR	PREFACE		
PA	RT ONE:	THE MAIN WORKSHOP REPORT	
1.		Oorkshop Report se Klausen, Nordic Consulting Group	5
PA	RT TWO:	DANIDA-ASSISTED SECTOR PROGRAMMING AND INTEGRATED WATER RESOURCES MANAGEMENT	
2.		sted Sector Programming and Integrated Water Resources Management y Jan Møller Hansen, Danida Copenhagen	12
PA	RT THREE	: WAP NICARAGUA	
3.	Case Study: By David M	Nicaragua Iilton and Jesper Knudsen, Danish Hydralic Institute	23
4.	•	working group: Nicaragua age Linde, Dansk Miljø Center A/S	33
PA	RT FOUR:	WAP GHANA	
5.	•	Strengthening of Water Resources Information Services in Ghana, HSD Erup and Per Møller-Jensen, Hedeselskabet	38
6.	-	working group: Ghana ov Andersen, COWIconsult A/S	45
PA	RT FIVE:	WAP UGANDA	
7.	Case Study: By Jan Has	Capacity Development in Uganda's water sector sing, VKI	57
8.	-	working group: Uganda lebæk, Carl Bro A/S	57
PA	RT SIX:	ANNEXES	
9.	Guidelines to By Jan Has	o Working Groups sing, VKI	61
10.	Agenda		63
11.	Water Actio	n Plans	63
12.	List of Partic	cipants	65

PART ONE: The Main Workshop Report

Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

The Main Workshop Report

By Anne-Lise Klausen, Nordic Consulting Group

1. Theme and Workshop Focus

1.1 Introduction

Exchange and synthesising experience with water action planning was the purpose of the theme day and workshop with, as principal target group, Danida and the Danish resource base. The day was divided into two parts:

- The morning session concentrated on plenary presentations of the broader aspects of water action planning within an international context, summing up experience to date; these presentations were followed by presentations of more detailed case study experience, drawing on examples from three countries; Ghana, Nicaragua and Uganda. In all three case studies Danida (and the Danish resource base) are deeply involved in water action planning, through the provision of finance and technical expertise¹.
- The afternoon session was a workshop, where the participants were divided into three groups. As starting point for the discussion each group drew on one of the case studies. The group discussions were structured according to key steps in the program cycle, i.e. identification, implementation and monitoring². Section 2 of this report summarises the findings of the workshop and section 3 presents the recommendations of the workshop.

1.2 Water Action Plans (WAP)- General Findings

A number of overall conclusions could be drawn from the day's discussions.

Firstly, technical issues and technical solutions are not the main constraints for effective water action plans, and planning. Technical solutions already exist and have been tested. Rather key constraints relate to organisations, institutions, policy and planning. In particular the human resource capacity in the recipient countries, to which these issues are addressed, is limited. This led to the conclusion that the type of assistance, which was most required in order to support water action planning, is institutional rather than technical. This links in with the fact that WAPs are, by their nature, long term programs requiring a long-term commitment of support. Within this context, hit-and-run missions by foreign technical experts are not suitable.

¹ All papers presented are included in this Report of Workshop Procedures and will not be summarised by the main rapporteur.

² Work in the groups was guided by a number of questions distributed beforehand.

2. The Workshop Process and Products

The three case studies served as a basis for discussion but, in order to broaden the scope of the discussion, the organisers had chosen to assign group membership, rather than leaving this to chance. Thus, only the presenter of the case study should have experience of the particular case in the country in question; other group members were drawn based particularly on their experience in countries other than the case in question. This served to broaden the discussion and to avoid that group work centred on country-specific details.

What follows are the main conclusions from these sessions following the three main headings: identification and design; implementation; and monitoring.

2.1 Identification and Design

WAPs are complex and highly political in Nature.

It was generally observed in the groups that the issues addressed in Water Action Plans (WAP) are highly political and complex in their nature, and the identification of and design of a component or program therefore requires country knowledge, political sensitivity and preparatory studies which are not rushed. It is crucial that a momentum is created which can promote motivation, need and potential ownership. Embassy staff in the program countries has a key role to play especially in the identification phase. The Embassy staff possibly with the assistance of a process consultant, local or expatriate, will be instrumental in building up a dialogue with different stakeholders. There was, however, a general concern expressed that Embassy staff did not have the required technical competence or the time to fulfil this role.

A WAP is not a project, rather part of a process, in the same way as a Sector Programme Support (SPS). In most cases, in fact, the WAP will become a component of an SPS. Both the Danida procedures and the Logical Framework Approach (LFA) were criticised for being too rigid and not appropriate for an approach, which demands flexibility. Conclusions need to be drawn from the first experiences with WAPs and with the SPS approach to consider how to modify guidelines away from rigidity towards a flexibility, which responds to concepts of recipient ownership of the process.

Because of the complex nature of the WAPs and the long-term commitments required from donors, the donor (in this case Danida) should aim for better continuity in its use of consultants. There are several ways to do this, but the key issue will be to enhance dialogue and institutional memory, and to facilitate the process of recipient ownership through the use of "trusted" consultants involved over a longer period of time. In order to achieve this, Danida will have to develop a system of framework contracts allowing flexible input when required – rather than flexible input at pre-defined stages and on pre-defined dates.

Ownership and Motivation.

Emphasis should be on setting up a program, which is embedded in national ownership, although it is likely that different stakeholders have different and often conflicting interests. This stresses further the crucial importance of not rushing the identification and design phase, and to pay attention to the political and economic interests of water resources management and to fully understand the role and interests of different stakeholders.

WAPs seem abstract to many stakeholders. Moreover, it is not always easy to define which level is "the lowest appropriate". WAPs can be very different from one country to another and in some cases

it may even be considered not to develop a WAP at national level at all, but only at regional level. In addition the WAP, by its nature, is very political and hence, will need to be a combination of bottom-up implementation strategy combined with a top-down political strategy (which also takes cognisance of regional issues).

Water Action Plans are political and institutional programs with a high degree of technical content. This combination should be exploited in the design in order to enhance ownership and motivation. Recipients need to see tangible results in terms of transfer of technical know-how and tools for management of water resources at the same time as the institutional capacity to do so is being built up. This is the combination of "walk-walk" and "talk-talk", in other words an appropriate mix of overall planning and policy interventions and some practical activities that may have high priority on the local agenda. This may also "soften" the top-down approach.

The design should be process oriented and it is therefore difficult to make a distinct separation between the phases of design, implementation and monitoring. Moreover, as process and ownership are closely linked, it is counterproductive to follow a classical blueprint approach in water action planning.

The process orientation calls for highly qualified expertise, both from Embassy staff but also from international as well as local consultants. Flexible time frames are crucial in order to ensure that external support is in place (particularly for design and implementation), when there are windows of opportunity and agreements to move the processes forward. This may imply deviations from previously agreed implementation schedules; therefore, if support is to focus on ownership, technical advisory support must be flexible. This has implications for how contracts with consulting firms are designed, moving away from a strict output model towards framework contracts.

2.2 Implementation and Process Management

Recipient institutional capacity.

Severe shortfalls are generally observed in the counterpart's organisational set-up and the human resource capacity of the counterpart institution. At the same time, program design is often over-optimistic with regard to local resources availability and capacity to meet the requirements and obligations contained in a Project Document³. This links back to the identification and design phase, which has probably been too short and based on limited local knowledge and input.

It was widely recognised by the groups that it is mostly in the institutional part of the implementation that the greatest problems are found. This led one workshop facilitator to open the discussion with the following question: "could one imagine that the competence and experience of the experts in general did not completely match the needs of the receiving agencies?"

This statement catches a central point both in the identification, design and subsequently in the implementation and monitoring of WAPs. If too much emphasis is given to technical aspects, because planners do not recognise sufficiently that it is the political and institutional issues, which are the most difficult and which constitute the real challenge, programs are likely to fail. They will tend to end up in problems of capacity gaps and problems with institutional sustainability.

Some WAPs and other water resource management program are clearly technology driven and even their technical sustainability is questionable because technical sustainability cannot be viewed independently of institutional sustainability.

³ The term project Document is here used synonymous with the terms Component Description and Programme Document.

Actors in Implementation

Bilateral assistance has traditionally been oriented towards the public sector in recipient countries. However, experience has shown that this focus should shift to include customary organisations, NGOs and private sector stakeholders, in addition to the public sector. This includes building capacity also for these stakeholders.

Using multi-disciplinary teams, stakeholder analysis should be made and updated continuously during implementation

Baseline studies covering non-technical aspects are rare. Institutional baseline and clear goals for institutional development are hardly found. Yet the development of the capacity of these institutions is key to the long-term sustainability of the WAPs. Moreover, goals related to developing institutional capacity tend to be very non-specific.

Accepting that WAPs are political in nature, and need to blend top-down political commitment with bottom-up involvement and ownership, a parallel process will be required. While national involvement needs to be assured, activities involving stakeholders at all appropriate levels need to be undertaken. Moreover, it needs to be foreseen that implementation of a WAP will impact negatively on the interests of some stakeholders. Therefore stakeholders need, at an early stage, to be involved in an open dialogue to be aware of both the positive as well as the negative impacts.

This task is too great for a donor agency to shoulder - neither is it appropriate. Rather, relevant training of involved stakeholders should be considered at a very early stage. Training needs assessments should be a standard activity in every WAP preparatory process. If the recipient country is to "own" the WAP process, the capacity needs to be developed (at all levels) to carry forward the discussions and take political decisions. Within this context, the donor (and the consultants paid by the donor) should only be facilitators.

Donors administrative set-up

The administrative set-up, under which most donors operate, has been developed for a more traditional project approach. This causes difficulties in the practical implementation of sector and process oriented programs. Thus, for example, it would be difficult for the donor's administration to allow a consulting company the flexibility to "interrupt" an assistance schedule after 3 months due to unavailability or lack of input from a counterpart - and giving the go-ahead when the appropriate situation has manifested itself.

Here it becomes important to learn from Danida's first experiences with implementing the SPS approach, and use this to develop appropriate tools, which incorporate flexibility.

The issue of institutional jealousy between donors was also raised. Although it is an integral part of the SPS process that programs are built up through the recipient country institutions, many donors are still very keen to see their own projects and programs clearly identified. It is this kind of donor "ownership" that needs to be replaced by recipient country ownership. This can only be achieved where donor coordination and agreement is strengthened, and where it is incorporated into the recipient country's steering of the process.

2.3 Monitoring

At present, process monitoring is mostly a function carried out by an external consultant; this stands in the way of building up greater local ownership of the WAP process, which is essential for success. Therefore:

Monitoring/Review should comprise all three actors involved: counterpart agencies, consultants
and the Danish Embassy. This should already be reflected at the time of the program planning
process.

In addition, due to increasing program complexity, review missions in their present form are insufficient - the expression "hit and run" missions were used in the discussion. In practice it appears to be difficult to revise/adjust the Project Document during these missions.

Therefore:

- A program should be monitored on an ongoing basis by an external team appointed by the donor. The external auditor(s) should operate as a help and guidance in the process.
- Members of the team monitoring or reviewing the WAP should not have participated in the formulation.

3. Key Recommendations

It will be found that the recommendations below are intertwined although they are presented under different headings.

3.1 Ownership

- The donor implications of the complicated ownership issue is to allow for an extended identification
 and design process involving all stakeholders in order to pave the way for ownership and thereby
 sustainability.
- An in depth understanding of the different stakeholder interests can only be built up if there is a close liaison between the Embassy and the recipient organisations. The Embassy is likely to need external assistance in this process either from international or national consultants. Such consultants shall be "trusted" and need to have flexible terms and have in depth knowledge of political processes, institutional and organisational issues as well as an overall technical expertise.

3.2 Program cycle

WAP is extremely complicated as it has political, economic and technical aspects and implications and there are many and often conflicting stakeholder relationships. This complicates the institutional and organisational settings.

This calls for an extended planning and design phase (mentioned above), but the expertise required
from the donor should emphasise the political, institutional and organisational issues. The technical
aspects are also important, and are often in higher demand by some stakeholders than the institu-

tional and capacity building elements of a program. A balance between "talk-talk" and "walk-walk" should therefore be established.

- A WAP may be national or regional in design, but it is important that it is appropriate in scope and
 ambition in a given country setting at a given time. A long-term commitment from donors will enable the recipient and the donor to make an appropriate and flexible design with an appropriate
 level of ambition.
- Baseline studies covering non-technical aspects should be included as a planning and monitoring tool. Goals relating to developing institutional capacity should be more specific so they can refer to baseline data.
- Donors should increasingly shift their focus from public institution orientation towards a broader range of stakeholders i.e. customary organisations, NGOs and private sector stakeholders, in addition to the public sector. This includes building capacity also for these stakeholders.
- In order to increase flexibility in all phases of the program cycle it becomes important to learn
 from Danida's first experiences with implementing the SPS program approach, and to use this to
 develop appropriate tools, which incorporate flexibility. A revision of the contract terms and output
 specifications for consultants is one aspect of this, but this is an integrated part of the process
 management of assistance programs.
- Monitoring/Review should comprise all three actors involved: counterpart agencies, consultants
 and the Danish Embassy. This should already be reflected at the time of the program planning
 process.

PART TWO: Danida-assisted Sector Programming and Integrated Water Resources Management

Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

Danida-assisted Sector Programming and Integrated Water Resources Management

Prepared by Jan Møller Hansen, Adviser, Danida Copenhagen

1. Introduction

The purpose and aim of this paper is briefly to discuss issues in sector programming and integrated water resources management and to provide a short overview of some Danida assisted sector programmes and projects related to integrated water resources management and water action plans.

2. Water Resources on the International Agenda.

Concern over water problems has been voiced since the UN environment conference in Stockholm in 1972. The first major international conference focusing entirely on fresh water resources was held in Mar del Plata, Argentina, in 1977. The Dublin Water and Environment Conference in 1992, and the UN Conference on Environment and Development in Rio de Janeiro in 1992 resulted among others in the principles of Agenda 21, which covers water resources in general. Also the Noordwijk Conference on Water and Environmental Sanitation held in March 1994 in the Netherlands was a strong encouragement to governments to ensure that there would be "no more business as usual" in the water and sanitation sector.

During recent years an international consensus has emerged on policies and strategies for managing water resources and for delivering of water supply and sanitation services on an efficient, equitable and sustainable basis. Hence, there have been a number of important initiatives to recognize and enhance the focus on the emerging global water resources problems and issues.

Over the past three years we have seen two new international support mechanisms or networks being established: the Global Water Partnership (GWP) representing a broad coalition of external support agencies, developing countries and other organisations, and the World Water Council dealing with long term water issues at high political level. The Water and Sanitation Collaborative Council as a forum for exchange of ideas for water sector professionals was created several years ago. In 1994 the International Water Resources Association (IWRA) was also established.

Recently World Water Council has formed a World Commission for the 21^{st} Century with the aim to develop the so-called Long Term Vision for Water, Life and the Environment for the 21^{st} Century. It will be presented at the 2^{nd} World Water Day and Ministerial Conference in the Hague in March 2000.

3. Water Resources Sector Programming

In 1994 Danida introduced a new Sector Programme Support (SPS) strategy as outlined in the publication *A Developing World* (Danida 1994). The sector programme approach is also described in details in the latest version of the *Guidelines for Sector Programme Support* (Danida 1998).

The Danish bilateral assistance includes 3-4 sector programmes in the 20 Programme Countries, namely Bangladesh, Benin, Bhutan, Bolivia, Burkina Faso, Egypt, Eritrea, Ghana, India, Kenya, Malawi, Mozambique, Nepal, Nicaragua, Niger, Tanzania, Uganda, Vietnam, Zambia and Zimbabwe. Presently there is no on-going preparation for sector programme assistance in India and Kenya due to political reasons, and a decision by the Danish Government to withhold preparation of new bilateral activities in these two countries.

4. Sector Programming Characteristics

A key issue in sector programming is the development of national ownership, and a long-term and firm commitment from Danida and the co-operating partners and stakeholders. The national ownership can be developed and enhanced at various levels such as the central and local government, NGOs, private sector, communities, households and individuals. National ownership can be also be enhanced through an active involvement of national training and research institutions, universities, consultancy companies and individual specialists. Careful planning and process management is required to develop and enhance a national ownership at various levels.

Preparation and implementation of the sector programmes should be an iterative process of intense dialogue during which the partners involved jointly assess the sector framework, and its existing constraints and opportunities for Danish assistance, and prepare concrete proposals for addressing these issues.

On the administrative side, flexibility in financial support mechanisms, decision making and various approval procedures in the Danida system and among host government institutions will be an advantage for effective sector programming.

The success of the sector programmes will also be determined by the capability and ability of the programme and its partners to adopt to the continuous economic and social changes in the society, in general, and to the changing sector environment, including sector policies, legislation, institutional arrangements etc.

There seems to be no obvious one-way of preparing, planning and implementing sector programmes, and there is a need to get away from the more traditional blue print or master plan approach. The sector programmes should to the extent possible take into account the complicated political and socio-economic processes that exist in the programme countries.

Integrated Water Resources Management

Integrated Water Resources Management (IWRM) is ambitiously defined as "a process of which aims to ensure the co-ordinated development and management of water, land and related resources by maximising economic and social welfare without compromising the sustainability of vital environmental systems". IWRM is a complex concept that involves many stakeholders with conflicting interests and demands in the water-related sectors. Operating in a political environment and managing conflicting strong interests from different sector stakeholders is

a very difficult task. The complex sector environment and the enormous challenges lying ahead are a continuous learning process for our co-operating partner, Danida and external consultants.

Danida has since 1992 continued to adopt and apply the following Dublin-Rio principles in a number of Danish assisted programmes and projects:

- 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 all its competing uses and should be recognised as an economic good.

Due to the focus on water supply and sanitation these guiding principles have mainly been applied in such projects, however, in recent years we have increasingly seen that these principles are being applied in water action plans.

The guiding Dublin-Rio principles have been well known for years, however, the difficulties often arise when these principles are going to be translated into practice and action. The principle "water as an economic good" has properly proven to be most difficult. This key principle in IWRM is widely recognised and accepted in many countries, but very few examples exist of how to practice this principle in sectors such as agriculture, energy, water supply etc. There are good examples here and there in innovative projects; however, a holistic and fully integrated approach to "water as an economic good" does not exist in a multi-sectoral environment or national framework. Although our understanding and perception of how to apply this principle often differ, there is a need to operationalize "water as an economic good" in different institutional, economic, social and cultural settings and sector frameworks. There is also a need for cross-sectoral and multi-disciplinary cooperation across traditional sectors to realise the concept of IWRM.

Despite the many achievements we must admit that many of our experiences are somehow disappointing, and there is still a long way to go before we have reached a state of sustainable water management. Despite the many good intentions and efforts to formulate visions and policies, strategies, studies, guidelines etc. assisted by multi- and bilateral organisations and international banks most countries and regions have largely failed to embark on the route to sustainable water management. Despite that the basic principles have been well known for years by governments, bureaucrats and professionals the problems and complexities of how to practice effective IWRM seems to increase day by day.

No doubt that the global need for donor assistance in the water sector and its sub-sectors is greater than ever, and that we should continue to assist national, regional and international institutions and networks in translating the Dublin-Rio principles into practice and action. In general Danida can, through its sector programme support and other types of funding, assist and facilitate interventions to create the enabling environment (the general framework of national policies, legislation and regulations), to support the institutional framework, (both within the national public and private sector framework and within an appropriate river basin or catchment structure), and to develop and set-up the management instruments required for decision makers and sector managers to plan, prioritise, allocate and regulate for economic and sustainable development.

Danida and external consultants can help to facilitate the process leading towards a more sustainable management of water resources through a cross-sectoral dialogue, dissemination of best practices, transfer of technical expertise and know-how etc. However, the political and administrative decisions necessary to achieve IWRM are the responsibility of the decision-makers, managers and key stakeholders in sectors such as agriculture, energy, water supply and industry, in general. The role of Danida is definitely not only to provide the financial means, but also to ensure that the IWRM issues are put on the political agenda, for example during annual bilateral negotiations, international conferences, meetings, networks etc. Moreover Danida and external consultants can assist, facilitate, disseminate and help planning the process of change and development in the sectors and institutions in the water related sectors, in general.

Public Sector Management and Administration

While the goal of providing sufficient freshwater to all and at the same time maintaining natural ecosystems might appear possible the more serious obstacles to progress towards integrated and sustainable management of water resources are related to public sector management and administration. Some of the major obstacles towards achieving an integrated approach to water resources is most often lack of proper public sector management, lack of human resource development and management, weak inter-linkages in administration and management, lack of sector co-ordination, unclear and fragmented sector responsibilities and mandates, etc. Defining and actually developing management at lowest practical and appropriate level is key issue and challenge for achieving IWRM

The problem often lies more on the administrative side, and in the lack of integrated management of issues closely related to freshwater needs, such as land use, and policies and practices in the agricultural and energy sectors. Other dimensions related to water stress are also the increasing competition among different water users and stakeholders; poverty, low levels of social and economic development, lack of infrastructure, etc.

In order to deal effectively with the complex problems of freshwater management it is today widely recognised that we need to tackle the underlying problems of poor public sector management, insufficient administration, highly centralised bureaucracies, lack of political and public understanding and awareness, poverty, low social and economic development, no proper mechanism for managing conflicts, competing demands and interests, etc.

IWRM involves many and complicated tasks and responsibilities are managed at appropriate levels by central, regional and local government and private institutions. Generally there is often a strong need to reorient the role of the government from being a direct provider of goods and services to that of a policy maker, enabler, facilitator and regulator of the water stakeholders. The need for decentralisation of central government is recognised by many governments, however, there are still few good examples of how this is actually done in practice. Along with support to decentralisation we should also build on the comparative advantages of the private sector and NGOs in managing water at the local level.

Ownership through Process Consultation

Developing ownership through a process of consultation is most important to make any IWRM initiative or water action plan effective, institutionalised and sustainable. Ownership should be developed through a process of visioning that will develop and consolidate stakeholder consensus on overall objectives and strategies, and through which the key stakeholders and actors at various levels will comprehend and perceive their new roles and responsibilities. Furthermore, a joint diagnosis of requirements for policies, strategies, legislation and the mapping and acceptance of

various institutional and managerial shortcomings as well as the gaps and needs for specific water resource planning, data collection and assessment activities are required.

Ownership among key institutions at central, regional and local level can only be created through a systematic involvement in all decisions on objectives, long- and short-term strategies as well as joint responsibilities for inputs, activities and outputs of the specific programmes and projects, also in terms of finance and staffing etc.

The political discussions and strategic negotiations should to the extent possible be carried out in a participatory and transparent process involving all the principal stakeholders. It is also an enormous challenge for the key sector stakeholders and the external facilitators to create a win-win situation so that change is seen as an opportunity and not a threat.

The involvement of women as the prime users and managers of water is essential to develop ownership at the local level. Moreover there is a tremendous need for enhancing the involvement of women in decision-making and higher level management in the water sector institutions, in general.

It goes without saying that the acceptance and strong support and commitment from decision-makers and managers of the key institutions are vital preconditions for any successful IWRM undertaking or development and application of water action plans.

Managing Change

It is today well known that a "business as usual" approach to water resource development and management is not sustainable and prospective for the future. We need to facilitate and manage change for development in the water sector and sub-sectors. "Business as usual" practices are still prevalent in many countries, and in most cases no fundamental integration at the planning and conceptual levels has been achieved.

Achieving an integrated approach towards water resources management requires reforms in policies, laws and regulations, and in institutions. In most cases fundamental changes in public sector management and administration are required, and we need to plan for the management of change. Institutions and their staff often need to undergo radical changes in strategy, structure, organisational culture and processes, changes that does not occur effectively overnight. We need to care about organisation and the people in organisations and how they function. For this change process to take place it is necessary to consult and involve principal stakeholders ranging from ministries, departments, regional and local authorities, associations, community based organisations etc. The change process must be carefully planned based on a continuos consultation with key stakeholders

Also the co-operating partners, Danida and external consultants to enhance the ability to respond to internal changes in directly involved institutions and organisations and external changes in the society should exercise flexibility and water related sectors, in general.

We are facing the challenge of how to plan effectively for change in a turbulent economic, institutional, social and cultural sector and sub-sector environment.

Co-ordination and Integration

Co-ordination and integration are key characteristics in effective sector programming and IWRM. IWRM require national and maybe regional co-ordination and integration between sectors such as agriculture, energy, industry, water supply and with on-going public sector reforms and decentralisation processes, if any. Moreover effective IWRM requires that the activities assisted by external support agencies are effectively co-ordinated within a national framework by the government and the key institutions having such prime responsibility of national, regional and local co-ordination and streamlining of external assistance to the water related sectors. It is not only a matter of external support agencies co-ordinating among each other with a national framework, moreover, there is a need for an enhanced co-ordination within the respective support agencies and integration and linkages between their own sector policies and strategies.

Managing water resources is a complex and integrated issue related to land use, agriculture, forestry, industrial and economic development, in general. Furthermore, understanding and applying sector programming also requires macro-economic analysis that can help to address allocation issues and conflicts by creating options, quantifying consequences and encouraging effective use of water

IWRM can lead to a meaningful form of sector programming. There is a need to apply a long-term approach and commitment to assist countries and regions to develop and utilise their full potential towards a more integrated approach to water management. If planned, designed and implemented appropriately the sector programme support can provide strategic assistance to the process and decision making on the development and management of the water resources including setting the framework for these decisions. Additionally, the sector programmes can through its components provide practical, operational and action-oriented assistance, and if planned and implemented appropriately feed actual and relevant experiences from the field to the strategic and policy level.

Capacity Building

IWRM is about change and building the capacity of institutions and individuals operating in the water sector and its sub-sectors, and capacity building is both a concept and a process leading to specific outputs.

Capacity building has come to be seen as an integrating concept combining policy, legal, institutional, and human resources issues in a holistic approach towards sustainable water resources development. Achieving sustainable management of water resources requires well-structured and organised institutions with professional and committed staff, who are operating in a positive and enabling policy and legal environment. No doubt that sustainability depends on the capacities of the involved institutions and individuals, and that qualified staff must be in position and able and willing to get involved in the project.

Capacity building is not only a matter of external assistance, whether this is financial and/or technical. Capacity building of institutions and their staff can only happen if the decision-makers and sector managers recognize the need for change. It other words, the initiatives and momentum of the change process should be generated and maintained by the management of the concerned institutions in order to effective. Change and capacity building is only effective if the understanding and acceptance for change are generated within the organisation itself.

Financial and staffing inputs also need to be in place in order to enhance the financial and institutional sustainability. Focus on planning the process is important. Keeping a balance and rightly timing of process consultation and facilitation and specific technical assistance or inputs are

important to ensure that the project gets started right, and that training and technical skills are transferred effectively throughout from planning and implementation to consolidation.

The co-ordination, quality and timing of the consultancy inputs are important to build on the existing technical, financial and institutional capacity of the involved institutions and individuals.

We should encourage and facilitate the changing roles of the prime actors in the water sector. The government needs to undergo a change from being a provider of services to an enabler, facilitator, regulator and monitor. We should support the reform of public institutions in order to deal effectively with decentralisation of functions and contracting with the private sector and NGOs. Many tasks implemented today by public institutions can properly with advantage be implemented by NGOs and/or the private sector, if the government and public institutions sets the right enabling environment and framework and starts setting new standards in public sector management

5. Challenges for Danida and external consultants in water resources sector programming

The political, institutional, economic, social and cultural complex environment involving many different sectors and institutions with conflicting interests, demands and mandates affecting water resources management makes this field an enormous challenge for our co-operating partners, Danida and external consultants.

IWRM is about change and development of policies, strategies, laws and regulations, organisations and the individuals working in these organisations, public and individual awareness, management instruments and decision making. The capability to facilitate, assist and enhance the co-ordination, integration and change management in the water related sectors, within the sector organisations and among the people working in these organisations are today important challenges. Working with institutional issues and effective capacity building efforts is also a great challenge in terms of bring about improved public sector management, organisation development, change management, human resources development and management etc.

Bringing about these changes require a solid understanding, knowledge and expertise within the water resources related fields, and in most cases specific knowledge and experience from the respective country or region might be an advantage for achieving an effective sector programming.

Depending on the type of activity and kind of tasks different skills and expertise are of course required. The challenge is to promote the principles and concepts of IWRM and being able to negotiate and deal with complex strategic, institutional and management issues that will follow in this process. In all circumstances the capability to manage processes and to enter into a constructive dialogue with decision makers and sector managers are necessary.

Capacity building initiatives for IWRM often involve the setting-up and institutionalising monitoring networks, data collection, analysis and laboratories, water quality management, management and assessment instruments such as computational modelling, geographical information systems etc. In this regard technical expertise within these fields are required as well as the ability to adopt the technologies to the specific context and to effectively transfer the knowledge and expertise to others. In all cases the technical assistance in sector programming and component development for IWRM should strike an appropriate balance between process orientation and the delivery of specific technical inputs. The technical inputs should be correctly timed so that the respective institutions and the staff are ready and able to absorb and effectively utilise the technical inputs. This calls for

flexibility in programming, financing and contracting among the co-operating partners, Danida and the external consultants.

The concept of IWRM has existed for years and is not a new concept, but very few successful examples have arisen to illustrate effective or extensive applications of IWRM over longer periods. The water action plans assisted by Danida are actual examples of how IWRM is being practised. The good and less compromising experiences of making water action plans should be analysed and serve as a learning exercise for all of us.

6. Examples of Danida assisted water resources activities

The Danida assistance related to water resources management is included in a number of sector programmes and projects in more traditional sectors such as agriculture, environment and water and sanitation. In the following a few selected examples of Danida support to water resources related activities are mentioned.

Water Sector Programme Support

The water sector programmes in Bangladesh, Benin, Burkina Faso, Egypt, Ghana, Uganda and Vietnam include various activities related to water resources among which the water sector programmes in Burkina Faso, Ghana, Uganda and Vietnam include specific components of IWRM and water action plans.

In 1993-94 the Uganda Water Action Plan was prepared through a process that led to the Danish sector programme assistance to the water sector in Uganda. This support came into effect in the beginning of 1997 and include among others two water resources components, namely "Strengthening of Water Resources Monitoring and Assessment Services" (WRAP) and the "Policy and Management Support" as capacity building of the Directorate for Water Resources (DWR). The sector programme assistance to the water sector in Uganda is envisaged to continue for the coming 10-15 years, and it is foreseen that the WRAP component will be extended into a second phase building upon the lessons learned since the start in mid-1996.

In Ghana Danida provides support to on-going government initiatives that has taken place over the last five years with a view to harmonise and rationalise the water sector. The assistance includes support to develop a national community water and sanitation sector strategy and policies as well as support to the evolving framework and national policy for water resources management. The SPS will comprise five components for sector capacity building, water resources information systems and water supply and sanitation in Volta Region, Greater Accra Region and Eastern Region. The water resource related components will have sub-components within institutions such as the Hydrology Division under Ministry of Works and Housing, the Water Resources Research Institute (WRRI), Meteorological Services Department and Institute of Aquatic Biology. The support to the water sector in Ghana is expected approved by Danida late 1998.

The sector programme support to Vietnam include among others components for capacity building for water resources management at the national level, and capacity building at the local level for the river basin management of Ca River Basin and possibly follow-up for Upper Srepok River Basin.

The sector programme support to water sector in Burkina Faso is currently under preparation, and the approval by Danida is expected late this year. This sector programme assistance will comprise existing activities and new IWRM initiatives, including capacity building for data collection and assessment, mapping of gaps and needs for IWRM, a national water action plan and a pilot project

for implementing an operational IWRM plan in the Nakanbé Basin. The IWRM component in Burkina Faso will be implemented in the period 1998-2001.

Furthermore there are a number of individual water projects with focus on activities related to freshwater resources. One good example is the Surface Water Modelling Centre (SWMC) in Bangladesh.

Environment Sector Programme Support

A number of environment sector programmes include water resources management related activities.

During 1995-97 Danida has through external consultants assisted the Government of Nicaragua in drafting an Action Plan for Management of Water Resources. The environment sector programme in Nicaragua has not yet been finalised, however, it is expected that Danida will provide support to a number of components related to water resources, such as institutional strengthening of water sector institutions, support to a coastal zone action plan, and a water action plan. A water quality laboratory has been completed with Danida assistance. The water action plan for Nicaragua is in many ways similar to the ones mentioned under the water sector programmes.

The environment sector programmes in Bhutan and Bolivia will include water and soil as integrated in natural resources management programmes, and especially in Bolivia the management of freshwater resources will be the central focus in the Danish support to the environment sector.

Agriculture Sector Programme Support

A number of the agriculture sector programmes include water resources related activities under the concept of watershed management or natural resources management programmes. This is the case for the Danish support to the agricultural sectors in Burkina Faso, Ghana, Nepal, and Tanzania.

Other Danida assisted Activities

Danida is also providing support to various regional initiatives related to water resources management. To be mentioned is the Funding recent "West African Conference on Integrated Water Resources Management" held in Ouagadougou in Burkina Faso in March 1998. Twelve Government delegations from West African countries were represented at the Conference, which produced a number of specific recommendations for further action to address the lack of integrated water resources management.

Danida will assist the consultative process on the Water Action Plan for Central America and for other activities so that the region may participate in international initiatives and benefit from them, which might continue with the preparation of regional water management frameworks supported by the Global Water Partnership. It is foreseen that Danida with assist the "Regional Conference on Integrated Water Resources Management in Central America", which will be organised later this year in co-operation with Central America Commission on Environment and Development (CCAD).

Danida is through external consultants providing assistance to the preparation of sector studies under the "Zambezi River Action Plan" (ZACPLAN).

Danida is presently exploring ways of assisting the South Africa Development Community (SADC) in fulfilling its responsibility for guiding and supporting the member states in setting up and operating river basin management institutions in the shared river basins of the region. Recently SADC has

established the SADC Water Co-ordination Unit, which will play a key role in implementing the "Protocol for Shared Watercourses".

Another interesting and recent initiative is the formation of Regional Technical Advisory Committees established in a number of regions in Africa, Asia and Central America under the framework of Global Water Partnership. Danida will continue to explore the options and opportunities for support through this global network.

Under the Mika assistance Danida and Sida will provide assistance for formulation of "The Basin Development Plan for the Mekong Basin" through the Mekong River Commission. This project is expected to commence later this year.

The Environment Secretariat is providing a substantial assistance to the UNDP/World Bank Regional Water and Sanitation Programme (RWSG) in South Asia and West Africa. Also the Danish financed Thrust Funds in the World Bank are to some extent use for water resources related activities.

7. Concluding Remarks

Danida is providing a substantial support to integrated water resources management, including the preparation and implementation of water action plans, as part of sector programme support and projects in traditional sectors such as agriculture, environment and water and sanitation.

The challenges of IWRM and bringing water action plans into practice are matters of improved public sector management and administration, changing the role of government and public institutions, changing and developing new policies, legislation and regulation, cross-sectoral and multi-disciplinary co-operation, and not at least developing the qualified personnel who should be allowed, encouraged and remunerated to perform. In other words, setting new standards in public sector performance is required in order to get away from the "business as usual" approach that has been dominating the institutions and their personnel in the public sector for too long.

Changing the role of government and public institutions often require fundamental change of organisation structure, organisation culture, managerial practice and system procedures. Reorientation and new development of education and training programmes in the technical fields related to water resources is also highly required in many programme countries in order to reorient and build up the future human resources base necessary for IWRM.

The programme countries and their key stakeholders, Danida and the external consultants are facing enormous challenges as how to play their respective and intended roles and responsibilities as required to realise the principles and concepts of IWRM and to bring water action plans into practice and action.

The water action plans implemented by the programme countries and their respective key institutions with assistance from Danida and external consultants are good examples of the current thinking and application of more practical and action-oriented water resources management. Despite the many experiences there seems to be no clear cut or blue print solutions to the complex challenges facing governments and the key stakeholders in the water related sectors for managing water resources in a sustainable manner. Bringing the principles and concepts of IWRM into practice is a continuous learning process, and the experiences both good and bad should serve as a learning exercise for all of us.

PART THREE: WAP Nicaragua Case Study and Working Group Report



Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

Case Study: Nicaragua

By David Milton and Jesper Knudsen, Danish Hydralic Institute

1. Abstract

The Nicaragua Water Action Plan commenced in October, 1995 and was originally conceived as a 15 month project, involving the major stakeholders in the water sector in a process of consultation and consensus which would result in the formulation of a National Water Policy and Draft Water Law. Supporting these major outputs was a technical review of the state of water resources on a national and selective local level, an institutional review and socio-economic studies. The project achieved much, although extensions of time were required to accomplish these, reflecting the problems and constraints encountered.

Based on an assessment of the achievements of the project and problems encountered, recommendations are made of a general nature with a view to contribute to a project design and implementation sequence resulting in a more effective and sustainable establishment of water resource management in developing countries.

2. Introduction

Water resources in Nicaragua is in general plentiful at the national level, but the uneven distribution of the resource, both in time and space, gives rise to periods of restricted availability, particularly in the drier Pacific and Central regions. The problems associated with this natural phenomenon are compounded by the fact that these areas are by far the most densely populated areas of the country, with some 60% living along the narrow Pacific belt, creating a demand for water that often exceeds supply.

Associated with the denser population in the Pacific belt is the high concentration of industries and the negative impact that they have on the water quality of water bodies. Much of the industrial infrastructure of Nicaragua is outmoded and inefficient. Processes are wasteful of water and little or no treatment is given to the large volumes of waste discharges produced. Excessive use of agro-chemicals, (particularly during the last decade), have contributed to a chronic pollution problem of the country's valuable groundwater resources, in addition to the more immediate detriment to the surface waters.

The unchecked advance of the agricultural frontier into the previously densely forested parts of the Central and Atlantic regions has resulted in severe deforestation. This activity, combined with the subsequent implementation of inappropriate agricultural practices, has triggered soil erosion and land degradation with the resulting negative consequences for river flows and water quality.

Water management in Nicaragua has historically been fragmented among a number of State institutions, with mandates often unclear and overlapping. In order to rationalise this management, the National Water Resources Commission was created in 1968 but remained rather inactive until its reactivation in the early 90's. The Decree reforming the CNRH gives it a number of functions related to water management, which in fact could – if carried out – set the basis for integrated water management.

Nonetheless, this body lacks the legislative support to implement the required fundamental changes, which could bring about improved water resources management for the future.

Following the adoption of the National Environmental Action Plan, within which the need for a Water Action Plan was identified, the Government of Denmark, through Danida, decided to support the implementation of this Water Action Plan to be executed through the National Water Resources Commission (CNRH).

The development objective of the project is to contribute to the efficient management and sustainable development of water resources for multiple uses, reflecting Nicaragua's objectives for social and economic development and environmental protection.

The particular contribution of the project in this context was defined by the following immediate objectives:

- Promote agreement among the relevant government agencies and other stakeholders on the main requirements for effective and integrated management of water resources and;
- Develop proposals for an overall sector strategy based on a clear policy and an acceptable and feasible institutional, legal and regulatory framework ,and;
- Establish effective consultative mechanisms involving all stakeholders, and;
- Develop a clear perspective and decision-making capacity in key sector institutions, enabling them
 to take direct control of further developments towards integrated water resources management,
 and;
- Increase the capacity for water resources management of core staff within the institutions having responsibilities in this sector, and;
- Outline a programme for short- and longer-term actions in relation to water resources management.

Following project preparations, Danida subsequently contracted the Joint Venture of DHI and Carl Bro International for the provision of consultancy services, with VKI and the Danish Environmental Protection Agency as sub-consultants.

The essential components of the project included:

- Rapid Water Resources Evaluation at National Level;
- Parallel National Level Diagnostic of Institutions and Existing Legal Instruments;
- Selected Local Level Water Resource, Institutional and Socio-economic Investigations;
- Formulation of National Water Resources Policy Issues;
- Preparation of Draft Water Law;
- Capacity Building;
- Definition of the Action Plan

Within the Nicaraguan Government line agencies, six are full-time members of the National Water Resources Commission, whose members are comprised of the Ministers of these agencies:

INAA	Nicaraguan Institute for Water and Sewerage
INE	Nicaraguan Energy Institute
MARENA	Ministry of Environment and Natural Resources
INETER	Nicaraguan Institute for Territorial Studies
MAG	Ministry of Agriculture and Ranching
MINSA	Ministry of Health

In addition, for the purposes of this project, the Research Centre for Aquatic Resources was co-opted to participate as an ad hoc member of the Commission and to provide counterpart staff.

Project components, defined to a large extent by the project objectives, were considered as comprising a sequential process that identified problems and sought mechanisms for their solution. Parallel processes of diagnostic review of existing institutions and legislative instruments were carried out, with the results feeding into the possible resolution mechanisms identified. Thus the methodology took the form of a three-stage process:

- identify the problems that need to be addressed;
- define the means by which the problem could be resolved, (technical, institutional, legislative, socio-economic) and;
- prepare a pragmatic plan which seeks to address these problems in the appropriate way, and with the appropriate tools, having regard to the prevailing capacity constraints and potentials

Throughout the project, the guiding principles emerging from the Río Process were respected and used as a basis for the development of the Action Plan and its components. Great emphasis was also placed on the need for the active participation of the Nicaraguan institutions and other stakeholders from the very first stages of the project to ensure that the Water Action Plan effectively became a Nicaraguan product. Wherever possible, staff from existing institutions would hence be engaged to execute relevant components of the project.

3. Achievements

The project has succeeded in promoting a common understanding and agreement among the relevant government agencies and other stakeholders on the main requirements for effective integrated management of water resources.

Following the project, there is general agreement among the government agencies on the need for integrated water management and the concept of a single authority to manage the resource. However, there is clearly some difficulty among some players with the concept of the vision for the future and the need to place to one side the problems of the present. Nevertheless, it is interesting to note that the discussion process of the draft law has served to concentrate the minds of the majority of the participants to the extent that the discussion is no longer about what is required, but how it should be achieved.

Through the local and national workshops held throughout the project, all stakeholders have been introduced to the concept of integrated water management and of the associated requirements to effect such a concept.

The immediate objective of developing proposals for an overall sector strategy based on a clear policy and an acceptable and feasible institutional, legal and regulatory framework has been achieved. The policy document provides concrete strategy guidelines to further advance in the road for integrated water management and build up an enabling environment for such purpose. The draft water law prepared by the project was based on an intensive process of consultation involving the institutions related to water management and members of the National Assembly. Regarding the institutional arrangements, however, the parallel activities of the State Reform Programme have somewhat hindered a firm definition of this aspect of the work until a clearer picture emerges from the political arena in Nicaragua.

The establishment of effective consultative mechanisms involving all stakeholders has been of limited success, due not in small part to the specific requirements of the CNRH to restrict the discussions concerning the law and policy within the participating State institutions, establishing agreement within this environment, prior to enlarging the discussion base.

Early proposals for the Draft Water Law included provisions for augmenting the CNRH with a wider group of stakeholders, including the private sector, local government and the public at large through representative bodies. This proposal, however, was not well received by the CNRH and was not maintained in the final version.

Capacity building took place throughout the duration of the project, mainly through direct involvement of counterpart staff in the project activities and participation in local and national workshops. The inclusion of a Study Tour to Mexico, in which the project team and the members of the CNRH Technical Advisory Committee participated, was unanimously regarded as providing a most valuable insight into the real issues of integrated water management. Such an exercise served to considerably enhance the background knowledge of the staff and enable them to participate actively and with more authority in issues related to water resources management.

Results of the capacity building during the first phase of the project were disappointing, but improved significantly during the consolidation phase yielding an improved capacity for water resources management of core staff within the institutions having responsibilities in the sector.

The immediate objective, to outline a programme for short and long-term actions in relation to water resources management, was achieved through the timely presentation of the Action Plan. This plan, rather than contain a lengthy list of Terms of Reference for investment projects, concentrated on the short, medium and long-term issues to be addressed which would put into place the institutional, legislative, economic and technical elements essential for sustainable evolution of integrated water resources management.

Short term measures concentrate on reinforcing and consolidating the achievements of the Action Plan project, e.g. ratification of policy, implementation of legislation, and drawing up the required Terms of Reference for the actions to be carried out in the medium term. The short-term actions identified also recognise the need for local initiatives, with the minimum of external assistance in an effort to consolidate the ownership of the process within the Nicaraguan political structure. They also take account of the prevailing economic climate, taking into account the need for initiatives with a relatively low financial requirement.

The medium term actions are predominantly technically-based, establishing a sound knowledge and information base which is fundamental to integrated water resources management. This phase is suggested to commence in approximately 2000, with the majority of the actions largely complete, or at least initiated, by 2005.

In terms of project outputs, the Government of Nicaragua now has at its disposal a comprehensive overview of the state of water resources on both a national scale and a more local level through the technical documentation issued. A Water Resources Policy document synthesises the problems identified and a framework Draft Water Law provides the legislative instruments required addressing them.

Supporting documentation on social issues was prepared, based on work in the selected "focus areas", in order to give the technical studies a perspective related to the prevailing social conditions and the perceived needs of the local communities.

The concept of economic instruments as a tool for demand management was introduced at an early stage of the project. Owing to the clear indication that their principles were not fully understood and that the prevailing economic climate was inappropriate for their early implementation, focus was shifted to the strengthening of the awareness of stakeholders of their potential use and benefits. The project succeeded in bringing together many of the diverse water users in one of the areas of Nicaragua where significant competition for the resource exists. During this workshop, ways and means of resolving these conflicts were discussed, including the possibility of the use of economic instruments.

Problems encountered

Of course, the foregoing achievements of the project were not attained without experiencing many diverse problems, some of which were successfully overcome, but others, more deep-seated in nature, contributed to some doubts as to the complete success of the project.

This section highlights some of the major problems encountered, some of which could be attributed to shortcomings in the project design and implementation and others to unforeseen events within the Nicaraguan institutional and political environment.

Project Ownership and Anchorage

The concept of "ownership" of the project has many facets. Fundamentally, it is reflected in the perceived need and interest of the recipient to be the driving force behind the project, rather than assume a passive role and reacting to project outputs without contributing to input. This ownership should preferably be present at all stages, from the initial planning activities, through project management to day-to-day execution of activities. In this context, the project generally suffered certain shortcomings.

A significant contributory factor in achieving ownership is the issue of the anchorage of the project. The project was designed around the National Water Resources Commission as executing agency, a body which, in the few years prior to project start-up, was rather inactive and had only just been reactivated. This body is comprised of Ministers from six different Nicaraguan line agencies involved in various aspects of water resources use and management. It has no permanent office or staff, technical issues being passed to its Technical Advisory Committee, itself comprised of seconded middle to upper level technical staff from the constituent institutions. The presidency of the Commission is normally assumed on a rotating basis, but during the project, the Minister of MARENA retained this.

Being comprised of Ministers, the Commission rarely met in full. In some cases a Vice-minister was in attendance, in others a representative from the senior levels of the organisation, or, in some cases, no representation was present. It was also very difficult to schedule meetings with the Commission, as the Ministers had very full agenda. Consequently, during the first phase of the project, (prior to the "Consolidation Phase"), little pro-active participation came from the Commission. This improved significantly during the later phase, mainly due to the project producing tangible outputs, (the Draft Water Law), which was, in fact, the main interest of Commission members.

During the first months of the project, the Project Management Team, (National Project Manager and Expatriate Chief Technical Advisor) made great efforts to clarify the project objectives and anticipated outputs. Nevertheless, comments received from some members of the Commission clearly indicated that some fundamental misconceptions prevailed as to the precise direction and purpose of the project. A contributing factor to this situation was undoubtedly the fact that the donor led the preparation for the project without significant involvement of the recipient. With this atmosphere prevailing, it was recognised that it would be necessary to foster the ownership of the project in the course of its execution.

Particularly during the initial stages of the project, locating the offices within the MARENA confines obscured its anchorage to the CNRH. Moreover, within MARENA itself there was a department with functions related to water resources and this group had the perception that the purpose of the project was to strengthen this department in some way. When the body of local opinion proved contrary to this, some resistance was noticed.

Nicaraguan Capacity

Very early in the project it became clear that the human resource base in Nicaragua, particularly in the water sector, is very weak. Thus the original assumption upon which the project implementation was designed was found to be, if not invalid, at least somewhat precarious. Participating institutions had, according to the project document, committed themselves to the provision of a certain minimum of support, upon which the level of expatriate involvement was based. The balance between the facilitation of a process and the implementation of a TA project relied on the careful manipulation of these resources, but the resulting combination of weak counterpart staff and restricted expatriate involvement proved a stumbling block to efficient project execution.

Local staff had most of their experience in "classic" donor engineering projects, where the perceived roles are such that the expatriate consultant "does" the work, while the counterpart collects data and performs some analytical tasks. Implementation of activities and responsibility for the final product lies with the expatriate.

In the case of the Action Plan for Nicaragua, the concept was that the expatriates should perform a facilitating role, bringing their experience into the process and presenting alternatives. But the decisions and product would be the responsibility of the local stakeholders and their staff in order to ensure a "Nicaraguan product". The reality of the situation was that the local staff required significant capacity building and, indeed, an almost complete change in their established conception of their roles. As a consequence of this combination of shortcomings, project programming suffered slippages, which were difficult to recover with the scarce expatriate resources.

National Project Manager

The issue of the selection of a suitable National Project Manager is one, which impacts on the degree of national ownership of the project. The design of the project called for strong leadership both from the local and expatriate staff.

The fact that the National Project Manager did not come from any of the involved local institutions may have contributed to the shortcoming and was exacerbated by his lack of political connections which made access to high levels of decision-making very difficult. In choosing a National Project Manager for this type of project, the emphasis should not be placed on whether or not he or she is a specialist in water resources, but more on whether the drive, dynamism and managerial skills are there. In the Central American environment, it is essential that such a person have the right connections to provide access to the political level, where the decisions are taken.

Consultative Process

The establishment of consensus requires a consultative process. The project was conceived as being responsible for facilitating discussion among all stakeholders involved in the use and management of water resources. Due to the close day-to-day contact in the workplace, the first point of contact was taken to be with the involved institutions. Mechanisms were conceived at project design, which would facilitate this interchange of ideas and promote meaningful dialogue in order to progress the Action Plan formulation. Initially, points of contact were assumed through the assigned counterpart staff, complemented by the Project Steering Committee and finally through the CNRH itself and its Technical Advisory Committee.

It should be recognised that the political environment in Nicaragua is undergoing a process of evolution and change. Decision-making is still retained at the highest levels in government institutions and hence the points of contact to acquire decisions and feedback are sparse and difficult to access without due "facilitation". Establishing institutional presence in the project team through the appointment of counterparts did not facilitate this process, since their very presence on the project indicated a relatively junior status and hence a less than adequate influence with their seniors. Those institutional staff with influence was unable to dedicate sufficient time exclusively to the project.

Communication with decision-makers thus rested on the members of the Steering Committee, whose role was clearly insufficiently defined, since they met infrequently and at times concentrated excessively on details without assuming the strategic role for which it was envisaged. Communication between this Steering Committee and the CNRH was slow and cumbersome, with considerable delays between presenting issues and receiving responses – a difficult situation in a project with established milestones to reach.

Only when the Draft Water Law was initially presented to the Commission did the process of consultation finally manifest itself in a productive way. The Danida Review of February 1997 recommended the implementation of a Consolidation Phase to the project and the contracting of an expatriate Chief Institutional Advisor who would take charge of the consultative processes. At the same time, special "Support Groups" were established within each involved institution, whose purpose was to participate in discussion of the political, institutional, economic and legal issues. The tabling of the first Draft Water Law proved to be a turning point, with something around one thousand man-hours devoted to, at times, heated discussion of this and subsequent versions. At the specific request of the CNRH, however, stakeholders outside the government, (private sector, users, NGO's etc.), were excluded from these discussions since it was required to present a product to them which had the full prior agreement of the Commission. This point was somewhat at odds with the original project philosophy and while it is indicative of the CNRH assuming ownership, it does raise the question as to how the project deals with such issues.

Within the confines of the government organisations, the consultative process involved the technical Advisory Committee of the CNRH in all aspects of project work. While this complied with the specific requirements of the Review Mission, this had its own inherent shortcomings which created serious delays to project programming. This Committee is comprised of ad hoc seconded senior technical staff of the constituent ministries of the Commission. Its primary function is to advise the Commission on technical issues only and, as such, had limited linkage with the project. Nevertheless, it was required to review all documentation issued by the project, issue comments and report to the Commission of its findings.

In practice, this was an inappropriate body to review non-technical issues. The responses the project received showed that there was a lack of both analytical capacity and seriously deficient competence to comment on such issues which were clearly outside its normal brief. While obliged to accept the recommendations of this Committee, the project occasionally found, (in retrospect), that the views of this Committee differed from that of the CNRH, thus causing some lack of direction for the project.

Project Monitoring

Monitoring of the project has been undertaken by a Quality Assurance Team, the Steering Committee and Danida. The role of the Steering Committee has been somewhat disappointing. This body only met infrequently, involved itself in too much detail and did not manage to facilitate communication between the project and the decision-makers in the CNRH. On the other hand, the QA team and the Danida review missions both helped the project to address and resolve problems encountered during the execution.

The initial phase of the project experienced considerable difficulty in establishing the necessary interaction with the institutions and, consequently, the consultative efforts were not fully successful. In February 1997, a Danida Review Mission visited the project and recommended to extend the project for a period of 10 months for "consolidation". Furthermore it was recommended to enhance the consultative process by contracting an expatriate specialist who would take charge of these issues, leaving the Chief Technical Advisor to concentrate on the technical and administrative issues. These changes subsequently proved effective for the results obtained in the consolidation phase.

The Review Mission analysed the institutional anchorage of the project and decided that it should remain within the CNRH, despite its shortcomings. It recommended that some incentives be paid to the seconded staff from the local institutions, but that this should come from the government contribution. This financial incentive proved to be instrumental in improving the attendance of the counterpart staff.

Some five months into the Consolidation Phase, a further Mission visited the project to review the progress to date and to assist in facilitating any further assistance required for the execution of the project. This Mission noted that significant progress had been made with respect to the broadening of the consultative processes but that the project adherence to the established programme of work was unsatisfactory. A contributing factor to this slippage stemmed from the still-prevalent culture among the counterparts that they were not expected to produce the final documentation, coupled with the much-reduced expatriate resources in this phase to support this activity.

Of primary concern to the Mission was the impact that the on-going State Reform Programme was having on the project and, in particular, its institutional component. During the first months of the Consolidation Phase the group of functions that define the governmental task in relation to water management were fully identified and discussed with the member institutions of CNRH. The heated debates that followed the presentation of the water law derived, precisely because the legal document defines the "what" and to some extent the "where": all functions were to be assigned to a sole water authority.

By definition, the making of a new law involves changing the present situation into a more desirable one (i.e. interests will be affected). Therefore, what is best for the country does not necessarily agrees with what is "best" for a particular institution and/or person. This was the essence of many of the institutional jealousy generated by the Project's position on the "what" and "where". As to the political turbulence, the Project was very respectful and cautious of what constitutes an internal and sovereign decision, and tried to keep informed about the developments of the State Reform process, in order to be able to accommodate the necessary adjustments within the PARH.

4. Recommendations

From the onset, Nicaragua's Action Water Plan represented a challenge to all those participating in its formulation. The concept of concentrating on the generation of a process rather than in the outputs of such a task was, as stated in the February 1997 Mission Review, a lot easier to say than implement. Especially when considering the almost non-existent technical and institutional experience in the field of comprehensive water resource management in Nicaragua.

Lessons learned through the implementation of the Nicaragua Water Action Plan can, to a large extent, contribute to the improvement of such projects by more thorough and realistic preparation. The Nicaragua case was almost certainly one of "too much, too soon", given the unrealistic expectations of local support capacity, upon which the project implementation was founded.

Probably the best solution for projects of similar nature to the Water Action Plan would be to first launch a Preparatory Phase. This phase would be directed at identifying potential local staff and consultants – in a greater number than the planned staffing – in order to conduct an intensive training program and a selection process to ensure greater success. The ideas about teamwork building could work better if efforts are initiated at this stage. Together, with immediate training needs, this phase could include the design of a training program for the short and medium term, ensuring the adequate flow of qualified personnel, as the project evolves. Visits to other countries where integrated water resources management has been successfully implemented should form part of such preparations to provide an introduction to the issues involved and an illustration of the potential benefits to be achieved.

It is also recognised that in the initial exploratory stages of a project, where donor agencies visit potential recipients to explore co-operation, donors are often told what they would like to hear and not what is the reality. A more thorough investigation is required to ensure that sufficient quality and quantity of support is available at project initiation. If this support is not present, then the idea of a Preparatory Phase becomes more relevant.

The Preparatory Phase might also serve as a mechanism for fine-tuning the initial project concept and placing it stronger in the context of local requirement, rather than imposing a pre-defined set of objectives, based on information, which might be either uncertain or emanating from a non-typical source. This latter point relates to situations where there is a significant gap in competence at local level among individuals, and a restricted level of canvassing of local opinion may result in an unbalanced or untypical view of the situation.

The use of local consultants for complex problems, such as water resources management is a prevailing problem not only in Nicaragua but also in the whole of Central America. This does not necessarily leads to the conclusion of not hiring local consultants. For that matter, specialists within institutions are also scarce or non-existent. A team compose solely of expatriate consultants is not the best solution either.

A strategy such as above would help to break the "culture" of dependence, with expatriate consultants demanded to do all the "thinking". Expatriate input for this Project was rightly conceived by Danida, in the sense of having to be of a facilitative nature, rather than of an executive one. The main problem was that no proper counterpart was available to carry out the work effectively and with reasonable quality, especially in the more unknown topics related to legal, institutional, and economic aspects.

The experiences of the Nicaraguan situation raise the question as to the appropriateness of the structure of the technical assistance, given the inherent uncertainties endemic in this type of process-related project. Clearly, these types of project do not lend themselves to be formulated on the highly structured and classical "study" type of project, where inputs and outputs may be explicitly defined prior to project.

ect start-up and the process follows a strict logical progression. Such constraints inherent in this structure are counter-productive.

Perhaps, through the mechanism of the suggested Preparatory Phase, a framework could be defined, within which the consultant was free and flexible enough to respond to the particular fluidity and nuances of the process as it progressed. Of course, the better and more rigorous the Preparatory Phase, the less "open" the framework needs to be. The flexibility might be represented in terms of establishing a dynamic balance between expatriate and local staff, reflecting the changing circumstances and capacity absorption of the latter. Early stages could see a greater expatriate involvement, gradually reducing according to project (and process), needs.

Also significant was the marked increase in level of participation and interest once a tangible product had been presented (the Draft Water law). This was also a prime concern of the Ministry of Agriculture, which had a potential loan from the IADB contingent on the establishment of some form of water right security. Their raised level of participation and pressure to produce this law once again indicates the need for the satisfaction of participating sectoral interests to enhance interests in what is essentially a process which is difficult to grasp.

Arguments have been made against the concept of identifying actions or projects early in the process. Reasons given for this have been related to the need to maintain focus on the central issues, without distractions. On the contrary, experience has shown that each participant needs to see "something in it for me" to promote his active participation. In the Nicaraguan case, that "something" was the Draft Law in the case of the Ministry of Agriculture. It is probable that if other projects or actions could have been taken to a more detailed level at an early stage, the interest and subsequent enhanced participation of benefiting Ministries might have resulted.

In almost all cases in developing countries, the knowledge base is weak and demonstrably insufficient as a basis for proper water management. This fact was known very early on in the process and could have been given more emphasis in parallel with the project activities. With this as an indicator of the potential benefits that the project might bring through tangible results, earlier co-operation might have resulted.

Follow-up of the Action Plan is another important factor. In the case of Nicaragua, this was uncertain even at project end, with the result that the local institutions were largely left to their own devices to ensure that the momentum achieved through the project was not lost.

Staff from the institutions that participated in the project activities returned to their home bases, having been given no clear indication as to their subsequent functions. It is very easy in these circumstances to lose the drive and initiative and simply return to the status quo, leaving the problem of starting-up the process almost from scratch. The very real danger exists that the knowledge and expertise gained by the local staff over the 29 months of the project will evaporate as they return to their normal duties, leaving a vacuum in the planning process which will be difficult to fill.

Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

Report from working group: Nicaragua

By Svend Aage Linde, Dansk Miljø Center A/S

Main Rapporteur Group Rapporteur Presentation Facilitator Anne-Lise Klausen Svend Aage Linde Jesper Knudsen Jens Grue Sjørslev

Jan Møller Hansen Ebbe Poulsen Claus Kern-Hansen Dan Rosbjerg Anders Dalsgaard Bent Hasholt Bjarne Madsen Thomas O'Brien Kirk Ulrik Netterstrøm Karl Aage Jørgensen Niels H. Ipsen Thorkild Thomsen **Stewart Grant** Merete Styczen Haakon Thaulow Bente Schiller Jens Bjerre Henning Lehd

General approach to assistance

The facilitator opened the discussion by noting that during the morning session three experts with a technically background had presented three cases with institutional problems as the main issues. Could one imagine that the competence and experience of the experts in general did not completely match the needs of the receiving agencies? he asked. This initiated a number of inputs and discussions leading to the general conclusion that technical experts still have a important role provided of course that they offer the existing institutional set up and organisational structure sufficient awareness. It was stated that the technical inputs often have a very motivating role and often act as door opener for dealing with institutional issues. Some of the participants expressed that the focus perhaps had changed too much from technical to institutional issues.

All agreed that a Water Action Plan is a very political issue typically involving a number of sectors, ministries and agencies at different levels. Preparation and implementation of a WAP have impact on a number of existing organisational structures (formal and informal), habits and individual positions thus

having a potential of causing fear, uncertainty and resistance. It is very important to recognise this situation and to create understanding, motivation and confidence among the involved institutions and individuals at an early stage in the project. However, this is a very time demanding process.

Motivation and acceptance. TOR and preparatory phase

To ensure a sufficient commitment and acceptance (ownership) of a WAP the TOR should be mainly prepared locally and not by Danida or a Danida employed consultant. In the Nicaragua case the national involvement in the preparatory phase seems to have been very limited. It is recognised that some assistance may be needed to identify and formulate the TOR. However, it is recommended only to assist as an adviser or facilitator - not to act as an executor. This may lead to a very long lasting procedure but during the time spent the ownership will develop. It is the experience of more participants that the Donors often compete in identifying projects including WAPs. This does not support a sufficient preparation of the projects. The Working Group recommends in general the Donors to be more demanding before funding a WAP - to take the time necessary to involve all stakeholders, to set up preconditions on national involvement and commitment etc.

It was concluded that a very comprehensive work must be put into the preparatory phase of a WAP - and much more work than had been the case in the Nicaragua WAP. All relevant counterpart actors should be identified, consulted and motivated to play an active role in the process. Different levels should be involved and awareness should be given to involve all relevant sectorial ministries, agencies, organisations, etc. The identification of existing relevant data is another key issue in the preparatory phase.

It was proposed that the Embassies should play a more active role identifying stakeholders and creating local interest and commitment ."Scouts" without an official Danida/Donor attitude/status were also proposed being used in the preparatory phase to obtain a more realistic picture of the national interest and commitment.

WAP may seem very abstract to many stakeholders. Presentation of demo projects, visits to countries with implemented WAPs, workshops etc. were proposed as some tools to be used during the preparatory phase to create ownership of a WAP.

When a WAP and how?

A WAP may be relevant to many countries but meaningless to others depending not at least on the water resources available. Recognised conflicting interests on use of water resources immediately prove that there is a demand for a WAP. In other cases there may be a severe demand for the future although the conflicts are not yet visible. In some cases a demand may be linked to long term effects that are not yet identified e.g. the effect of pollutants.

Thus, it is important to consider a WAP only where it is relevant and appropriate and it must be recognised that WAPs can be very different from one country to another. In some cases it must even be considered not to develop a WAP on a national but only on a regional basis.

"Implementation at the lowest appropriate level" is normally recommended. However, as a WAP in its nature is very political not only of bottom-up implementation strategy should be considered but also a top-down strategy. In fact it is the general conclusion that a WAP project should probably always be initiated at the top - at the political level. This should not hinder a timely parallel activity towards stakeholders at lower levels. It must be foreseen that implementation of a WAP will impact the interest

of some stakeholders negatively. The stakeholders should at an early stage in an open dialogue be well informed also on such negative impact - not only the positive demos should be presented.

More participants highlighted that relevant training of involved stakeholders probably should be considered at a very early stage in the preparatory phase. At least an assessment of the level of education and training needs should be a standard activity in every WAP preparatory phase.

Designing a WAP

What makes a WAP different from other type of projects? Identification of such differences may provide us with very valuable guidelines for designing a WAP project. The Group identified the following main issues as characteristics to a WAP

- a project with a very strong political input and impact
- the demand for a WAP may not always be obvious
- the number of stakeholders is rather huge this put special demands on the management structure of the project
- WAP may be very different from one country to another
- the content of a WAP may be very abstract unless well demonstrated with examples
- WAP causes severe impacts on existing institutional set up etc.
- Steering Committees may be very political
- political conditions will probably change during the project
- severe conflicts between stakeholders interest can be foreseen
- demand for flexibility in project set up (project document) is tremendous
- preparatory and inception phase will be extraordinary long lasting
- project impact must be seen in a long term perspective

Is was a general recommendation from the group that an improved flexibility in the Danida system was advisable in such WAP projects. More time and money must be allocated to the identification and preparatory phase. Time schedules and activities must be considered very flexible during implementation and delays and changes must be expected.

Project reviews should recognise the basic conditions and difficulties of a WAP project and should be executed with accordingly flexibility. Regular/continuos monitoring should perhaps be considered instead of traditional reviews. Improved indicators for monitoring project progress and impact in WAP were discussed. Access to base line data was mentioned as a key point in obtaining more realistic and useful indicators. It was also discussed during what time span monitoring of impact should be performed - of course during the project but may be also a number of years afterwards.

WAP and SPS

The relations between a WAP and the Sector Programme Support (SPS) were discussed. A number of different views were brought forward from the participants. In summary these views supported what had already been said:

A WAP is not in itself a well-defined concept - it may be very different from case to case.

In general it was found that there is no conflict between SPS and WAP - in fact the Group expresses its view as the following two statements:

"A WAP is a natural backbone in a SPS"

"A WAP is a very reasonable initial activity of a SPS".

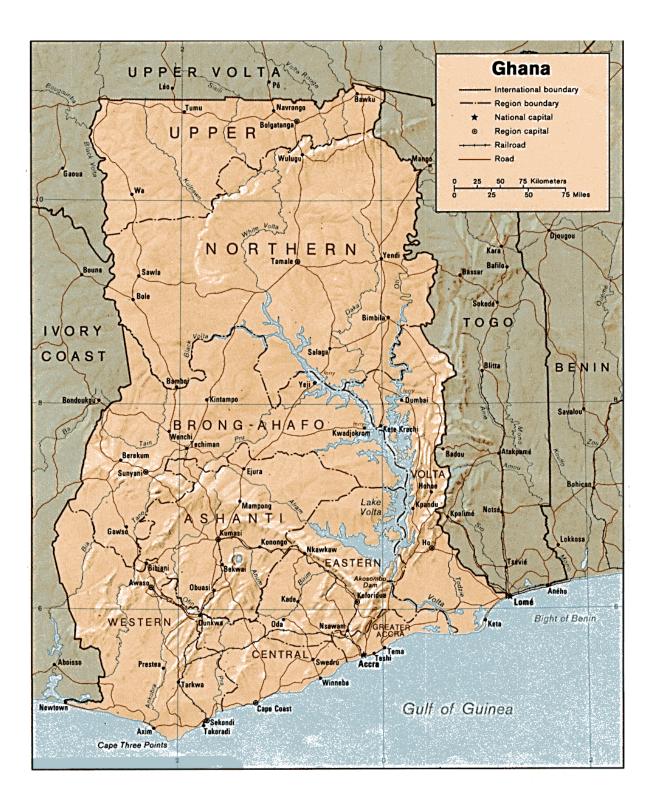
Appropriate Management

During the discussions a new concept was proposed by one of the participant:

Appropriate Management (Structure)

Low and appropriate technology is normally recommended in implementation of technical projects. Likewise it was proposed also to recommend the introduction of not too complicated and advanced management principles and structures when dealing with WAPs and similar projects with a significant institutional impact. Expectations and ambitions on managerial development should always be kept on a realistic level and well balanced with the traditions and organisational structures at the counterpart. This does not exclude training in more advanced management approaches in individual cases.

PART FOUR:
WAP Ghana
Case Study and Working Group Report



Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

Case Study: Strengthening of Water Resources Information Services in Ghana, HSD

By Jørgen Erup and Per Møller-Jensen, Hedeselskabet

1. Abstract

The project "Strengthening of Water Resources Information Services in Ghana, HSD" is a component project of a large scale cross-sectional water management strategy set-up by the Ghana authorities and the World Bank (WB) in co-operation, known under the title "Ghana Water Resources Management Study".

The development objective of the project is to support sustainable use of the national water resources of Ghana through improved surface water resources information and assessment services.

Danida and the Government of Ghana finance the project in co-operation. Danida finances new hydrometric equipment, external consultants and training.

A joint venture of Hedeselskabet and Nellemann, Nielsen and Rauschenberger has been contracted by Danida to provide consultancy services. The roles of the consultants are mainly as advisers, i. e. "facilitators". Actual implementation including among others construction and installation work for rehabilitation of river gauging stations in the field is carried out by the Ghanaian staff at Hydrological Services Department (HSD).

2. Brief description of the project

The "Ghana Water Resources Management Study" has become necessary because of the role that is played by the water in the development of Ghana. Hence, the power supply is based on hydropower installation - mainly the Akosombo dam and the Volta lake - irrigation is expanding because of a higher demand of crops to the expanding population which again results in an expansion of the water supply sector and the pollution pressure on the surface water environment. Furthermore, fishery and fishponds along the rivers and tourism play an increasing role of the economy in Ghana.

The overall WB designed project is composed of six inter-related study components, namely:

- Social, Economic & Political Context
- Regulation
- Economics & Financing
- Institutions & Participation
- International Waters
- Information

Social, Economic & Political Context:

Preliminary study for the definition of needs and refinement of historic water resources management practice.

Regulation:

Examination of the legal and regulatory framework of the water management including water rights, water abstraction, etc.

Economics & Financing:

It has become clear that the scope of the required investment in water development is beyond the means of the Ghana government and external assistance.

Institutions & Participation:

Examines the institutional framework from central government institutions and agencies to the private sector and NGO's.

International Waters:

This project component deals with the trans-boundary rivers, in particular the Volta River that is shared among several countries in the region.

Information:

The objective of the information study is to present water resources information to decision-makers and stakeholders and further to ensure effective use in the political dialogue and development.

The project component "Information" is handled and financed by Danida. "Information" comprises four individual projects to be implemented under three different governmental institutions:

- Meteorology Meteorological Services Department (MSD)
- Surface Water / Hydrology Hydrological Services Department (HSD)
- Ground Water Water Resources Research Institute (WRRI)
- Water Quality Laboratory Water Resources Research Institute (WRRI) previously Institute of Aquatic Biology (IAB).

Under the "Information" component Danida also supports:

 Water Resources Commission under the Ministry of Environment, Science and Technology (WRC). The WRC will in the future have a key role in water resources management in Ghana as the body to control, manage and regulate water resources.

The surface water component "Strengthening of Water Resources Information Services in Ghana, HSD" is located at Hydrological Services Department, and has the following immediate objectives:

- a well maintained modest surface water hydrometric monitoring network satisfying the basic needs of the country;
- improved capability of HSD to store and process the data collected and to perform assessments;
- improved communication between HSD, the end users and the other sectoral institutions;
- collected, processed and disseminated comprehensive surface water hydrometric data.

The background for the surface water project is the following:

A surface water monitoring network already exists in Ghana. The first river gauging stations were established in the 1920es. However since the 1970es coverage and functioning of the network has gradually declined mainly due to lack of economic resources for maintenance, repair and travelling to take field measurements. The situation at the start of the project was that daily water level readings were collected from about 100 river gauging stations, but flow measurements were very seldom taken, water quality was not monitored, field installations and instrumentation were not regularly maintained and repaired and very few hydrological assessments were made.

The project is defined in a Project Document dated February 1997. Work on the project was initiated in August 1997, and an inception report, containing a detailed plan for phased implementation of the project over a 5-year period, was prepared by the Ghanaian project manager and the Danish project manager adviser, November 1997. During most of 1998 the Ghanaians have worked on the project implementation without support from external consultants in Ghana.

The first annual monitoring of the project by Danida's monitoring consultant was carried out in April 1998.

The Danish project manager adviser is scheduled to work in Ghana again in the period October - December 1998 followed by a three month assignment each year over the rest of the project period.

From the objectives stated above it is evident that the surface water monitoring project is only a small part of the action taken through the Water Resources Management Study. However reliable information about the water resource is the basic for all the decisions made and actions taken. It is therefor urgent that the project lead to gaining of reliable and useful information about the water resources and that the information established meets the requirements of the decision makers.

To obtain the most sustainable solution Danida decided to arrange the implementation phase by phase, say Ghana has been divided into five regions where the implementation will be made region by region. Furthermore, the project output will be integrated in the existing organisational set-up and support the process of institutional capacity building and human resource development. The idea is to directly involve agencies and staff in taking responsibility for the implementation of the project activities. For the co-ordination of the overall Water Resources Management Study a Study Steering Committee (SSC) has been formed. The members of the SSC are representatives of the stakeholders such as ministries, institutes, NGO's and the private sector. Donors participate as observers. The objective of the SSC is to form a sustainable water resources management strategy on the basis of the study components and to ensure co-ordination, implementation and dissemination of the study. Furthermore, the SSC is the natural co-ordinating agency for the formal communications links.

3. Analysis of the project

Identification and Project Design

It is obvious that reliable water resources information is necessary for rational planning and management of the water resources of Ghana. The technical design of the project has been made to obtain this main purpose. However, in order for Ghana to get the highest possible and lasting benefit from the project it is also necessary that:

- 1. The project must be sustainable, i. e. it must be ensured that the project can be continued after the project period. This has to do with economical aspects as well as project management and "ownership" of the project.
- 2. The information provided must actually be used for planning and management of the water resources of Ghana. This has mainly to be ensured through organisation, management, coordination and assignment of overall responsibilities and authority in the water sector in Ghana., i. e. with implementation of other parts of the Ghana Water Resources Management Study. The role and purpose of the surface water information component is to collect the necessary data and use them to extract the needed information. A strongly expressed requirement from users/ stakeholders will probably augment engagement and enthusiasm of those working with the surface water information component project.

The economical commitment of the Government of Ghana (GoG) is clearly defined and stated in the project document. The annual allocations from GoG of funds for recurrent expenses is required to increase gradually during the project period to reach a level corresponding to full sustainability at the end of the 5-year project period. Part of the work carried out by the project manager adviser during the inception phase was to make a review of the already estimated recurrent costs.

The size of the project, particularly the number of river gauging stations in the rehabilitated hydrological network, is designed as a compromise between what would be technically preferable (large project, more gauging stations) and what is considered to be sustainable in Ghana after the project period given the limited economical resources. The agreed compromise entails 76 river gauging stations. Sustainability after the project period is a crucial factor for success. As a consequence it is very important to ensure that GoG allocates funds for the project according to the agreement. The alternative, if economic contributions from GoG are not met, will be adjustment i. e. reduction of the project size.

The project is designed so that it should be clear that the recipient is the "owner" of the project. According to this strategy, the implementing agency, Hydrological Services Department, HSD, should assume responsibility for and be the driving force in the implementation process. It is assumed in the Project Document, that the HSD has the capacity to do this.

HSD is at present a department under Ministry of Works and Housing. HSD's staff consists of some 130 employees at the head office in Accra and 7 regional offices. Each regional office is responsible for data collection and maintenance of equipment and instrumentation in a region.

The "project owners" have appointed a senior hydrologist at the head office of HSD as project manager. The actual work with field constructions etc. has to be carried out by the local staff in each region assisted by ad hoc assigned staff from the head office.

The Ghanaian project management should assume ownership and responsibility for the project implementation from the very beginning. Input from external consultants is limited in time and scope. The role of the consultants is to give short term inputs mainly as assistance to the local project manager in the planning process, advice on technical issues and training of staff. Hence, the project manager adviser is assigned to on-site activities of 17 man-months over the complete project period of 5 years. After the start-up period this amounts one 3-months period per year. In addition the project receives an input of 11 man-months of expatriate short term specialists in instrumentation, sediment transport, water quality and procurement issues.

To establish a much needed cost accounting system for HSD a local accountant firm has been engaged on a sub-consultancy contract.

During most of the project period the work has to be carried out while no expatriate consultants are present in Ghana.

As elaborated below, various problems and delays have been encountered at this early stage of the project. Some of these problems might have been avoided (or postponed) with a full-time expatriate project manager in Ghana. It is however believed, that it is better to encounter and deal with these problems at the start of the project than to postpone them till after the end of the project. It is believed, that the strategy of local "ownership", a Ghanaian project management with main responsibility for the project implementation, and a relative limited input of external consultant manpower mainly for advice and training is basically a good approach, which is likely to lead to a sustainable project that will in the long run be beneficial for Ghana.

4. Implementation and Project Management /Problems

Although the project is still in an early stage, a number of problems concerning implementation and management of the project are starting to emerge. Some of these problems are outlined below:

Release of Ghanaian funds for recurrent costs

Budgeting and release of funds from the Government of Ghana to HSD and the project has to be done through the Ministry of Works and Housing and Ministry of Finance. The project manager and the director of HSD have so far been using a considerable amount of time and effort trying to convince the ministries that funds must be released according to the government agreement about the project. The first annual review of the project by the monitoring consultant in April 1998 assessed that the financial obligations of GoG for the project had not been completely fulfilled so far.

Achievement of Ghanaian ownership and responsibility

The need for the recipient to assume "ownership", and for the Ghanaian project management to take the responsibility and initiative and to become the driving force in the project has not yet been fulfilled. The person, appointed as local project manager, is one of the most senior and capable employees at HSD. However, although this person has, in theory, been released from his previous duties and work assignments in order to be able to give his full attention to the project, this has not been the case in practice. The project manager is frequently called upon by the ministries and by the director of HSD to deal with issues not directly connected with the project.

Project Management and Danida requirements

The problem of the project manager being overloaded with tasks, some of which are not even directly related to the project, became evident already at a very early stage of the project. Assignment of supporting staff and delegation of tasks and responsibilities to other employees was strongly recommended by the project manager adviser. The project manager did agree to these suggestions in theory, but the approach was never implemented in practice to any large degree. The hindrance probably has to do with maintenance of established positions of power and authority in the organisation.

For a Danish expatriate project manager, the Danida Strategy and the necessary documentation is probably easier to grasp and follow, than for a local project manager from within the recipient organisation. Inception report, Progress reporting, accounting procedures etc. required by Danida may be well known or logical for an expatriate project manager. As a consequence the project manager adviser handles the real responsibility for these assignments. However, when the project manager adviser is present at the project in only 25 % of the year, this work can hardly be handled to the extent required

by Danida. Interruptions, delays etc. must therefore be expected when placing the managerial and administrative responsibilities on a local key person.

Achievement of permanent host country office accommodation

The office accommodation of the Hydrological Services Department had to be vacated during the first months of the project because the ministry urgently needed the offices for alternative purposes. This lead to accommodation of the HSD including the project team in temporary provisional offices distributed between different ministries and without telephones and other necessary facilities. It was promised at the time, that suitable offices for HSD and the project would be provided in a few month's time, but this has been delayed, at present about 9 months. Apart from the immediate practical setbacks for project communication, co-ordination etc. this also indicates that the Ministry of Works and Housing is not given the project a very high priority.

Delays of the project progress

Most of the processes and activities, to be carried out in the first phase of the project, have been delayed. The delayed activities include: Field work, preparation of quality assurance guidelines and preparation of progress reports. Reasons for the delays are several, including adverse weather conditions, major power failure in Ghana, forced re-location of the Hydrological Services Department to unsuitable office facilities and delayed release of funds for the project from the Government of Ghana. It is however considered that the main reason for the delays is the insufficient priority given to project management issues combined with a general culturally determined attitude that delays are normal, inevitable and acceptable. For an external adviser present at the project about 25 % of the time it is not feasible to change fundamental and well established practices and patterns in the recipient organisation, not even if and when such changes might be considered highly desirable.

It was planned, that during the prolonged periods while none of the consultant's personnel were in Ghana, communication between the project and the consultant's home office in Denmark should take place as and when needed by use of e-mail. An e-mail connection was established in February 1998 while the consultant's personnel were in Ghana.

Overall project co-ordination and data requirements.

A final problem concerns the inter-relation between the surface water component project and the overall Water Resources Management Study. Every stakeholder from Volta River Authority to the Irrigation Development Authority expresses the need of reliable surface water resources data and assessments when interviewed. However requirements are not expressed very explicitly and an authority having the overall responsibility for integrated water resources planning, management and co-ordination is not very visible or outspoken in the Ghanaian society. It is hoped, that this situation will be improved as the various parts of the Ghana Water Resources Management Study gains momentum and the Study Steering Group and Committee and the Water Resources Commission progress with their activities.

5. Monitoring of the Project Processes and results

The progress of the project is monitored by Danida's Monitoring Consultant at annual reviews carried out in Ghana. The first annual review took place in April 1998.

In addition the progress of the project is to be followed by regular progress reports to be prepared by the Ghanaian project manager every half year.

Other contacts between the project management and the donor are taken through the Danish embassy in Accra. Donor funds for procurement of equipment etc. are released through the Danish embassy in Accra.

6. Recommendations - Lessons Learned

Delays of the processes, as compared to the planned time schedules, were already anticipated in the project document. As stated in the project document the inputs, in the form of Danida funds for equipment and expatriate advisers, should be adjusted according to the delayed progress. Also allocation and release of funds and other resources from GoG to the project are, and should also in the future be, very closely monitored in order to verify that GoG fulfils its obligations according to the agreement. As stated in the last annual review report from Danida's monitoring consultant, shortfalls in GoG financial contributions should be matched by proportionate reductions in the Danida contribution.

If the project management problems prevail resulting in further considerable delays, something will have to be done, but the best solution is not evident. Increase of the resources allocated for training may be considered. In particular, it might be considered to supplement the technical assistance with consultant assistance or training courses aimed directly at improving management and organisational capacity at HSD. Alternatively, employment of the local project manager directly under Danida might be considered in order to facilitate his release from tasks and activities not related to the project and in order to increase his obligations and responsibility towards the project. If such an approach is chosen, the possible consequences for the sustainability of the project after the project period should be very carefully considered.

Activity from the Water Resources Commission (WRC) under the Ministry of Environment, Science and Technology concerning integrated water resources planning and management has not yet supported the activities at the HSD. Clear and specific requests to HSD, e.g. from WRC for hydrological data and/or assessments, would serve to highlight the project and stress the need to progress with the surface water component with determination and drive. Such activity might also support the awareness of the project's importance at ministerial level so that allocation and release of the necessary funds for recurrent expenditure is more easily obtained from the GoG authorities.

Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

Report from working group: Ghana

By Lars Skov Andersen, COWIconsult A/S

Please note this is the original list of participants, NOT the list issued at the meeting.

Main Rapporteur Anne-Lise Klausen

Group Rapporteur Lars Skov Andersen (LSA)

PresentationJørgen Erup (JEP)FacilitatorJan Kieler (JMK)

BOE
BVI
Bo Vangsø Iversen
CA
Chr. Amnitsøe
ESJ
Erik Sjørslev Jensen
GJ
Gunnar Jacobsen
HJH
Hans Jørgen Henriksen

HLHenrik Larsen Inge Schou IS JA Jens Andersen JDI Jan Dietrich JG Jens Gregersen JRJ Jens Raunsø Jensen LS Lillian Skjernaa PC Peter Christensen Roar A. Jensen **RAJ** SH Steffen Hvam **TDH** Torbjørn Damhaug TJC Torkil Jønch-Clausen TMI Torben Moth Iversen

Design

Issues:

- 1. More resources to identification
- 2. Recipient define problems
- 3. Courage to start airy projects / pilot projects / trial and error
- 4. Framework plans and Management By Objective
- 5. DK comparative advantages should be exploited and promoted
- 6. Mandate and context in relation to host unit
- 7. Cross sectoral approach
- 8. Physical outputs vs. long preparatory phase / capacity building
- 9. SPS guidelines for water to be linked to SPS for agriculture, Danida to ensure co-ordinated approach to development assistance.

- 10. Action Plans should be longer and flexible, but with well defined steps, defining objectives for the work rather than actions.
- 11. Co-finance condition for ownership

Notes and comments:

SH	Step 1 should be problem identification by the recipient country. Important not to concen-
	trate on authority responsible for water resources. What are the opinions of other minis-
	tries, who have to fund operation and maintenance.

JG Is WAP the actual project identification. Financial sustainability is imperative.

TJC Cross-sectoral interest generation is imperative.

ESJ Ownership cannot be over emphasised.

BOE Demand for information. No expressed demand for data in Ghana. Hence no need for project?

TJC Donors have not been attracted to information collection. WMO has had ready projects in

many countries.

HJH Resources protection, where is it?

Implementation

Issues:

- 1. Framework plans and Management By Objective
- 2. Permanent consultants to be attached / associated to SP to ensure continuity
- 3. Donor co-ordination
- 4. LFA too rigid
- 5. Flexibility versus accountability
- 6. Flexibility versus objectives and goals
- 7. Action Plans should be longer and flexible, but with well defined steps, defining objectives for the work rather than actions.
- 8. Improve co-operation on contract implementation, i.e. Danida to support rather than control (Conditionalities). More resources to embassies.

Notes and comments:

Agreed LFA too rigid. Danida structure too rigid.

BOE WAP is not a project, WAP is a process, in the same way as the SPS. Danida needs to associate long-term consultants to SP / WAP and continue with the same staffing.

RAJ No conflict between long term and project specific. Local staff should learn how to identify problems. The WAP is a good process for problem identification.

SH Long-term adviser who is out for years versus short term recurrent advisers. In Problem Identification focus broadly on users of data.

Recommendation

Danida should aim for better continuity of consultants in order to enhance dialogue and institutional memory. Perhaps by a permanent consultant (with periodic inputs) in the supervising role.

JMK Pressure for tangible physical output? Both from recipient countries and from Danida.

JEP Many (in Ghana) were looking for tangible outputs (other than paper). TDH Donor commitment and co-ordination. In Ghana Danida is ahead of overall project due to lack of coordination.

JDI Authorities are the implementing agency for donor driven / programme driven projects. Hence we must go into training, analysis, etc.

JDI Conditions for implementation are important for success. Daily needs that cause the project to capsize. What makes projects capsize. The process between the TA - Counterpart - Danida. Recommendation is to improve contractual co-operation.

Monitoring

Issues:

- 1. Process indicators are missing
- 2. Indicators, which to use; e.g. success to mobilise interest and resources

Financing

Issues:

LSA

- 1. Funding / sustainability / recurrent costs
- 2. To what level should we go into funding, require government to introduce new mechanisms for funding
- 3. Level of available Government funding may decide level of WAP ambitions

Notes and comments:

	110 11 10 10110 50000 1110110 51 11 11000 1100 51 1101 1101 1101 1101
JMK	Budget support necessary?
JEP	Co-finance necessary, in Ghana the staffing. Own financing a condition for ownership
	Rather than channelling through water department, subsidies could be directed. Irrigation
	associations should be strong enough to establish bank account, and themselves govern the
	use of funds.

How to fund state management of water resources, i.e. the Action Plan

LSA Water fees, Technical gap on water as economic resource.

TJC Operationalise water as an economic good, not good at support to countries.

JG Where should the funds come from

Relation to sector programme

Issues:

1. WAP to define sector program and to be followed by SPS

Notes and comments:

BOE	Relation between SP and WAP. WAP should be called sector programme.
GJ	Agricultural sector is held up by lack of WAP. Management by objectives.
TJC	General recommendations for environment also applicable to WAP & SP
BOE	WAP is not a project, WAP is a process, in the same way as the SP. Danida needs to
	associate long-term consultants to SP / WAP and continue with the same staffing.
SH	Long-term adviser who is out for years versus short term recurrent advisers. In Problem
	Identification focus broadly on users of data.

JMK Danida has internal conflicts between SP. Recommend that the integrated aspect is respected in the SPS.

SPS versus poverty alleviation

Issues:

1. Poverty alleviation versus SPS focus at high level

Notes and comments:

JG	I Burking	thoro will b	e assessment	of local	NGO'c
JCi	i Burkina	tnere wiii n	e assessment	or local	NUU S

LSA In SWAP we have pilot projects at local level for poverty alleviation among individual schemes

JDI Parsi river rehabilitation project also includes co-operation with local NGOs.

ESJ The groups who fall outside official development assistance, may be assisted through NGOs.

BOE Can we incorporate rules that acknowledge the lowest appropriate level and its traditional rights.

New technical background

Issues:

1. Water as economic resource is a technical gap, both in terms of analysis but also in terms of potential methods of implementation

Notes and comments:

JMK The problems mentioned are all social, economic and organisational, whereas the technical background seems to be in order.

The societal element did not receive major response.

JDI Which Conditionalities should be set for transfer of funding and technology. We should exploit the Danish resource base, e.g. if we want to do WAP we should offer WAP.

Danida role

Issues:

SH

- 1. SPS guidelines for water to be linked to SPS for agriculture, Danida to ensure co-ordinated approach to development assistance.
- 2. Danida to strengthen donor co-ordination and agreement

Notes and comments:

LS Courage to start open-ended projects. Establish contacts, then develop projects.

JDI Conditions for implementation are important for success. Daily needs that cause the project to capsize. What makes projects capsize. The process between the TA - Counterpart - Danida. Recommendation is to improve contractual co-operation.

Management by objective. Danida has several ties and actors beyond TSA..

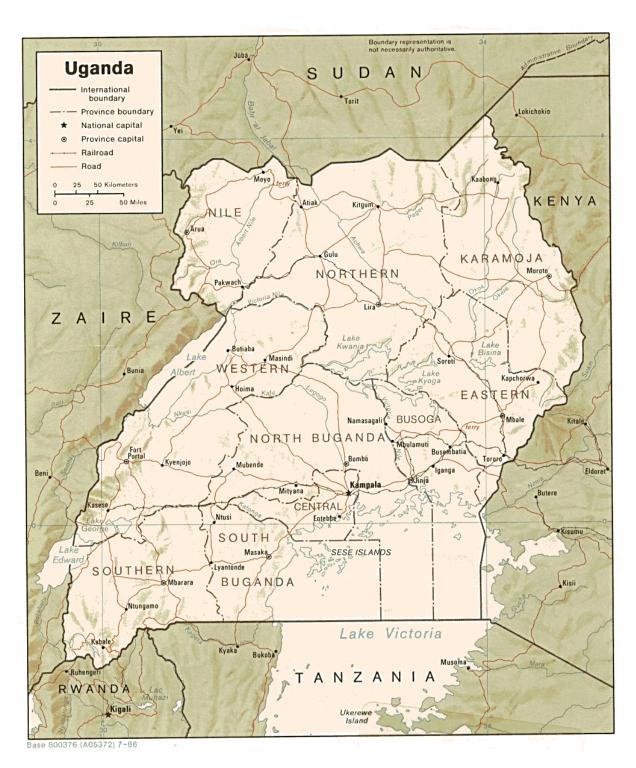
Agreed LFA to rigid. Danida structure too rigid.

ESJ Flexibility requires definition who take responsibility for flexibility, so zig-zag is avoided.

No loyalty for previous decisions.

JDI Embassies should be stronger

PART FIVE:
WAP Uganda
Case Study and Working Group Report



Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

Case Study: Capacity Development in Uganda's water sector

By Jan Hassing,, VKI

1. Abstract

The International Conference on Water, Environment and Development in Rio in 1992 suggested that countries should prepare national water action plans in attempt to translate the guiding principles to operational strategies for action at the national, sub-national and local levels. Uganda decided to face the post-Rio challenge and started a process. A Water Action Plan was prepared with financial assistance from Danida and the proposed actions have been followed up in the recently approved Sector Programme Support Document for the water sector in Uganda. The Water Action Plan is seen as the first planning step in a comprehensive capacity development process for integrated water resources management and forms a part of the basis for the Sector Programme Support.

2. Integrated Water Resources Management

Earlier water resources management situation in Uganda

The water resources management situation in Uganda in the beginning of the nineties was at a very poor level. Many years of civil unrest had disrupted almost all basic services and caused a complete stop in the monitoring of the water resources. Reconstruction had not yet gained momentum. At the institutional level, resources management capacity was low. Employment and working conditions for civil servants were generally not motivating for the extraordinary effort needed to bring the situation under control.

The need for management was however urgent. Although Uganda is usually thought of as endowed with abundant water resources, this is only part of the truth. Uganda is part of the shoreline of Lake Victoria and is crossed by the Nile, but large tracts are semi-arid and everywhere there can be problems caused by droughts, flow variations and distribution in time.

Human activities make their demands and impact increasingly felt on both quality and quantity of available water. Deforestation, overstocking and more intense cultivation are affecting the hydrology and the water balance. As demands increase on the water sources, so do the potentials for conflict. On the international scene, Uganda's claim for an equitable part of the water resources of the Nile Basin could not be supported without solid knowledge of water availability and present and future water demands.

The Dublin-Rio process suggested that countries should prepare national water action plans in an attempt to translate major guiding water resources management principles into operational strategies and actions. Uganda's progressive water development planners saw here an opportunity for support to rectify the deplorable water resources management situation and approach the issues in a well organised manner.

Donor support to the efforts was essential. Danida was approached and a process of Project Identification, Appraisal and preparation of Project Documents led to a final definition of a project called Uganda Water Action Plan, Water Resources Development and Management. This project evolved to be the first step in a major capacity development programme for integrated water resources management.

The project was undertaken in the period 1993-1994 with Directorate of Water Development as executing agency assisted by a team of consultants from VKI, COWI, DHI and Nordic Consulting Group. Danida provided the foreign finance.

3. Capacity Development for Integrated Water Resources Management

Capacity development as broadly defined by OECD is taking place as a continuous process in Uganda with the Water Action Plan as the first important step ("getting started"). The process is shown in Figure 1 below.

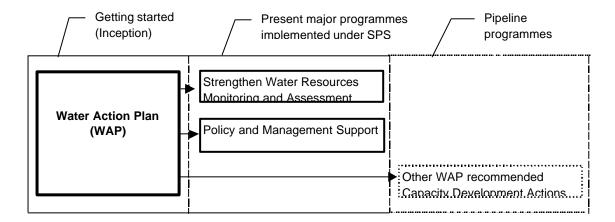


Fig.1 - Capacity Development for Integrated Water Resources Management in Uganda

The co-operation under the Water Action Plan (final report issued in July 1994) resulted in a number of recommended actions each described in outline. However, one major action "Strengthening of Water Resources Monitoring and Assessment Services" was described in the format of a Project Document which was later approved by all parties. Project implementation started in 1996 and activities are ongoing. Recently, Danida has included this project as a component in the Sector Programme Support (SPS). A number of smaller but important actions from the Water Action Plan have been lumped as an SPS component under the heading Policy and Management Support. The Water Action Plan recommended several other capacity development actions. However, due to factors such as local absorption capacity, financing and time constraints these actions are still pipeline programmes.

4. Long Term Goals

The long term goals for capacity development for integrated water resources management in Uganda were defined as a basis for the Water Action Plan work but are likewise applicable to the full long term process of capacity development.

The general goals comprise the strengthening of the technical, institutional and human resources capacity at all levels for efficient integrated water resources management. The specific goals are to develop the following complementary elements of a management system:

- *an enabling environment*: the general framework of national policies, legislation and regulations for integrated water resources development and management;
- an institutional framework that allows close interaction between the relevant administrative units
- planning and prioritisation capabilities that enable the decision makers to make choices between alternative actions based on agreed strategies, available water resources, environmental impacts and social and economic impacts.

5. Water Action Plan

Methodology and guiding principles

The Water Action Plan was formulated based on a methodology comprising:

- identify and analyse the full range of water resources issues that occur across the country and prepare a ranking according to severity ("which problems will the management system have to deal with?")
- identify the ideal management systems and interventions that are needed to address the problems and issues identified above ("how should the problems ideally be approached?")
- develop long term and short term management strategies in the light of capacity potentials and constraints ("which approaches are realistic in the present and future context?")

The guiding principles from the Rio process were adopted as the policy basis for the development of the Water Master Plan. These principles comprise;

- freshwater is a finite and vulnerable resource, essential to sustain life, development and the environment
- management of water resources at the lowest appropriate level
- government has a role as an enabler in a participatory, demand-driven approach to development
- water is recognised as a social and economic good
- integration of water and land use management
- women has an essential role in water management
- the private sector has an important role in water management

Water resources assessment

A national overview (Rapid Water Resources Assessment) was prepared as a starting point for identification of water resources problems and issues. Based on existing information, it analyses the spatial and temporal occurrence of surface and groundwater and examines present knowledge about water quality. The development trends and the corresponding water requirements were briefly described. Water resources from the international perspective (Uganda as part of the Upper Nile Basin) were examined. Base on the international and national overview specific studies in selected districts were used to identify the range of water resources management issues.

Management interventions

Subsequently, consideration was given on how to address the issues in order to obtain sustainable utilization of the water resources. This involved the identification of functions and instruments necessary for handling the issues and identification of the appropriate management levels, where rational decisions could best be made. Issues were divided into two categories (impact issues and user requirement issues) to allow for a systematic identification of the relevant management functions and management levels. Impact issues are those derive from human activities with adverse impacts on either water resources quantity or quality. User requirement issues are those derived from inadequate matching of user requirements and the available water resources, with respect to quantity/quality. Both types of issues require interventions from institutions at a certain level (international, national, district, community) with powers to resolve the issue in a rational manner. The lowest appropriate management level would be preferred.

Capacity Analysis

The existing relevant institutions (national, district and community levels) were examined in terms of their capacity to carry out the functions that had been identified. Management functions were listed and an analysis was made of the potentials and constraints of the management structures that should take action. The analyses included identification of the need to strengthen these structures in order to carry out the desired functions. Eight key functions were identified for distribution at the appropriate levels. The eight functions considered were; formulation of international policies, policy making, planning and co-ordination, regulation of water extraction, regulation of wastewater discharges and other water pollution factors, monitoring, enforcement, mediation and training and information dissemination.

Actions and strategy

The output of the action plan was a long term, mid term and short term action strategy. Each strategy comprised a number of actions grouped within the; enabling environment, institutional structure and the planning and prioritisation capability. Each action was described in outline giving objectives, outputs and main tasks.

The actions were developed paying full attention to the existing realities in Uganda. It had to be realised that the country was still in a process of reconstruction after many years of civil unrest. In spite of significant progress, the economy is not able to generate government revenue sufficient to finance major development activities. Severe financial constraints exist at all levels of government and management structures and procedures must be kept at levels compatible with this situation. Clear and uncomplicated procedures, requiring a minimum of staff and anchored in existing institutions were preferred. Cut-off levels under which the issues would be considered insignificant had to be defined. Geographic variations in needs for management were also given consideration.

6. Water Resources Monitoring and Assessment Services

The Water Resources Monitoring and Assessment Services project was developed as a selection of several important actions defined within the action plan. The objective of the project is "to build up capacity of Directorate of Water Development (DWD) to monitor the water resources of Uganda in terms of quality and quantity and undertake water resources assessment studies, so that DWD can provide coordinated and reliable operational recommendations on management of Ugandan water resources". The project was approved for Danish support in 1995, commenced in August 1996 and is scheduled to last to 2001. The continued Danida support to the water sector described in a Sector Pro-

gram Support (SPS) Document now includes this project as a component, in good accordance with the Sector Program approach concepts.

7. Policy and Management Support

A Policy and Management Support component was incorporated in the SPS. This was done based on a realized need to strengthen the DWD in particular in relation to fulfillment of the institutional objective of the SPS. The component is composed of a number of important actions identified and described in the Water Action Plan. The immediate objectives comprise a strengthening of the overall sector management through a management information system and through a smooth operation of a Water Policy Committee. Further strengthening of the water resources management takes place through among others, systems for data exchange with the meteorological department. Strengthening of management within domestic water and sanitation is also enhanced under this component. The support is scheduled to take place in the period up to 2001.

8. Further developments

The actions recommended in the Water Action Plan will continue for some time to form the basis of activities within integrated water resources management. Dynamic changes will however necessitate updating sooner or later. The SPS is expected to assist in following-up, revising and updating the Water Action Plan throughout the program support period. The SPS would assist in prioritization; elaboration and implementation of regulations for control of water related activities. In the longer term SPS envisages to assist implementation of a strategic plan for decentralization of water resources management functions elaborated during the short-term components of the SPS. The SPS review process, in conjunction with the component review process are the appropriate mechanisms to address the above issues.

9. Analysis of the Initiative

Roles of Core Actors

The Water Action Plan was prepared with Directorate of Water Development as the executing agency assisted by a team of consultants and financially supported by Danida. DWD provided 3 senior specialists within hydrology, water chemistry and water supply and sanitation as counterpart staff. The Director and the Director's Adviser (a Danish Water Specialist employed as Danida Sector Adviser) participated closely in the Water Action Plan process. The cross-sectorial character of the work was reflected in the Steering Committee comprising among others, management level staff from National Water Supply and Sewerage Corporation, Ministry of Agriculture, Ministry of Industry. The Ministry representing womanize' interests was also included as well as sector representatives within hydropower, fisheries etc. The Director of DWD chaired the Steering Committee.

The selection of DWD as the ultimate "owner" of the project was a very obvious choice as the Director of DWD was a driving force in the project identification process. Further, the mandate of DWD requires the organisation to be in charge of the water resources management. The ownership was consolidated through the daily interaction between the Technical Assistance Team (including the counterparts) and DWD officials. Correct "owner" selection is important but a high degree of motivation has to be present as well. In this case it is believed that the high motivation experienced was partly due to the opportunity to increase water management capabilities from the very low levels caused among others by many years of civil unrest.

The consultants acted as a Technical Assistance team rather than as facilitators. This was necessitated by the circumstances where DWD started with limited capacity and capabilities. The capacity development, where a situation is brought from low to medium strength requires direct involvement in execution. Facilitating the process may do taking a situation from medium to high strength.

During the next step in the implementation of the plan ("Strengthening of Water Resources and Monitoring and Assessment Services" component) the handing over of responsibilities to DWD has been developed further. The Project Manager for this component is a DWD employee assisted by an expatriate Project Management Adviser.

The component "Policy and Management Support", will be implemented through a process approach to the degree possible. The Director of DWD will be overall responsible for "Policy and Management Support" management, but will delegate the preparation and implementation of activities to the relevant departments within DWD. The Danida Sector Adviser has an executive role in relation to the disbursement of funds after the Director and the Sector Adviser have made a joint assessment of the disbursement.

It will appear that during the capacity development process, responsibilities and workloads have increasingly been transferred to the owner, DWD, and process orientation has been more and more emphasised.

Factors and methodologies

The crosscutting nature of the Water Action Plan aiming at Integrated Water Resources Management was emphasised through the involvement of major stakeholders. The following groups/committees were formed for the purpose of the Action Plan preparation:

- Inter-ministerial Water Committee comprising permanent secretary level staff from Ministries with a stake in water resources (Ministry of Natural Resources, Ministry of Agriculture, Ministry of Industry etc.)
- Steering Committee for Water Action Plan comprising management level staff from relevant ministries, agencies, district administrations etc. Danida, as the donor was also represented here.

Frequent informal consultations were held during the preparation work and a seminar/workshop was organised at a stage where a draft Water Action Plan was available for discussion.

Although these efforts of involving the stakeholders do not guarantee their support to the final Action Plan, there has at least been created opportunities to debate the issues and revise the action plan accordingly.

The continued activities under the umbrella of "capacity development for integrated water resources management" are operating with the same stakeholders. However, the structures have been designed to fit the particular requirements in the different stages of development. Under the Policy and Management component, a Water Policy Committee will be established. The mandate of this committee will include setting national policies, standards and priorities, including co-ordinating revisions to legislation and regulations and co-ordinating sector ministries' plans and projects affecting water resources. The Water Policy Committee is supported by a technical secretariat and has liaison officers in all relevant ministries / organisations.

10. Lessons learned

The major lessons learned through the "Capacity Development for Integrated Water Resources Management" in Uganda comprise, among others;

- a comprehensive planning of the capacity development has proved essential for the process to be
 "started right". The Water Action Plan has been a firm basis for further prioritisation and selection
 of actions. Seeing CD in the perspective of the Danida Sector Programme Support approach the
 Water Action Plan bears resemblance to a Sector Programme Support Document, but has a wider
 scope and does include actual field studies and concrete water resources assessment activities.
 The WAP had an actual cost of approx. DKK 10 Mill and has so far resulted in approved components under the SPS amounting to DKK 55 Mill
- the sharing of responsibility between donor, recipient and consultant and thus also the balance between facilitation and Technical Assistance is of crucial importance. However, the character of the job at hand and the limitations of the institution concerned are vital factors to consider. The lower the initial capacity the more bias towards Technical Assistance. Likewise, the more physical implementation (for instance structures, monitoring networks, laboratories) included, the more bias towards Technical Assistance
- process oriented and facilitation biased assistance requires a high degree of motivation in the institution concerned. Not only is it necessary that the top management level is motivated, but also intermediate level staff and senior staff need to be strongly motivated. The personality and charisma of the leading persons involved does play an often overseen large role
- dynamic changes in the context will influence the processes no matter how well the initiative is
 planned. Flexibility is therefore a key word. Flexibility could for instance mean, framework contracts for Technical Assistance based on concepts and contexts, detailed component description
 prepared as an inception activity (example Water Action Plan); timing adjusted frequently and according to progress in work to be done by the recipient; frequent milestone reviews with proposals
 for adjustments

Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

Report from working group: Uganda

By Jens Lillebæk, Carl Bro A/S

Main Rapporteur Group Rapporteur Presentation Facilitator Anne-Lise Klausen Jens Lillebæk Jan Hassing Kurt Klitten

N.J. Banke-Nielsen Morten Riemer Karen Villhalth Thomas Kjeldsen Anders Thyge Egeberg Hans Hessel-Andersen Jens Christian Refsgard Erik Kristensen

Lilian Wester-Andersen
Jan Lasse Wahlstrøm
Niels Jørgen Berg
Per Møller-Jensen
Dolf Noppen
Finn Lars Plauborg
Leif Hommelgaard
Elsebeth Tarp
Mogens Dyhr Nielsen

Mogens Dyhr Nielsen Henry E. Jensen

After questions of clarification to the Uganda case study, the group was divided into three sub-groups and discussions were held focusing on each of the three stages:

- 1) Identification and design,
- 2) implementation and process management, and
- 3) monitoring of processes and results.

In all three sub-groups, discussions quickly focused on the general aspects of the three WAP case studies and SPS rather than details of the specific Uganda project. This is reflected in the present report.

After one hour of discussions, observations and recommendations were debated and reported as detailed below. Due to the fact that the WAPs are, or should be, process oriented, it was difficult to place each of the observations/recommendations under one of the specific headings.

The group also spent some time making a comparison between the Nicaragua and the Uganda WAPs, using a number of criteria such as demand from the involved administration, strength of the counterpart

organisations etc. It was concluded that each WAP had its specific preconditions and that generalisations could easily lead to mistakes.

Identification and Design

Issue/observation

WAPs are highly political and complex in their nature

Recommendation

 The project type requires profound country specific knowledge and involvement from all actors involved, including the embassies.

Issue/observation

Motivation and ownership is very important

Recommendation

 To achieve this, activities will also have to include/focus on tangible outputs on short to medium term. An appropriate mix of overall planning and policy interventions and some practical activities that may have high priority on the local agenda. This may also "soften" the top-down approach.

Issue/observation

• For process oriented activities it is difficult to separate design and monitoring

Recommendation

• WAP activities should be flexible. Activities should be built on series of objectives, with short incremental steps, leading to the overall objective

Issue/observation

• Donors' administrative set-up has been developed for a more traditional project approach. This causes difficulties in the practical implementation of the process-oriented projects. It would e.g. be a serious problem for a consultant company to handle a major interruption in a project after 3 months due to unavailability or lack of input from a counterpart

Recommendation

- Learn from the experiences of the first SPS activities and components and develop appropriate tools.
- Framework contracts should be developed in order to achieve/support flexibility

Implementation and Process Management

Issue/observations

- Severe shortfall is generally observed in the counterpart's organisational set-up and institutional capacity
- Too much emphasis on technical tools and approaches has often been observed, with too little reflection on their practical application (sustainability)

Recommendation

- WAP should be more focused on institutional strengthening and organisational capacity. This should also be reflected in the staffing. The analysis should not be limited to the public sector, but fully integrate the private sector, customary organisations and NGOs.
- Using multi-disciplinary teams, stakeholder analysis should be made and updated currently during implementation

Issue/observation

Baseline studies covering non-technical aspects are rare

Recommendation

• These studies should be used for identifying indicators for the overall programme

Monitoring of Processes and Results

Issue/observation

• At present the process monitoring focuses on the external consultant, but the (new) roles of the three actors are all important for a success

Recommendation

- Monitoring/Review should comprise all three actors involved: Counterpart agencies, consultants and the Embassy
- The three actors should be reflected in the Project Document and the different LogFrames developed/used

Issue/observation

- Due to increasing project complexity, review missions in their present form are insufficient the expression "hit and run" missions was used in the discussion
- In practice it appears to be difficult to revise/adjust the Project Document during these missions

Recommendations

- The project should be monitored more currently by a team external to the project; appointed by the donor. The external auditor(s) should operate as a help and guidance in the process
- Members of the Team monitoring or reviewing the WAP should not have participated in the project formulation

PART SIX: Annexes

Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

Guidelines to Working Groups

By Jan Hassing, VKI

1. Purpose and format

The purpose of the working group sessions is to facilitate an exchange of operational experience with Water Action Plan preparation and implementation and to capture general recommendations emanating from the discussions.

The working group sessions (3 groups) and the reporting from the sessions will take place within the following time frame:

13:00 – 15:30	Group discussions structured by a facilitator and summarised by a rapporteur.
15:30 – 16:00	Coffee break. The rapporteurs prepare summaries from the discussions and recommendations in the three groups
16:00 – 17:30	Plenary. The Rapporteurs present the summaries from each group (5-10 min.) followed by plenary discussions. The General Rapporteur makes a final 10 min. summing up.

Each group will have their specific case as a starting point for the discussions, but can at the same time draw on experience from the other cases and from other individual experiences. Therefore, groups have been pre-composed in such a way that experience from all cases are present in each group and persons from the same companies are distributed in different groups.

2. General aspects

- A facilitator will assist each of the three working groups. The facilitator will guide the logistics of the discussions.
- Time is very short. Participants are expected to be brief in the discussions. The facilitator will assign time limits for contributions if required.
- Each working group will have 15-20 participants. To increase participation the facilitators will ask the participants to split into smaller groups for "humming sessions".
- Openness should dominate rather than inquisition and arguing; consensus will not be expected or sought on all issues.
- Rapporteurs will ensure that the results of the proceedings in the groups are summarised and brought to the plenary session.

3. Issues for discussions

The discussions can be structured according to the three steps in a Water Action Plan process. These are:

- Identification and design
- Implementation and process management
- Monitoring of processes and results

A "long" list of questions that the groups may ask themselves is given below. The groups may prioritise one or more of these questions for discussion or may find additional relevant questions that they want to deal with.

- Which relations should exist between a Water Action Plan and the Sector Programme Support (is the Water Action Plan and Water Sector Programme Support the same thing, is the Water Action Plan a component in the SPS or...)
- What is the ideal Water Action Plan content (an analysis with a set of proposed actions, a plan followed by capacity development, and what is the time perspective of the support? "Crash" programme or long term assistance, 5 years, 10 years or ...)
- How does the capacity of the recipient institution influence the balance between technical assistance as opposed to process consultancy (in the case of a weak receiving institution will it be likely that a more comprehensive technical Assistance is required or rather a much longer time period to allow for capacity building)
- Is LFA a suitable instrument for process description and monitoring
- How can responsibilities be defined in consultancy contracts when the outputs are functions of the combined efforts of the donor, the recipient and the consultant
- Which measures will ensure "ownership" and appropriate institutional anchoring if not fully developed in the initial phase (participation, counterparts, steering committee, and physical location of working team etc...)
- What should be monitored; the technical assistance, the processes, the total effect of TA and processes
- How and by who is the performance of the recipient and the donor monitored. Which are the appropriate indicators.
- Time perspective of monitoring; how long time should monitoring continue, under/after the assistance, is it relevant to monitor in the long term to assess the sustainability
- Should specific experience in relation to the recipients' continued use of the plan, its impact on the institutions, on the attitudes etc...be monitored

Agenda

Water Action Plans Experience with Alternative Implementation Strategies.

9. September 1998

in

Eigtveds Pakhus Room II

09:00 - 09:15	Welcome and introduction. By Jens Chr. Refsgaard, Chairman of Danish Water Resources Committee
09:15 - 09:40	Danida-assisted Sector programming and integrated water resources management. By Jan Møller Hansen, Danida
09:40 - 10:00	General aspects of Water Action Plans Torkil Jønch-Clausen, Global Water Partnership
10:00 - 10:30	Water Action Plan, Case Uganda Introduction to conditions, practical aspects and viability. By Jan Hassing, VKI
10:30 - 11:00	Coffee- break
11:00 - 11:30	Water Action Plan, Case Ghana Introduction to conditions, practical aspects and viability. By Jørgen Erup, Hedeselskabet
11:30 - 12:00	Water Action Plan, Case Nicaragua Introduction to conditions, practical aspects and viability. By Jesper Knudsen, DHI
12:00 - 12:15	Introduction to workshop By General Rapporteur

12:15 - 13:00	Lunch
13:00 - 15:30	Workshop: Water Action Plans – collection of experience by implementation strategy from Uganda
	Workshop: Water Action Plans – collection of experience by implementation strategy from Ghana
	Workshop: Water Action Plans – collection of experience by implementation strategy from Nicaragua
15:30 - 16:00	Coffee-break Workshop rapporteurs make a résumé from each workshop and make documentation for presentation in plenary session
16:00 - 17:30	Workshop rapporteurs present the result of the workshops (max. 10 min. each). Then discussion in plenary. General rapporteur ends the meeting with a 10 min. summary. Chairman: Torkil Jønch-Clausen, Global Water Partnership

Workshop on Water Action Plans - Experience with Alternative Implementation Strategies. Eigtveds Pakhus, 9 September 1998.

List of Participants

Andersen, Jens Danmarks Tekniske Universitet

ISVA

Bygning 115 DK-2800 Lyngby Tlf.: +45 45 25 25 25 Fax.: +45 45 93 28 60

Andersen, Lars Skov COWIconsult A/S

Parallelvej 15 DK-2800 Lyngby Tlf.: +45 45 97 22 11 Fax: +45 45 97 22 12

Banke-Nielsen, N.J. MT Construction

Helseholme 1 DK-2600 Hvidover Tlf.: +45 36 34 33 66 Fax.: +45 36 34 33 55

Bjerre, Jens PEMconsult

Wilders Plads Bygning J, 2. Sal

DK-1403 København K Tlf.: +45 32 95 26 26 Fax: +45 32 95 26 46

Boesen, Jannik Center for Udviklingsforskning

Gl. Kongevej 5

DK-1610 København V Tlf.: +45 33 85 46 00 Fax.: +45 33 25 8110

Dalsgaard, Anders Den Kgl. Veterinær- & Landbohøjskole

Bülowsvej 13

DK- 1870 Frederiksberg C Tlf.: +45 35 28 28 28 Fax: +45 35 28 20 79

Damhaug, Torbjørn Norsk Institutt for Vannforskning

Postboks 173 Kjelsås N-0493 Oslo

Tlf.: +47 22 18 51 00 Fax: +47 22 18 52 00

Dietrich, Jan Water Consult

Stendyssevej 24B DK-4171 Glumsø Tlf.: +45 57 64 72 80 Fax: +45 57 64 69 49

Dyhr-Nielsen, Mogens DANCED

Strandgade 29

DK-1401 København K Tlf.: +45 32 66 02 55 Fax: +45 32 66 01 31

Egeberg, Anders Thyge COWIconsult A/S

Parallelvej 15 DK-2800 Lyngby Tlf.: +45 45 97 22 11 Fax: +45 45 97 22 12

Erup, Jørgen Hedeselskabet

Miljø og Energi Ringstedvej 20 DK-4000 Roskilde Tlf.: +45 46 30 03 10 Fax: +45 46 30 03 11

Grant, Stewart Hedeselskabet

Miljø og Energi Klostermarken 12 DK-8600 Viborg Tlf.: +45 86 67 61 11 Fax: +45 86 67 51 01

Gregersen, Jens Danida

Udenrigsministeriet Asiatisk Plads 2

DK-1448 København K Tlf.: +45 33 92 02 28 Fax: +45 33 92 07 90

Hansen, Jan Møller Danida

Udenrigsministeriet Asiatisk Plads 2

DK-1448 København K Tlf.: +45 33 92 00 00 Fax: +45 33 92 07 90

Hasholt, Bent Københavns Universitet

Geografisk Institut Østervoldgade 10

DK-1350 København K Tlf.: +45 33 35 25 00 Fax.: +45 33 35 25 01

Hassing, Jan VKI

Agern Allé 11

DK-2970 Hørsholm Tlf.: +45 45 16 92 00 Fax: +45 45 16 92 92

Henriksen, Hans Jørgen GEUS

Thoravej 8

DK-2400 København N.V. Tlf.: +45 38 14 20 00 Fax: +45 38 14 20 50

Hessel-Andersen, Hans Danida

Udenrigsministeriet Asiatisk Plads 2

DK-1448 København K Tlf.: +45 33 92 02 28 Fax: +45 33 92 07 90

Hvam, Steffen Nordic Consulting Group A/S

Kirkevej 8

DK-2630 Taastrup Tlf.: +45 43 71 62 00 Fax: +45 43 71 99 44

Iversen, Bo Vangsø Danmarks Jordbrugsforskning

Afdeling for Plantevækst og Jord

Forskningscenter Foulum

Postboks 50 DK-8830 Tjele

Tlf.: +45 89 99 19 00 Fax: +45 89 99 19 19

Iversen, Torben Moth Danmarks Miljøundersøgelser, (DMU)

Vejlsøvej 10 Postboks 314

DK-8600 Silkeborg Tlf.: +45 89 20 14 00 Fax: +45 89 20 14 14

Jacobsen, Gunnar Danagro Adviser AS

Granskoven 8 DK-2600 Glostrup Tlf.: +45 43 43 45 90 Fax: +45 43 43 40 49

Jensen, Erik Sjørslev Danida

Udenrigsministeriet Asiatisk Plads 2

DK-1448 København K Tlf.: +45 33 92 02 28 Fax: +45 33 92 07 90

Jensen, Jens Raunsø Den Kgl. Veterinær- & Landbohøjskole

Bülowsvej 13

DK- 1870 Frederiksberg C Tlf.: +45 35 28 28 28 Fax: +45 35 28 20 79

Jensen, Roar A. DHI

Agern Allé 5

DK-2970 Hørsholm Tlf.: +45 45 76 95 55 Fax: +45 45 76 25 67

Jespersen, Christian Rambøll

Bredevej 2 DK-2830 Virum

Tlf.: +45 45 98 60 00 Fax: +45 45 98 69 24

Jønch-Clausen, Torkil VKI

Agern Allé 11 DK-2970 Hørsholm Tlf.: +45 45 16 92 00 Fax: +45 45 16 92 92

Jørgensen, Karl Aage Rambøll

Bredevej 2 DK-2830 Virum

Tlf.: +45 45 98 60 00 Fax: +45 45 98 69 24

Kern-Hansen, Claus Danmarks Meterologiske Institut (DMI)

Lyngbyvej 100

DK-2100 København Ø Tlf.: +45 39 15 75 00 Fax: +45 39 27 10 80

Kieler, Jan COWIconsult A/S

Parallelvej 15 DK-2800 Lyngby Tlf.: +45 45 97 22 11 Fax: +45 45 97 22 12

Kirk, Thomas O'Brien PEMconsult

Wilders Plads Bygning J, 2. Sal

DK-1403 København K Tlf.: +45 32 95 26 26 Fax: +45 32 95 26 46

Kjeldsen, Thomas Danmarks Tekniske Universitet

ISVA

Bygning 115 DK-2800 Lyngby Tlf.: +45 45 25 25 25 Fax.: +45 45 93 28 60

Klausen, Anne-Lise Nordic Consulting Group A/S

Kirkevej 8

DK-2630 Taastrup Tlf.: +45 43 71 62 00 Fax: +45 43 71 99 44

Klitten, Kurt GEUS

Thoravej 8

DK-2400 København N.V. Tlf.: +45 38 14 20 00 Fax: +45 38 14 20 50

Knudsen, Jesper DHI

Agern Allé 5

DK-2970 Hørsholm Tlf.: +45 45 76 95 55 Fax: +45 45 76 25 67

Lehd, Henning NIRAS

Sortemosevej 2 DK-3450 Allerød Tlf.: +45 48 14 00 66 Fax: +45 48 14 00 33

Lillebæk, Jens Carl Bro A/S

Granskoven 8 DK-2600 Glostrup Tlf.: +45 43 48 60 60 Fax.: +45 43 86 66 60

Linde, Svend Aage Miljøkemi, Dansk Miljø Center A/S

Smedeskovvej 38 DK-8464 Galten

Tlf.: +45 86 94 42 66 Fax: +45 86 94 68 48

Madsen, Bjarne GEUS

Thoravej 8

DK-2400 København N.V. Tlf.: +45 38 14 20 00 Fax: +45 38 14 20 50

Møller-Jensen, Per Hedeselskabet

Miljø og Energi Ringstedvej 20 DK-4000 Roskilde Tlf.: +45 46 30 03 10 Fax: +45 46 30 03 11

Netterstrøm, Ulrik Eckersbergsgade 24

DK-2100 København Ø Tlf.: +45 35 43 58 86 Fax.: +45 35 38 58 86

Noppen, Dolf Nordic Consulting Group A/S

Kirkevej 8

DK-2630 Taastrup Tlf.: +45 43 71 62 00 Fax: +45 43 71 99 44

Plauborg, Finn Lars Danmarks Jordbrugsforskning

Afdeling forJordbrugssystemer Forskningscenter Foulum

Postboks 50 DK-8830 Tjele

Tlf.: +45 89 99 19 00 Fax: +45 89 99 19 19

Poulsen, Ebbe Danmarks Jordbrugsforskning

Hørsholm Kongevej 11 DK-2970 Hørsholm Tlf.: +45 45 76 32 00 Fax: +45 45 76 57 56

Refsgaard, Jens Christian DHI

Agern Allé 5

DK-2970 Hørsholm Tlf.: +45 45 76 95 55 Fax: +45 45 76 25 67

Riemer, Morten Carl Bro A/S

Granskoven 8 DK-2600 Glostrup Tlf.: +45 43 48 60 60 Fax.: +45 43 86 66 60

Rosbjerg, Dan Danmarks Tekniske Universitet

ISVA
Bygning 115
DK-2800 Lyngby
Tlf.: +45 45 25 25 25

Fax.: +45 45 93 28 60

Schiller, Bente Danida

Udenrigsministeriet Asiatisk Plads 2

DK-1448 København K Tlf.: +45 33 92 02 28 Fax: +45 33 92 07 90

Schou, Inge Water & Power Planners

Rosenvænget Allé 48 DK-2100 København Ø Tlf.: +45 35 42 75 85 Fax: +45 35 42 31 71

Sjørslev, Jens Grue Danida

Udenrigsministeriet Asiatisk Plads 2

DK-1448 København K Tlf.: +45 33 92 02 28 Fax: +45 33 92 07 90

Skjernaa, Lilian Københavns Universitet

Geografisk Institut Østervoldgade 10

DK-1350 København K Tlf.: +45 33 35 25 00 Fax.: +45 33 35 25 01

Styczen, Merete DHI

Agern Allé 5

DK-2970 Hørsholm Tlf.: +45 45 76 95 55 Fax: +45 45 76 25 67

Tarp, Elsebeth Danida

Udenrigsministeriet Asiatisk Plads 2

DK-1448 København K Tlf.: +45 33 92 02 28 Fax: +45 33 92 07 90

Thaulow, Haakon Norsk Institutt for Vannforskning

Postboks 173 Kjelsås N-0493 Oslo

Tlf.: +47 22 18 51 00 Fax: +47 22 18 52 00

Thomsen, Thorkild Hedeselskabet

Miljø og Energi Ringstedvej 20 DK-4000 Roskilde Tlf.: +45 46 30 03 10 Fax: +45 46 30 03 11

Villholth, Karen Danmarks Tekniske Universitet

ISVA

Bygning 115 DK-2800 Lyngby Tlf.: +45 45 25 25 25 Fax.: +45 45 93 28 60

Wahlstrøm, Jan Lasse NIRAS

Sortemosevej 2 DK-3450 Allerød Tlf.: +45 48 14 00 66 Fax: +45 48 14 00 33

Wester-Andersen, Lilian Danmarks Meterologiske Institut (DMI)

Lyngbyvej 100

DK-2100 København Ø Tlf.: +45 39 15 75 00 Fax: +45 39 27 10 80