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Towards Better Water Resources Management

A Catalogue of Policies and Strategies of External Support Agencies



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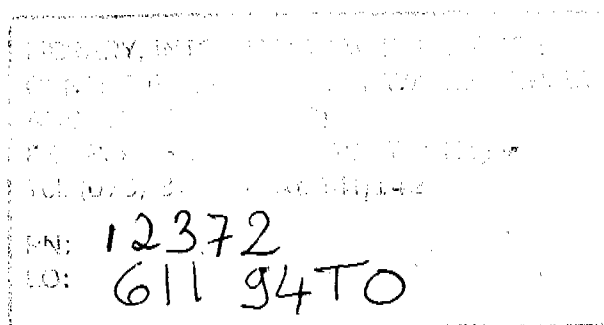
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Towards Better Water Resources Management

A Catalogue of Policies and Strategies of External Support Agencies



by

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Abstract:

This reference document was prepared for a meeting on water resources management, held by the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD), in Paris, in May 1994.

The reference document describes the policies and strategies of 26 bilateral and multilateral external support agencies (ESAs) and is a basic source of information to make strategies and interventions of these ESAs better known.

The document provides information on the status of each ESA's water resources management policy and strategy, as well as some general information about the organization. It begins with a synthesis of the various ESA's experience with their water resources management policies and strategies.

The issues in each ESA profile include administrative structure, staff, financing, policies, projects and coordination. The projects described were indicated by the ESAs as having promising water resources management approaches.

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List of Abbreviations

ACC	Administrative Committee on Coordination
ADB	African Development Bank
ADB	Asian Development Bank
AIDAB	Australian International Development Assistance Bureau
CETESB	Companhia de Tecnologica de Saneamiento Ambiental
CIDA	Canadian International Development Agency
CRS	Creditor Reporting System
DAC	Development Assistance Committee
DANIDA	Danish International Development Assistance
DCD	Development Cooperation Directorate
DGIS	Directorate-General for International Cooperation
EU	European Union
EIA	Environmental Impact Assessment
ECA	United Nations Economic Commission for Africa
ESA	External Support Agency
ESCAP	United Nations Economic & Social Commission for Asia and the Pacific
FAO	Food and Agriculture Organization
FINNIDA	Finnish International Development Agency
ICWE	International Conference on Water and Environment
IDB	Inter-American Development Bank
IDWSSD	International Drinking Water Supply and Sanitation Decade
IHE	International Institute for Infrastructural, Hydraulic & Environmental Engineering
INERHI	Ecuadorian Institute of Hydrology
IRC	International Water and Sanitation Centre
JICA	Japan International Cooperation Agency
NCU	National Coordination Unit
NGO	Non-Governmental Organization
NORAD	Norwegian Agency for Development Cooperation
ODA	Official Development Assistance
ODA	Overseas Development Administration
OECD	Organization for Economic Cooperation and Development
PEC	Primary Environmental Care
SDC	Swiss Development Cooperation
SIDA	Swedish International Development Authority
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Program
UNICEF	United Nations International Children's Fund
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
WB	World Bank
WHO	World Health Organization
WMO	World Meteorological Organization
WRA	Water Resources Assessment
WRM	Water Resources Management

Preface

An urgent need exists to improve water resources management, and action has been called for by a range of fora including the January 1992 International Conference on Water and Environment (ICWE) in Dublin and the June 1992 World Summit in Rio.

To reinforce the dialogue and improve coordination, the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) held a meeting on water resources management in May 1994. This meeting sought to enhance collaboration and to contribute to more efficient management of water resources. The DAC members reviewed their own experiences and those of other agencies with support programmes related to integrated water resources management policies and strategies.

This reference document was prepared to make the support strategies and interventions of major external support agencies (ESAs) better known and to stimulate effective information exchange amongst the DAC Members. During the meeting it was decided that the document will be disseminated as a source of basic information. This document has been developed by the IRC International Water and Sanitation Centre, at the request of the Development Cooperation Directorate (DCD) of the OECD, with financial support from the Swedish International Development Authority (SIDA).

The document contains an overview of policies and activities of 26 ESAs involved in the water sector. It includes data on:

- * administrative assistance structures
- * support policies and strategies
- * intervention tools
- * funds provided to support the water sector and as a share of total development assistance
- * partners in project planning and implementation
- * countries where assistance is concentrated
- * projects which different ESAs have earmarked as promising in relation to integrated water resources management and which they commend to others.

The document was developed through a consultative process with staff members from the different ESAs. A draft profile was established for each ESA based on existing information. The main documents used in this process were: *Cooperation and Urban Development* by Milbert, I. 1992; *OECD Development Cooperation Report 1992*; *UNDP Socio-Economic, Monetary, and Resources Tables, S.M.A.R.T. Profiles 1992*; *The International Drinking Water Supply and Sanitation Decade Directory of WHO 1987*. The draft profiles were sent to staff members from the respective ESAs, who took considerable efforts in expanding them. Subsequently the profiles were finalised by IRC in consultation with the DCD.

The document has been prepared by Mr. Jan Teun Visscher and Ms. Maria Sörensson from IRC. Considerable inputs were provided by staff members of the different ESAs in the development of the profiles and in providing information on promising approaches (Annex 1). Grateful mention is made of the valuable support provided by Mr. Ingvar Andersson, Mr. Brian Appleton, Mr. Joep Blom, Mr. John Briscoe, Mr. Nigel Browne, Dr. Klaus Erbel, Mr. Dominique Gardin, Mr. Jean-Louis Grolleau, Professor Atef Hamdy, Ms. Carolyn Hannan-Andersson, Ms. Lauren Houttuin, Mr. Stanley Johnson, Mr. David Kinnersley, Ms. Elisabeth Thioleron, Ms. Christine van Wijk-Sijbesma and Mr. Carl Wahren.

Summary

Mismanagement of water and land resources is putting human health and sustainable development at risk. The June 1992 World Summit in Rio and the January 1992 International Conference on Water and Environment in Dublin have endorsed the need for urgent action and given indications about the strategies to follow. Two years later a review of the strategies of 26 ESAs, including 17 OECD Member countries, shows that whereas all endorse the principles of Rio and Dublin, the majority still support water resources management (WRM) on an 'ad hoc' basis in individual projects.

Information on funding allocation for WRM is not readily available, as most ESAs do not distinguish it as a separate issue. Annual ESA commitments for water and sanitation have increased over the period 1982 to 1991, but their relative share in the total development assistance commitments has decreased from 8.1% to 5.1%. National governments, however, have increased their sector funding from 0.3% to 0.45% of their GDP. A few ESAs have indicated that they are considering to reallocate their budgets and make more funding available for WRM.

Many ESAs provide relatively sparse support to the water sector. The number of countries receiving support from individual OECD Member countries ranges from 7 to 52, with an average of 25. This average is likely to go down as several ESAs are in a process of concentrating their assistance to fewer countries. The majority of assisted countries receive support from different ESAs, some even are supported by 14 or 15 of the 26 ESAs covered in this review, each bringing in their own experts, methods and approaches.

The number of ESA staff involved in the sector has decreased in recent years as a result of greater involvement of specialists from assisted countries and from the private sector. Very few ESAs have specialised staff who focus exclusively on WRM. The rule is that WRM is added on to the tasks of other staff such as drinking water and irrigation specialists. In training and research several ESAs are beginning to actively promote the involvement of institutions from assisted countries. Only very few undertake research for capacity building in the countries. They also tend to make use of their own local institutions in a supporting capacity.

Although few ESAs are developing a WRM support policy, it is encouraging that the most advanced policy clearly encourages assisted countries to develop their own comprehensive framework for WRM, using their own expertise with possible backstopping and support from ESAs. This policy places strong emphasis on capacity building, user involvement, decentralised delivery and management structures, economic pricing, financial accountability and enhanced use of database systems. It does not, however, specifically address gender issues nor does it promote environmental awareness of the general public. The implementation of such policies are still very much at an early stage.

Prospects which include positive WRM aspects have been indicated by the 26 ESAs. These can be grouped in broad areas including: establishing water policies and legal frameworks, water resources assessment and database development, water catchment protection and river basin management, management at the lowest appropriate level, abatement of pollution and efficient water use. The experience from these projects provides a good basis for establishing more integrated WRM strategies, but also shows that further development is needed in key

areas such as user participation in decision-making, gender issues and treating water as an economic good.

The need for collaboration is supported by all ESAs but, in practice, mostly takes the form of consultation. Only a few examples are brought forward where ESAs really join hands in supporting national governments to develop clear strategies on WRM, thus avoiding overlap and duplication of efforts.

Synthesis

1. Introduction

"Scarcity and misuse of fresh water pose a serious threat to sustainable development and protection of the environment. Human health and welfare, food security, industrial development and the eco systems on which they depend, are all at risk, unless water and land resources are managed more effectively in the present decade and beyond than they have been in the past" (The Dublin Statement on Water and Sustainable Development). Competition for limited fresh water sources is growing quickly among households, industry and agriculture, while the resource itself becomes more scarce due to increasing pollution and greater consumption. To cope with population growth and to cover the population presently not served, efforts will have to be stepped up considerably. To reach universal coverage for water and sanitation by the year 2000 an annual investment of US\$ 50 billion would be required, whereas the United Nations Development Programme (UNDP) suggests that perhaps US\$ 15 to US\$ 20 billion might be available annually. This calls for much more efficient approaches and better management of resources (UNDP, 1991).

Chapter 18 of Agenda 21 of the United Nations Conference on Environment and Development in Rio also stresses the need for improved management of water. It clearly indicates that international cooperation for sustainable development must be strengthened to support and complement the efforts of developing countries.

***Box 1 The seven programme areas addressed by the
Freshwater Chapter of Agenda 21:***

- (a) integrated water resources development and management*
- (b) water resources assessment*
- (c) protection of water resources, water quality and aquatic ecosystems*
- (d) drinking water supply and sanitation*
- (e) water and sustainable urban development*
- (f) water for sustainable food production and rural development*
- (g) impacts of climate change on water resources*

Most bilateral and multilateral agencies have a long history of development cooperation in the water sector. The International Drinking Water Supply and Sanitation Decade (1981-90) brought additional financial resources to the sector and, maybe more important, contributed to the development of appropriate sector policies, technologies and enhanced collaboration.

Although a functioning global collaboration has been established, ESAs adopt a wide range of support strategies and interventions, as is shown in the section on promising approaches. This arises partly from the different interpretations ESAs give to water resources management (WRM). Definitions adapted from the Nordic Freshwater Initiative are indicated in Box 2, to help establish a common understanding.

Box 2 Definition of water resources management

'Water resources' means fresh water in the broad sense as available for use and susceptible to human interventions. 'Water' can be surface or groundwater, and is characterized by both quantity and quality.

'Management' means integrated management, covering all phases of resources planning, development, use and protection, i.e. assessment, planning, implementation, operation and maintenance and monitoring and control. It includes both 'demand management' and 'combined resources and supply management'.

'Integrated' means management of water resources as regards their development, use and protection, and considering all sectors and institutions which use and affect water resources (cross-sectoral integration). 'Integrated water management' may be interpreted as integrated 'land and water management' to the extent that land management measures affect the supply and quality of water resources.

(Adapted from Nordic Freshwater Initiative, 1992)

Chapter 2 of this document provides a synthesis of the information contained in the different ESA water sector profiles concerning policies, staffing and financing. Chapter 3 summarises the intervention tools ESAs are using at different levels to support and influence WRM activities in the assisted countries. Chapter 4 brings together information on the projects and approaches which have been earmarked as promising by ESAs and provides suggestions for activities and approaches which could be stimulated to improve WRM. Chapter 5 provides information on coordination activities which are being pursued.

Part II of the main document comprises the water sector support profiles of 26 ESAs, including 17 OECD Member countries: Australia (AIDAB), Austria, Canada (CIDA), Denmark (DANIDA), Finland (FINNIDA), France, Germany, Ireland, Italy, Japan, The Netherlands (DGIS), Norway (NORAD), Spain, Sweden (SIDA), Switzerland (SDC), United Kingdom (ODA) and USA (USAID) and of 9 other ESAs: African Development Bank, Asian Development Bank (ADB), European Union (EU), Food and Agriculture Organization (FAO), Inter-American Development Bank (IDB), United Nations Development Program (UNDP), United Nations International Children's Fund (UNICEF), World Meteorological Organization (WMO) and the World Bank. The depth of information in the profiles varies as not all ESAs had information readily available on the covered issues.

2. Trends in ESA Policies, Staffing and Finance

2.1 Water resources management policies

All ESAs endorse the principles on WRM developed in Dublin and Rio. A number actively support both the development of these principles and their implementation in projects they support. All indicate that they still need to develop further their policy and support mechanisms for WRM in developing countries.

Box 3 Guiding Principles on Water and Sustainable Development

- *Fresh water is a finite and **vulnerable resource**, essential to sustain life, development and the environment. Its effective management demands a holistic approach linking social and economic development with protection of natural ecosystems;*
- *Water development and management should be based on a **participatory approach**, involving users, planners and policy-makers at all levels. This implies raising awareness of the importance of water among policy makers and the general public and decision making at the lowest appropriate level;*
- ***Women** play a central part in the provision, management and safeguarding of water. This pivotal role of women as providers and users of water and guardians of the living environment has seldom been reflected in institutional arrangements for the development and management of water resources;*
- *Water has an **economic value** in all its competing uses and should be recognised as an economic good. Within this principle, it is vital to recognise first the basic right of all human beings to have access to clean water and sanitation at an affordable price.*

(From the Dublin Statement, 1992)

Although interest in WRM is clearly growing within ESAs, the majority of them still include it "ad hoc" on a project by project basis. WRM activities may result, for example, from an environmental impact analysis or from project staff experience with issues such as catchment protection. Water projects thus may vary considerably in the attention given to WRM. The IDB is one ESA which is developing policies to integrate WRM in all the water projects it supports.

2.1.1 ESAs' water supply and water resources management policies

A majority of ESAs have established specific policies governing their support to the water supply and sanitation sector and most include specific attention to environmental issues and/or WRM. Others, encouraged by the meetings in Dublin and Rio, are following. The World Bank has gone furthest in developing and articulating a specific WRM policy, through a process of internal and external consultation under guidance of a small task force. Under this policy, which recognises the multi-sectoral character of WRM, the Bank will assist countries to promote equitable, efficient and sustainable development. This entails support for water supply and sanitation facilities, flood control and water for productive activities. Priority will

be given to countries with a water policy already in place, where water is scarce, or where there are serious allocation, service efficiency, or environmental problems. The policy paper recommends that countries adopt a comprehensive analytic approach and places strong emphasis on capacity building, stakeholders participation, decentralised delivery and management structures, economic pricing, financial accountability, enhanced use of database systems, interdependence of land and water use. The policy does not, however, specifically address gender issues and promotion of environmental awareness of the public at large. In this respect, a positive development is shown in SIDA, which very much endorses the importance of a more gender-specific approach for the sector as shown in Box 4. A couple of other ESAs, such as CIDA and FINNIDA, also use more gender-specific approaches.

Box 4 From Women's Development to a Gender Approach

Women have long been considered an important target group for Swedish assistance, but women were earlier considered something of a category unto themselves, on the fringes of national development and therefore most easily reached through projects specifically for women. Now we try to let gender awareness guide the planning of all our projects. Each development assistance project shall strive to broaden women's participation. Actually, what we are talking about is a kind of "impact analysis", similar to that used in environmental planning. We must ask ourselves how each project will impact the women and the men in the community for which it is intended. Having made such an analysis the project should be planned to involve both sexes. Gender programme officers are now at work in SIDA's Development Cooperation Offices, and all SIDA personnel as well as contracted consultants are to receive training in the new gender-aware techniques.

(SIDA, 1990)

Most ESAs have developed their water sector policy with the help of their own staff and advisors. In this process the influence of developing countries is limited, yet the end result orients the development aid of the respective ESA. Better use of funds might be coupled with larger influence of developing countries through adoption of a consultative process as now initiated by the World Bank on its policy framework and guidelines for WRM. The Rabat Meeting of the Water Supply and Sanitation Collaborative Council (1993) proposed such a process, whereby a general policy framework is established and a basic set of tools and guidelines is developed.

2.1.2 Water resources management policies in the assisted countries

Only a few ESAs make it a priority to help assisted countries to develop overall national or regional policies for WRM. The FAO will shortly release guidelines for water policy formulation and is making assistance for policy formulation one of its priorities. Assisting developing countries to establish their own WRM policy is very much in line with the DAC principle on development assistance shown in Box 5.

As a follow-up to its policy paper, the World Bank is preparing a "Guide for Developing Water Resources Management Strategies". This guide outlines concepts and a process for formulating a national WRM strategy. It complements other policies and strategies such as water resources master plans and "rapid assessments" and stresses the need for long-term action. Implementation of this approach, however, is yet to begin, partly because some of the issues involved are relatively new on the international agenda. No ESA is actually reporting that an integrated WRM policy has been developed which encompasses agriculture, industry, water supply, tourism and environmental protection. Examples of ESAs joining hands to enable assisted countries to develop their policy and legal framework are still very limited.

Water as an economic good and demand management do not come out as main issues either. Some ESAs do indicate studies of pricing mechanisms for water allocation, and for waste water charges, but most seem to focus on recuperation of production and operation and maintenance costs. This more narrative approach leaves the issue of the environmental cost of water supply systems for future generations. No ESA seems to have taken up the issue of positive reinforcement through rewarding positive behaviour, as for example, suggested by the FAO/WHO Working Group on Legal Aspects of Water Supply and Wastewater Management (FAO/WHO 1990). Limited emphasis is placed on public awareness about WRM and the urgent need for better environmental care.

Box 5 DAC Principles for Effective Aid

"Development assistance is a cooperative partnership exercise between donors and recipients. The developing countries are responsible for their own development and development assistance can only be subsidiary and complementary to the efforts of the developing countries themselves. Aid supports activities for which developing countries have final responsibility and ownership. Project performance depends on both donor and recipient action."

(OECD/DAC, 1992)

2.2 Financial allocations

Information on financial allocations for WRM is not readily available, as most ESAs do not distinguish it as a separate issue. The limited information shows the following paradox: ESAs endorse the importance of WRM, yet do not have specific budget allocations for this field nor foresee any increase of finances for WRM activities in the near future. The reason stated is often the economic recession. Some ESAs, however, plan to rearrange their budgets to give WRM activities more emphasis and make them distinguishable.

Annual commitments for drinking water supply and sanitation have increased over the period 1982 to 1991, from US\$ 1.87 billion to US\$ 2.88 billion. According to the Creditor Reporting System (CRS), total allocation of official development assistance increased in this period from US\$ 23 billion to US\$ 57 billion. The relative share of water supply and sanitation in total commitments, however, decreased from 8.1% in 1982 and 9.2% in 1983 to 4.5% in 1990 and 5.1% in 1991.

Although these data only concern water supply and sanitation projects, statistics from the CRS seem to suggest that the pattern for irrigation funding is quite similar. This is not a very promising trend. It may become even more negative as several ESAs are expecting that future allocations may stabilize or even decline as a result of economic recession. Regarding public investment for the water sector by national governments, the trend seems more positive. Preliminary information from the team working on the World Bank's World Development Report 1994 on infrastructure suggests that this investment increased from 0.3% to 0.45% of GDP between 1982 and 1991.

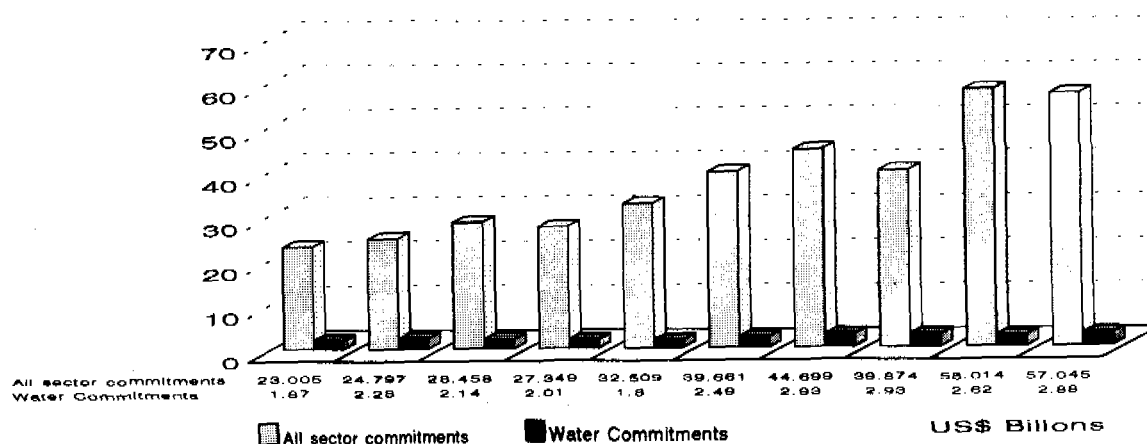


Figure 1: Total Official Development Assistance and Water Sector Commitments between 1982 and 1991. (Creditor Reporting System, OECD/DAC)

ESAs provide the largest volume of financial support to the African region, followed by the Asian and Latin American regions. The amount per country differs considerably, and so does the number of countries each ESA supports. The financial support for the water sector in a specific country may range from US\$ 100,000 to US\$ 100 million per year. More than half of the ESAs provide relatively small amounts of funds, about US\$ 160,000 a year, to a rather large number of countries, while still enforcing their own policy lines and administrative procedures. Sixteen OECD countries: Australia, Austria, Canada, Denmark, Finland, France, Germany, Great Britain, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland and USA

Switzerland and USA have provided information on the countries they support. Together, these 16 OECD countries have provided support for water supply and sanitation projects in 96 different countries over the period 1986-91. The number of countries which each OECD country supports ranges from 7 to 52 with an average of 25. This average is likely to go down in future as several OECD countries are in a process of concentrating their assistance on fewer countries. Six of the other ESAs: ADB, EU, IDB, FAO, UNDP and UNICEF have indicated that they have supported water projects between 1986 and 1991 in 26 to 127 countries, with an average of 68 countries.

Thirty-four assisted countries received support from one or two OECD countries. The other 62 countries received support from 3 to 11 OECD countries, in addition to support from other ESAs (UNICEF, World Bank etc.). Each ESA brings in its own experts, methods and approaches, thus posing a strain on the recipient countries (see Box 6). Some of the OECD countries, such as Sweden channel not only their multilateral aid, but also a considerable part of their bilateral support through other ESAs such as UNICEF.

Box 6 Need to reduce the administrative burden of development aid

"Overburdening the administrative capacity of recipients should be avoided. While effective action to streamline the administration of aid will not be easy, opportunities to harmonise and simplify the requirements exacted from recipient government should be sought."

(CLC Working Group, 1993)

2.3 Staffing

In most ESAs staff numbers have decreased over the last few years. This is due to some ESAs having involved the private sector in a stronger way; other ESAs leave more to national governments and the private sector in assisted countries; still others have faced reduced budget allocations. Only very few have specialised staff who focus fully on WRM. The usual case is that WRM is added to the tasks of drinking water and irrigation specialists. Discussions with several water experts showed that most of them are faced with too many priority issues and too little time to handle them in a way they would like to. Some ESAs have appointed a focal point for WRM to develop WRM policies, help establish coordination between the different actors within the ESA, and assist in the policy debate with recipient countries.

The staff/funding ratio in different ESAs ranges from one staff member involved in water supply programmes for every US\$ 1 million of development assistance for the sector, to one staff member per US\$ 20 million. These figures can only be partially compared because ESAs' working procedures are very different. Some ESAs work more with their own staff, whereas others use consultants. Data were received from 15 ESAs on the gender differentiation of their staff working in the water sector. Of a total of 106 staff members, 17% were women. Per ESA, the figure ranged from 0% to 67%.

3. *Intervention Tools*

3.1 Policy level interventions

ESAs' approaches towards assisted countries differ to a great extent. Some agencies strongly favor an open dialogue with the assisted country and support a full and frank exchange of information. Others develop strict rules governing their assistance programme and have a strong influence on project development through their own staff or consultants. Several ESAs, for example, do not indicate the amount of financial support that will be available for assisted countries, but decide this on a yearly basis after project proposals have been established.

Information on ESA policies concerning their support strategy for the water sector is usually shared with the counterpart organizations as guidance for project formulation but generally not put up for policy debate. A number of ESAs, however, operate differently. They assist their counterparts in developing three- to five-year plans--thus permitting policy discussions on key issues such as WRM. For a number of aspects in WRM even a five-year horizon may be too short, particularly where it comes to establishing databases and creating a legal framework. These plans can best be described as a framework for collaboration setting out a number of basic principles agreed upon between the partners. Subsequently, more detailed plans and proposals are established on an annual basis.

Some ESAs are in the process of taking the joint planning approach one step further. In Uganda, three ESAs, with one in the coordinating role, are jointly supporting the Government of Uganda in establishing a national water resources policy as part of the National Water Action Plan (Box 7). This plan will provide the framework for collaboration between Uganda and the supporting ESAs and may help to initiate joint progress reviews by the government and the ESAs.

Box 7 *Water Action Plan for Uganda*

A large number of bilateral and multilateral donor agencies and NGOs are becoming active in water resources development in Uganda. No effective mechanisms exist for the planning and coordination of the activities of these organizations.

It is in this context that Uganda has initiated the preparation of a Water Action Plan to enable the government to deal effectively with these problems and develop a framework for coordinated development and management of the water resources - with linkages between land and water resources - of the country at local, national and international level. The Water Action Plan can then allow the authorities to seek implementation of a set of coordinated programmes in line with national policies and international agreements.

(Danida, 1993)

3.2 Project-level interventions

Most ESAs have their own guidelines and formats for project formulation, monitoring and evaluation. Some have a rather prescriptive nature whereas others follow planning approaches which facilitate joint project formulation. SDC, for example uses the Logical Framework in combination with rapid participatory rural appraisal techniques to enhance user participation. Many ESAs apply checklists for project formulation and approval, which include a range of issues such as community participation, gender and environment. WRM-related issues are, to some extent, included in these checklists and in the Environmental Impact Analysis (EIA) which many ESAs now request for individual projects. Several ESAs have expressed the need for and are developing more specific checklists for WRM. The question is whether this will just add to the increasing administrative burden. It appears that the number of checklists has grown considerably over the years. Perhaps a more in-depth review is needed to simplify the checklists and harmonize the formulation, planning and reporting procedures and formats. These now show a wide variation among ESAs, and add to the administrative burden of assisted countries.

Box 8 *The need to harmonize ESA formats and procedures*

"Discussions at the Kandy Workshop revealed that a major irritant among developing countries and NGOs was the wide variety of formats and procedures by which ESAs require information to be presented. Such inconsistent project approval and reporting requirements are deemed to be highly inefficient from the perspective of the sector managers within the developing countries."

(CLC Working Group Rabat, 1993)

3.3 Technical assistance

The total number of external technical advisors has decreased over the last twenty years, as more and more activities are carried out by staff from organizations in assisted countries. Technical assistance is still mostly provided by experts from ESA countries. Many of these individual experts were on long-term contracts with ESAs, but over the last years these contracts have been let to external consulting firms. Increasingly, experts are recruited from assisted countries. The trend towards leaving more to assisted countries and national experts may help to unify approaches, as these experts will be involved in projects receiving support from different ESAs. At the same time, this calls for proper training, orientation programmes and information support for national experts to ensure that full benefit is being derived from the latest developments.

Technical advisors are involved in different types of activities. Some have the overall responsibility for specific projects whereas others act in an advisory capacity. They are placed in different agencies in the countries, including planning departments, Ministries of water or natural resources and water agencies, and mostly on a long-term basis.

3.4 Training, research and information support

Training for higher level staff is receiving considerable support from ESAs, through scholarships, seminars and study tours. This training is mostly carried out by institutions in ESA countries. Several ESAs are actively adjusting their approach in linking training better to the projects they support and transferring courses to cooperating institutions in assisted countries. Training covers a wide range of issues, but training opportunities for WRM are still limited and do not necessarily take into account the full spectrum of ideas developed in Dublin and Rio. The UNDP symposium Capacity Building, held in Delft in June 1991, stressed that a comprehensive approach to training and capacity building is required to cater to the need for sector professionals to work in an integrated way and to improve the institutional framework (IHE, 1991).

In a few training institutions such as the University of Linköping, Sweden and the IHE in Delft, The Netherlands, WRM already has a higher profile and can be taken as a topic through the whole study programme. Some ESAs are developing special training units or centres in their country to strengthen the capacities of their own staff in special subject areas such as gender issues, but not yet on WRM. Some of these courses are compulsory for all staff, whereas others are only for specific staff positions.

Research activities are also generally carried out by institutions from ESA countries, but again with a gradual trend towards better involvement of institutions based in assisted countries. A few ESAs are going further in that the institutions in assisted countries lead the research. A few ESAs are also indicating that their support to research activities is expanding, thus underwriting the importance they attach to WRM.

Some ESAs strongly support the development of database systems to assist WRM. These systems include information on ground and surface water resources, rainfall patterns and climate. In a number of countries the activities are carried out in the form of projects under the responsibility of external consultants. In other countries, ESAs support national organizations to develop the systems and also contribute to capacity building in making environmental profiles and carrying out impact assessments. Information on the quality and maintenance of database systems is not provided in the profiles, but it seems that the upkeep of the systems is not fully secured. Prime emphasis appears to be on collection of technical data, but a few innovative projects like the HIMA project in Iringa, Tanzania, are using participatory and gender-specific techniques to collect data on different land and water use patterns of men and women.

Information support through seminars and workshops is provided by several ESAs, but only recently has this included WRM. The 1993 meeting in Uganda jointly supported by different ESAs is a good example. It had a clear focus, as it aimed at developing a framework for WRM for Uganda. Often, however, this type of information support is provided in a scattered way without much orientation towards wider implications and is not embedded in programme and policy development in assisted countries.

Some ESAs attach considerable importance to supporting organizations involved in information and communication within the sector. They see these as an essential support component for technology transfer and improvement of sector performance.

4. Promising Approaches

All ESAs were asked to provide a summary description of approaches and projects which they consider promising in relation to integrated water resources management. The result is very interesting and may help others to refocus their own activities. The wide range of examples shows that WRM is indeed a broad field. It also shows that ESAs are at different levels of development when it comes to practical implementation of the general consensus derived in Dublin and Rio.

Box 9 Lessons from the Water Decade

The lessons learned from the past Decade are that technical solutions alone cannot provide the world's population with safe water supply and proper environmental sanitation. An integrated management of the water resources is needed including technical, institutional, managerial, social and economic aspects. The new approach for sustainable water supply and sanitation depends on local involvement, local solutions and local knowledge within the framework of an overall water and natural resources planning.

(I. Andersson et al. 1991)

Some activities have already been in progress for a long period of time, such as the establishment of database systems. Others such as gender-specific approaches in WRM, treating water as an economic good, and WRM at local level are in a very early stage of development. Furthermore, it is not possible to judge the value of the approach from the summary description without a more in-depth review. Therefore, the information provided here should be used with caution, as further analysis is needed to establish the long-term sustainability, feasibility and impact of the approaches. Within this section a summary is provided of the main promising approaches indicated by the different ESAs.

4.1 Development of a water policy and a legal framework

Out of a total of 79 projects indicated by the 22 ESAs, 16 deal with aspects of policy formulation. This issue is particularly addressed by ADB, Austria, DANIDA, Germany, FAO, IDB, Japan, NORAD, ODA, SDC, SIDA, UNDP, USAID, WMO and the World Bank.

DANIDA mentions the Uganda action plan for developing a framework for integrated management of water resources at local, national and international levels. This plan, which is also receiving support from SIDA and NORAD, was established through support to the Water Development Department of the Ministry of Water, Energy, Minerals and Environment Protection. It follows a comprehensive but not gender-specific approach which includes: linkages between land and water use, capacity building and development of database systems and monitoring schedules. The plan ties in well with the comprehensive integrated approach

indicated in the Delft Declaration (Alaerts, et al, 1991) and the Dublin Statement, an approach which is now actively pursued by several ESAs and particularly the World Bank and UNDP.

UNDP has initiated a programme on capacity building for water sector development together with UNDDSMS and the World Bank. This programme indicates national water sector assessments as a necessary first step. As indicated in Section 2, the World Bank is in the process of establishing a WRM strategy which supports the role of national agencies in formulating national frameworks for WRM. FAO is also strongly supporting this area and establishing guidelines for water policy formulation.

Austria is assisting the Burundi Government to obtain sustainable use of water resources through development of a legal and institutional framework and establishment of a competent institution. This institution works to guide overall implementation of a national plan and serve as an information service centre. SDC provided support to the establishment of a water resources plan for the Laikipia district in Kenya in the late eighties. This plan proved an effective tool to overcome competing interest for the use of water for irrigation, livestock and drinking water.

The IDB has initiated support to the State Government of Sao Paulo, Brazil, in instituting legislation on state water resources policy to introduce the "user pays" principle. IDB indicates a need for a study on the financial and environmental impacts of a system of water extraction and effluent charges.

The positive effect of national capacity building is shown in the support NORAD has provided to the National Coordination Unit in Zimbabwe. This NCU has effectively strengthened the implementation of the country's Master Plan for rural water supply and sanitation. The NCU has also established a working group on gender to work on a strategy to involve more women in water projects. This group has analysed a field sample of rural water supply projects and made several recommendations for a better gender approach.

Several cases are presented of very recent projects, following comprehensive approaches such as the German-supported project to formulate a water master plan and inter-institutional task force for the State of Rio de Janeiro in Brazil. This includes key issues such as legislation and water pricing and is planned to take ten years. Germany also supports an eight-year project in Jordan to formulate a policy to regulate and control the use of water and to reduce water loss and pollution. Another recent project concerns World Bank assistance to the Government of Algeria in implementing demand management in urban areas and the development of integrated land and water management. It is assumed that while management integration is workable at the national level through planned dialogue, this will be more difficult at the local level under the present institutional arrangements. The proposed strategy therefore includes the development of environmental management offices. Establishment of environmental authorities or offices is also brought forward by other ESAs, including SIDA, through support to Tanzania and Nicaragua.

4.2 Water resources assessment and database development

Water resources assessments (WRAs) have a long history and their necessity was already clearly established in the Mar del Plata Action Plan in 1977. The 1991 WMO/UNESCO report on Water Resources Assessment states that WRAs are essential for government policies

and plans, as these have to be based on comprehensive and reliable water data if sustainable water development is to proceed.

An interesting approach to WRAs is indicated by the Dutch Government through its support to Yemen. The main purpose of this project, which started in 1982, was institutional development. A national water resources information centre was established. This centre now has experienced professionals who can provide information on water resources. They are operating three monitoring networks and cooperating with responsible authorities to provide WRAs studies. It is not clear from the information whether the staff has adequate expertise on socio-economic aspects. A similar institution-building approach was followed by WMO in a UNDP-funded project to establish the capacity of the Water Resources Bureau in Papua New Guinea.

WMO and FAO mention the development of different information networks and data centres as being promising. This includes: i) the WMO-supported project to develop the African Centre for Meteorological Applications for Development which is being supported by several ESAs; and ii) the FAO-coordinated Global Water Information System, a database on water resources and water use for rural development.

4.3 Water catchment protection and basin management

Water catchment protection and water basin management are areas in which France, DANIDA, NORAD, CIDA, SIDA, WMO, the World Bank and ADB indicate promising projects. Comprehensive approaches to watershed management and land rehabilitation are promoted by IDB in Bolivia, Brazil, Chile, Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Jamaica, Paraguay, Uruguay and Venezuela. These programmes encourage soil conservation and restoration of quality of flow through a combination of agroforestry, reforestation, extension, training and environmental education. Some projects seem to use a participatory approach, but its effectiveness and gender specificity cannot be judged from the provided data. The information is generally focused on what is being done, rather than how. A SIDA-supported project in Tamil Nadu, India, promotes conservation of water resources and reduction of run-off through different practical measures which are implemented by poor community groups. As a result, these groups reduce goat breeding and so contribute to the conservation of the forest. Long-term sustainability of the approach still has to be proven.

Establishment of a river basin action plan with a water board is another type of programme which is receiving support from different ESAs. The water basin approach is well established in France and French expertise supports projects in several countries. A World Bank-supported project in Chile helps the government to operationalise its new water resources management policies and supports a river basin management initiative. This will contribute to a more rational use of water resources and establish a regulatory framework for resolving conflicts. It will include watershed protection and wastewater treatment.

DANIDA is supporting the establishment of an action plan for the Upper Srepok Basin in Vietnam. This project will give an overview of development opportunities and constraints and includes: energy studies, environmental impact assessments, review of agricultural practices and economic developments, and the development of WRM guidelines for short-, medium- and long-term activities. ADB supported the comprehensive Songkhla Lake Basin Planning Study in Thailand which included institutional support to the office of the National

Environmental Board and resulted in a national resources development framework and a socio-economic development strategy for the lake basin. NORAD supported the development of a water board and a river basin office to manage the Pangani river basin in Tanzania. FAO is also emphasizing capacity building for river basin management in a project in Indonesia.

An interesting component presented by Germany is capacity building for water monitoring in a project to enable Companhia de Tecnologica de Saneamento Ambiental (CETESB) in Brazil to monitor the water quality of the river Tiete.

4.4 Management at the lowest appropriate level

The trend to greater community involvement in decision making and management is evidenced in several of the projects. These projects focus primarily on water supply and far less on WRM, and more on construction than on management. The Australian-supported Lombok rural water supply project, for example, applies community surveys undertaken by the communities themselves as a basis for developing a village water supply development plan. This is then followed by construction of water supply facilities. No indication is provided on strategies to establish management capacity at local level.

Few ESAs put special emphasis on management. CIDA and UNICEF are supporting a project in Uganda which includes establishment of an enabling environment for community management through advocacy, policy development and legislation. CIDA supports a similar project in Ghana which has developed from an engineering approach to a more integrated approach, enabling the communities to acquire and manage water facilities. This is part of a ten-year rural water supply strategy which is being developed by the Government of Ghana with support from the World Bank. CIDA intends to concentrate future efforts on institutional development and capacity building at the local level.

Although the projects listed primarily address provision of water supply systems, they may hold important lessons for the broader water resources management issue as well. UNICEF is supporting a project in India on integrated water resources management, which combines environmental rehabilitation with health improvement. Its positive results are attributed by UNICEF to the combination of poverty reduction, eco-restoration, women's participation and inter-sectoral coordination. UNICEF indicates other positive examples of community management of water supply systems in Sudan, Honduras and Bangladesh.

Involvement of users in financing, operation and maintenance and protection of resources is part of the Italian-supported projects in Mali and Niger. Awareness-raising campaigns, hygiene education and the development of water committees are key components of these projects. Italy has also pioneered the formulation of the Primary Environmental Care (PEC) concept which was endorsed by OECD/DAC in 1989 and is now also being promoted by UNICEF. The elements of PEC are: meeting basic needs, protecting and optimally using natural resources, and empowering communities to live in an environmentally sustainable manner. This concept clearly identifies community participation as crucial for sustainable development and strongly supports the need for an enabling environment in support of community management.

Few projects present clear gender-specific approaches. Involvement of women is indicated by the majority of ESAs and general guidelines are being followed on this aspect in a number

of projects. In 1992 the IDB started, for example, to introduce women's participation in its projects by acknowledging them as economic decision-makers. UNICEF also indicates a strong emphasis on women.

More recently, in the SIDA-supported project on social forestry in India, applying a gender approach has become an issue. This approach emerged when it was found that both men's and women's behavioral changes are needed to ensure that decisions, work and benefits are more equally divided, and that projects do not have negative impacts for certain groups or affect development negatively over a longer time. CIDA strongly emphasizes gender in its support to the Riseralda river basin project in Colombia, to create more awareness and recognition that gender differences within communities and households need to be taken into account when developing project management and implementation strategies.

4.5 Abatement of pollution

A few ESAs bring forward approaches which focus on reduction of pollution. The improvement of water and sanitation infrastructure in Belo Horizonte with help of an Italian NGO is indicated as a water resource protection intervention. USAID is supporting a project in Jordan, which includes protection of drinking water from agricultural and industrial pollution through water quality monitoring, prevention measures and river clean-ups.

IDB is supporting sewage treatment in Barbados which includes wastewater collection, treatment and disposal, and strengthening of Barbados Water Authority to protect the marine environment. Sewage collection and treatment projects in Tunisia and China are supported by Germany to protect water resources and also conserve water by partially reusing it. Japan indicates support to wastewater treatment in Indonesia and improvement of wastewater and waste disposal to protect the Yamuna river in India.

4.6 Efficient water use

ODA provides support for data collection to ascertain the extent of unaccounted for water and leakage and the domestic use of water in the San Luis Potosi area in Mexico. This will provide the basis for more efficient water use. The project also includes a study of the quality and nature of the wastewater, with a view to reusing it in agriculture.

A comprehensive approach to improve irrigation was followed in the Italian-supported Chambo-Guano project in Ecuador. In this project, the Ecuatorian Institute of Hydraulic Resources (INERHI) was assisted in addressing common problems in irrigation schemes. As part of the project an operational manual for effective irrigation schemes was established. INERHI is presently continuing the project on its own. USAID is supporting a project in Morocco which promotes improved irrigation management through an integrated programme of policy analysis, technology transfer, research and demonstration and institution and private sector strengthening.

Spain is supporting a demonstration and training farm in Syria where different irrigation systems are being tested for their water-saving potential. SDC supports an applied research project within the framework of a multi-donor programme to introduce improved on-farm water management concepts, addressing the levels and responsibilities of the institutions

involved, improved user participation in decision making related to water management, and farming techniques.

FAO supports efforts to improve irrigated agriculture through advisory support and dissemination of computer software (CIMIS). Case studies will include information on the water-saving potential of improved irrigation systems now being introduced in Brazil, China, Cyprus, Jordan, Morocco, Pakistan and Yemen.

5. *Coordination*

5.1 **Coordination at global and regional levels**

The Water Supply and Sanitation Collaborative Council is the major platform for ESA coordination. Membership of the Council includes UN organizations, a wide spectrum of other ESAs, and governmental and non-governmental organizations. The Council meets every two years and has an independent secretariat housed at WHO headquarters and financed jointly by UNDP and other ESAs. It plays an important role in furthering the debate on key issues in the water and sanitation sector. However, only persons involved in the water supply and sanitation sector usually participate in Council meetings, and those from other sectors important to WRM, such as agriculture, are generally not represented.

The Council is also included in the 1993 report of the first session of the Committee for Natural Resources of the United Nations Economic and Social Council, which indicates that 21 organizations within the United Nations system are involved in WRM. These are listed in Annex 2 with their main areas of involvement. The report indicates that there is a complex relationship among the organizations of the UN system in the field of water resources. The mandates of these organizations include grey areas which overlap and sometimes lead to duplication. At the same time, they bring a variety of perspectives and experiences to the field, offering opportunities for bringing about complementary approaches in a synergistic manner. The report describes various co-ordination mechanisms at the global level; the Administrative Committee on Coordination (ACC) Intersecretariat Group for Water Resources, the Steering Committee for Water Supply and Sanitation and the Water Supply and Sanitation Collaborative Council.

The ACC Intersecretariat Group was established in 1979 to: (i) cooperate in the monitoring of the progress made by governments in the Mar del Plata Action Plan; (ii) promote cooperation and joint planning of the water-related programmes of the UN system; (iii) assist in coordinating the water-related activities of the UN system at country and regional levels.

The Interagency Steering Committee for Water Supply and Sanitation evolved from the Steering Committee for Cooperative Action for the IDWSSD which was established in 1980. It is designed to promote water supply and sanitation at the global level; assess needs and monitor progress towards the achievement of national, regional and global objectives; ensure effective consultation among the organizations of the system and provide a link to the Collaborative Council. The Steering Committee has a close relationship with the ACC Intersecretariat Group and normally has its meetings in conjunction with ACC meetings.

Examples of regional coordination mechanisms include the Interagency Task Force on Water for Asia and the Pacific established by ESCAP in 1978. This Task Force meets twice a year to coordinate water-related activities undertaken in the region by the organizations concerned. Another example is the Interagency Group for Water Resources Activities in Africa established by ECA in 1992. The Group's aim is to coordinate and harmonize water resources activities in Africa at the subregional and regional levels; promote collaboration and joint activities; and gather, compile and disseminate information on water resources activities in Africa.

The main coordination mechanisms which are used by the bodies indicated above are consultations and meetings, including Dublin and Rio. These meetings provide opportunities to discuss key issues with a broader group of participants including in particular, members from assisted countries.

5.2 Coordination between and within ESAs

Some OECD countries such as the Nordic countries have more intensive coordination amongst themselves through regular consultative meetings on key issues related to water supply and sanitation. These meetings may sometimes be of a more formal nature, as for example the meeting on the Freshwater Initiative in Copenhagen, in 1991.

Another example of a coordination group is AGUASAN in Switzerland. The members of this interdisciplinary group are collaborators in the following Swiss-based institutions: IRCWD, Helvetas, SKAT, SFIT Lausanne and Zurich, WHO, Zurich University and SDC. The group has proven to be a most effective clearing-house for sector-related issues.

Mechanisms to improve coordination are also taken within agencies. The World Bank has established a water resources thematic team which acts as a catalyst to implement the Bank's Water Resources Policy and to assist the country departments. This enhances the dialogue within the Bank on WRM.

5.3 Country level coordination

At the country level, the picture seems to indicate that coordination at best is interpreted as consultation. A few ESAs have made clear in their policy documents that country-level coordination of ESA inputs is the responsibility of the assisted government. Such an approach would respond to the decentralization principles proposed in Dublin and be a first condition to avoid the situation that similar projects in a country are being implemented according to different strategies because they are supported by different ESAs. Some examples do exist of more intense collaboration at the country level, including the joint financing of projects and meetings.

The Uganda meeting referred to in Box 7 shows that collaboration at the national level can provide a very good platform to discuss key developments in WRM and develop a set of coordinated programmes, thus adding to the efficiency of ESAs' support activities.

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Individual Profiles

AUSTRALIAN GOVERNMENT

1. Administrative aid structure

Australian overseas aid is administered by the Australian International Development Assistance Bureau (AIDAB), which is a part of the Ministry of Foreign Affairs and Trade. AIDAB's Director-General has direct access to the Minister of Overseas Development Cooperation and Pacific Island Affairs. AIDAB is organized into three Divisions: (1) The Country Programmes, which administers aid given directly to selected countries; (2) The Global Programmes, which administers aid provided to countries through international and non-governmental agencies; and (3) The Corporate Service Programmes, which formulates aid policies, appraises and evaluates projects and manages AIDAB's finances and administration.

The Bureau has 22 overseas offices and in countries where AIDAB is not represented, Australian embassies and High Commissions handle aid requests.

2. Staffing

The Australian Government employs over 1,000 personnel on a permanent basis, as well as consultants on technical cooperation activities in development projects. In January 1994, 575 of these were AIDAB staff, of which 180 were women. There are no staff working specifically on water projects; staff resources are drawn from a pool.

3. Aid policies and strategies

In enhancing the quality of Australia's overseas development cooperation programme AIDAB's role includes environmental considerations in the formulation and implementation of its development policies, programmes and projects. This initiative was further strengthened when the Government, in 1991, published its interim policy statement on "Ecologically Sustainable Development in International Development Cooperation". The statement indicated that the following principles are necessary to achieve ecologically sustainable development: participation of people affected; sustainable resource use; equal distribution among assisted people; conservation of biodiversity; rehabilitation of disturbed areas; and minimum health and safety standards. "The Activity Guidelines on Environmental Assessment for International Development Cooperation" provide work areas in AIDAB with guidelines to assess potential environmental impacts of projects/programmes, as required by government environmental policies and legislation. Activity monitoring and recording are therefore promoted. Environmental Markers on the AIDAB activity database have been designed for this purpose. The Markers provide useful summaries of projects for both external and internal reviews relating to AIDAB's development and environment activities.

Water, sanitation, irrigation and environment

Between 1976 and 1988 AIDAB supported water projects within the six following categories: rural water supply, irrigation, city and town water supply, hydroelectric power, management of water resources, and sanitation. The main objectives of these projects were: provision of safe

water and sanitation; supply of equipment, materials and building infrastructure; development of irrigation systems to raise farm incomes; assistance to institutions; training in technical aspects; improvement of community health; flood control and improvement of drainage; provision of experts and resources studies; and women's needs.

Water resources management in relation to Dublin and Rio

The incorporation of environmental impact assessments into the institutional and legislative framework of many developing countries receiving AIDAB funding is increasing, particularly in the Asian and Pacific region. AIDAB recognizes that its efforts in this area need to be strengthened.

Following an evaluation of eight projects AIDAB has taken the standpoint that construction of facilities in isolation is inadequate and that water resources development and management require wider design considerations. The key considerations should include: social and community involvement in all phases; environmental considerations; resource evaluation; education, training and management; suitable design and engineering considerations; financial and economic analyses. AIDAB has been trying to incorporate all these aspects in its water projects since 1990. The new generation of multi-component water projects should have longer inception phases incorporating baseline studies, and design of monitoring and evaluation systems.

4. Intervention tools in the water sector

The following sections describe "tools" Australian development cooperation uses to orient policies and programmes in the assisted countries.

Policy level

The Bureau provides development assistance only when it receives a request to assist a country/project/programme. The priority for a sector depends on the development policy strategy of each recipient. The Bureau follows the following procedure for approval of assistance: 1. the government of a developing country makes a formal request to the Australian Government (through Australian Embassy to AIDAB); 2. AIDAB does a project appraisal; 3. funding is sought from annual parliamentary appropriations; 4. project/programme is approved or disapproved; and 5. a Memorandum of Understanding is negotiated and signed. Australia calls this process "country programming" because all sectors are programmed as a coordinated whole by matching the assisted country's stated needs and requests for assistance with the availability and capacity of expertise and funds in Australia to meet those needs. The process involves annual bilateral programme consultations and the production of an agreed policy paper.

The Bureau's desire to ensure sustainable development is reinforced by government policies, including: the "Aid and the Environment Policy"; and the "Environment Protection". The policies are developed by AIDAB for the Government to approve.

Project level All AIDAB officers are responsible for ensuring that the Government's policy and legislation are followed and for this Environmental Assessment Procedures have been developed. A procedure consists of five basic elements: 1. screening of the project to determine if it requires assessment; 2. an Initial Environmental Examination (IEE) to see what likely impact it will have; 3. an Environmental Impact Assessment (EIA); 4. provision of an Environmental Management Plan (EMP); and 5. review of the activity to ensure compliance and feedback, e.g. Environment Review. The officers are provided with guidelines that help them screen projects, e.g. (a) series of basic questions; (b) categories in which they can group certain activities to help classify the design of the project; (c) eight areas of environmental concern for identification of key environmental concerns.

AIDAB staff have a checklist with questions concerning water management to use while screening a water project.

Technical assistance Technical assistance and contractor service are normally procured from within Australia. AIDAB considers the environmental soundness of goods before they are provided as technical assistance.

Training, research, and information support AIDAB's Personnel Development Section is providing environmental awareness courses and assists in the development of courses in environment-related skills for AIDAB officers. The courses raise the awareness in such a way that technical issues are related to environmental aspects and stimulate use of environmental checklists and guidelines in the projects. In the sponsored overseas student programme, ecologically sustainable development is an area of emphasis within each country allocation, for example government staff are offered environment training. AIDAB supports the International Environmental and Natural Resource Assessment Information Service (INTERAISE), which identifies and locates key information and makes this available to those who need it. INTERAISE is a project established by the World Resources Institute, the World Conservation Union and the International Institute for Environment and Development. AIDAB is coordinating the presentation of ecologically sustainable development courses in training of NGO members, consultants, etc. who are responsible for the implementation of Australia's development cooperation programmes.

5. Volume and share of aid resources

Australian aid takes many different forms and is given through many different channels to maximize its impact: (a) country programmes (66.2% of the development assistance); (b) global programmes (30.1% of the overall development assistance); (c) corporate services (3.7%). The percentage of development assistance of the Australian GNP in 1991 was 0.38% or US\$ 1055 million.

Of the annual budget about 9% is spent on water development projects. Between the period 1976 and 1988 AIDAB spent US\$ 168 million on water

development projects (13% of AIDAB's total bilateral aid). The projects were aimed mostly at rural supplies (37% of total outlays), urban water and sanitation (20%), irrigation and hydropower schemes (35%) and water resources management (8%). Water resources management projects, however, represent 23% of the total number of water projects.

6. Countries where aid is concentrated

Australia is particularly assisting countries within its own geographic area. However, several African and South Asian countries receive assistance as well. Papua New Guinea (PNG) is the largest recipient of Australian aid, receiving US\$ 229 million in 1993/94.

From 1985 to 1991 the following countries were assisted for water related activities by the Australian Government: Indonesia received US\$ 33 million. Myanmar, Thailand, Laos and Fiji received between US\$ 5 and 15 million (on average US\$ 8.4 million). Eight countries received between US\$ 500 000 and 3 million (on average US\$ 980 000), another eight countries received less than US\$ 500,000 (on average US\$ 135,000).

7. Partners in project planning and implementation

AIDAB's approach has often involved co-financing with multi-lateral agencies, especially the World Bank. AIDAB supports activities arising from NGO-initiatives by channelling funds through Australian NGOs to their overseas counterparts, leaving much of the responsibility to each Australian NGO. The private sector is being used more by the AIDAB, for environmental expertise in technology services in the developing countries.

8. Overview of promising approaches in water resources projects

Lombok rural water supplies and sanitation project

The project is built upon four principles: a community process; management which is oriented by the people; appropriate and affordable WSS technology which is maintainable upon completion; and planning based on a strategy for resource use at four levels: central, province, district, and local levels. To begin with a community fund was established at the district level by the Indonesian Government and AIDAB for constructing WSS facilities. A local NGO was requested to recruit and train community organizers to facilitate the process of participation. The villagers were invited to participate in the planning of the WSS facilities, and they defined their own needs and decided upon a village WSS plan. They also decided on resources like labour, land, materials and cash, which they could provide to supplement the fund for construction costs. The WSS plan was discussed with technical staff and community organizers and then the plan was used as a basis for construction. Community self-survey methods of problem solving were subsequently introduced in a few communities, which helped them to conceptualize problems and solutions in the area of family and community welfare. Through this project adverse environmental impacts have been limited, such as increased sullage, which largely has been contained by drainage facilities.

**Eastern Indonesia
water supply
project**

This project is developed in five towns and focusses on construction and commission of new water supply systems. The systems are relatively complex and water enterprises are asked to manage them upon completion. Water source development, transmission and storage construction is undertaken by appointed contractors. However, the project incorporates direct involvement by the communities in construction of pipelines, etc. The idea behind the communities' participation is that it provides the community with some financial return, it increases their sense of responsibility towards the water supply, and the more the community knows about the system the higher the demand is for connections. This project, as well as the Lombok project, show examples of decentralization, integrated planning, community participation with women involvement as an integral element, and institutional strengthening for improving the sustainability of the WSS projects.

9. Coordination

AIDAB is coordinating its water-related activities with the assisted countries through regular high-level consultations. Moreover, AIDAB coordinates its support with a number of United Nations development agencies and with the International Union for the Conservation of Nature and Natural Resources (IUCN). The Union is unusual in that its membership includes governments, government agencies and voluntary organizations.

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AUSTRIAN GOVERNMENT

1. Administrative aid structure The Federal Chancellery is in charge of the Austrian bilateral development assistance. Within the Chancellery the Directorate-General for Development Cooperation is divided into five divisions (General Policy, Budgetary and Financial, Planning and Country Programming, Project Implementation, and Evaluation and Control). The Minister of State is responsible for the operational activities of the assistance. The Federal Ministers of Foreign Affairs are in charge of the joint programmes with the UN System, the Ministry of Finance the contacts with multilateral financial institutions, and the Ministry of Agriculture is handling food aid.

Austria has five regional offices: Cape Verde, Mozambique, Uganda, Nicaragua and Bhutan. These offices support the implementation of the projects and work as a link between the various partner organizations. The coordinators report directly to the desk offices in the Federal Chancellery in Vienna. No Austrian embassies are directly involved in the cooperation programmes.

2. Staffing Staff dealing with water-related issues are located in the section for "bilateral technical cooperation" in the Federal Chancellery. There are two technical officers (both male) for drinking water supply, sanitation and water resources. There are at least eight Austrian expert advisers working in water sector institutions in Uganda, Rwanda, Burundi, Mozambique and Ghana.

3. Aid policies and strategies The objective of Austria's development policy is to create a positive framework for social and economic development in the assisted countries, which includes principles based on indigenous knowledge, an active peace policy, as well as a policy for protection and management of natural resources. The focus of the overall development policy is on rural development and agriculture, water and energy, health and social work, and vocational training. Priority is given to the least developed countries.

Water, sanitation, irrigation and environment

The policy for water is concentrated on two subsectors, water supply for rural and urban areas and wastewater management in urban areas. The sectoral approach is to strengthen local administrations, integration of local people in decision-making and the preparation of basic studies. Examples of this approach are: to register water assessments; groundwater research and analysis; institution building; and awareness campaigns. A distinction is made between urban and rural water supply because of the different technological approach and because of the socio-economic and environmental background of the target groups.

NGOs and the involvement of women are seen as essential for water-related activities. Austria is directing more of its support to self-initiated and self

defined projects by local target groups. They should have an integrated planning approach and should include appropriate solutions to the water-related problems.

Water resources management in relation to Dublin and Rio

Concerning policy developments on water resources management a concentration on eight countries and five regions is envisaged. Water development policies are to be prepared for each of the priority countries in close cooperation with the five official coordination offices in Africa, Asia and Latin America. For the Sahel a specific policy paper is in preparation, where the involvement of NGOs will be strongly emphasized.

The sectoral approach rests on strengthening of local administrations as a prerequisite; the integration of the local people in decision-making; and the preparation of basic studies. Examples are: register of water assessment; groundwater research and analysis; institution building; and awareness-raising campaigns. Another aspect of Austria's water policy rests on the rehabilitation and refurbishing of existing, badly managed and maintained water supply plants (or equipment).

Some urban supply grids in particular need reduction of water losses as well as economical and organizational improvements. Increased water use from aquifer reserves (because of rising population and irrigation requirements) are leading to environmental and health problems. Advanced studies and environmental checks will have to be carried out more frequently in the future. Austria will pay more attention to appropriate wastewater management leading to the search for appropriate solutions.

4. Intervention tools in the water sector

The following sections describe the "tools" the Austrian development cooperation uses to orient policies and programmes in the assisted countries.

Policy level

Field requests are submitted by developing countries' authorities to the Federal Ministry of Foreign Affairs or to the Federal Chancellery. Programme decisions are made in close consultation with the concerned country within the limits of available funds. Austria has the following criteria for the development projects: they should be in accordance with national and regional development plans; the potential beneficiaries are to be clearly identified and should give their consent to the project before it is started; there should be a tangible gain for the beneficiaries; involving meeting their needs and increase their potential for development. The potential for self-help should be considered and reinforced.

Project level

Austria is using a simplified ZOPP method while developing the projects and intends to start using the Logical Framework Approach as well. These methods are seen as basic tools or instruments for project formulation with

the partners in the assisted countries. The Austrian experience is that it is important to give the executive staff in the countries proper training in how to use the methods before they are integrated in the projects. The responsibility for the formulation and review of water projects lies within the Water and Energy Sector of the Federal Chancellery.

Technical assistance

Water resource projects are being assisted by two groups of project executing bodies: civil engineers and companies; and NGOs which are concentrating on the water development sector.

Training, research and information support

The Austrian Government places 7,000 students from developing countries in Austrian Universities each year. Additionally, another 500 students attend specialist courses every year, at no charge. A few of the training initiatives are related to water, for example a limnology course in Zalsburg, a groundwater prospecting course at the Technical University of Graz and a hydropower training course.

5. Volume and share of aid resources

Austrian development assistance in 1991 was US\$ 546 million, an increase of 37% over the year before. The development assistance per GNP ratio was 0.34% in 1991 compared to 0.25% in 1990.

US\$ 239 million were spent on bilateral technical assistance in 1991. Of this about US\$ 10.2 million was for 27 water-related projects. The majority of this went to Africa, amounting to US\$ 9.1 million. Of the US\$ 10.2 million the percentage of investment was as follows: drinking water 22%; irrigation 2%; hydropower 68%; and others 8%.

On bilateral basis five projects have been identified in the water sector, and are being implemented for the years 1993 to 1996, totalling a volume of about US\$ 6 million. Moreover in 1992 the parliament agreed upon an Austrian initiative to establish a US\$ 20 million Rain forest Fund.

6. Countries where aid is concentrated

Austria is focussing most of its development assistance on the sub-Saharan region of Africa. However Austria has also selected a number of key areas for its development assistance: Cape Verde, Burkina Faso, Kenya, Uganda, Rwanda, Burundi, Mozambique, Senegal, Nicaragua and Bhutan.

In the period 1988 to 1991 Austria supported water-related activities in eight countries and in the Sahara region. China received the most support, US\$ 68.8 million. Gambia US\$ 20.3 million and Rwanda US\$ 11.1 million (in these countries large World Bank co-financing projects were executed). Kenya and Mali received between US\$ 500,000 and 3 million (on average US\$ 1.6 million) and the region north of Sahara, Senegal, Honduras and Nicaragua received less than US\$ 500,000 each (on average US\$ 220,000).

7. Partners In project planning and implementation The Austrian development cooperation is involving a variety of partners in supporting the development projects, such as consultancy firms, companies, NGOs and Universities. Austria is also cooperating with the World Bank, the UN System, financial regional institutions and international organizations like OECD, GATT and ILO.

8. Overview of promising approaches in water resources projects

National water development plan in Burundi

The objectives of the project, as formalized by Burundi and Austria, are establishment of an overall "water master plan" and creation of one focal agency, which is strong enough to administratively impose the plans. The agency will also work as a service centre for the collection, storage, and dissemination of water and water-related information for decision makers. The activities that will be undertaken are the following: implementation of a country-wide investigation on water resources, establishment of an institutional framework, and development of a legislative authority. With these "instruments" it is envisaged that the decision makers in the ministries will be able to take decisions related to the water sector. An Austrian consultant is carrying out the terms of reference, defined by Burundi.

9. Coordination

Austria coordinates its support to water-related projects in various ways, such as through monitoring trips by the staff of the Water and Energy Sector, donor conferences, interregional meetings and round tables. Austria is also to some extent developing projects together with other ESA. For example, in Maputo they coordinate their activities with UNDP.

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BRITISH GOVERNMENT

1. Administrative development assistance structure

The Overseas Development Administration (ODA) is responsible for British Development Cooperation and is part of the Foreign and Commonwealth Office. The cabinet minister responsible for ODA is the Secretary of State for Foreign and Commonwealth Affairs. He delegates most of his powers to a Minister of State who is the Minister for Overseas Development. British High Commission and embassies in developing countries help to implement the assistance programme and are assisted by ODA staff serving in some of these overseas posts. ODA has five regional overseas offices in Barbados, Kenya, Malawi, South Africa and Thailand. These offices provide advice on planning and execution of aid in the regions, supplemented by aid management offices in Bangladesh and the Pacific. These offices have extensive delegated responsibility for approving capital and technical cooperation projects.

2. Staffing

There are 1200 staff in ODA headquarters and overseas offices. These staff are responsible for policy, programme design, management, professional advice and research supervision, and do not work in the projects themselves. Individual projects are implemented by recipient governments or by their agencies. ODA may on occasion provide support through staff who work on contract for ODA or on contract for the recipient government.

There are no permanent ODA staff recruited specifically for the water sector, but an Engineering Advisor with long experience in the water field is now working exclusively in the sector as the Water Resources Advisor. He is based in the Engineering Division at headquarters.

Of the 50 professional advisors most involved in the water sector, approximately 20% are female. The proportion of female administrative staff is around 50%.

Twelve of the engineering advisors work as "brigaded" advisors to the spending departments in headquarters or in the regional offices, plus the Chief Engineering Advisor and his deputy in the Engineering Division, who include water-related infrastructure within their professional responsibility. One of the two industrial training advisors within the Engineering Division also includes water and sanitation within his portfolio. Similarly, water sector work impinges on the activities of the sixteen natural resources advisors (particularly irrigation and watershed management), the two environmental advisors, the two fisheries advisors, the Environment Economics Advisor and other economics/financial management advisors. Ten social development advisors and nine health/population advisors have a similar inter-disciplinary involvement in the water sector from time to time, to a varying degree. A further social development advisor, on contract, has a specialist involvement in part of the water sector in India.

3. Aid policies and strategies

The overall objective of the British aid programme is to promote sustainable economic and social development, in order to improve the quality of life and reduce poverty, suffering and deprivation in developing countries. ODA's objectives in 1993 represent perspectives on this overall aim. They are: to promote economic reform and longer term economic growth; to promote good government; to help developing countries to define and carry out poverty reduction strategies; to promote human development, including better education and health, and children by choice; and to help developing countries tackle national environmental problems.

Water, sanitation, irrigation and environment

Water-related projects are invariably associated with the overall objectives of ODA (see above paragraph). Projects, such as water supply and sanitation, protection of water sources, prevention of pollution and water resources assessment are therefore given serious consideration in many country programmes, and especially where water is short or where water quality is of major concern.

Water resources management in relation to Dublin and Rio

Water resources development per se is not a priority developmental objective for ODA, but is part of the water-related projects of ODA. ODA has been adapting a more inter-disciplinary approach concerning water resource management, which was stimulated by the joint Engineering/Natural Resources Advisors conference in 1992. The theme of this conference was "Priorities for Water Resources Allocation and Management". The interest in the subject had significantly been enhanced by the Dublin and Rio preparatory work and subsequent discussions. The Advisors conference influenced ODA's management to reassess its internal approach to water-related activities, leading to preparation of the paper "A Fresh Approach to Water Resources Development", in 1993. (See also section 9.)

No additional human or financial resources have so far been devoted by ODA to water resource management as a result of the Dublin and Rio meetings, but a much better awareness and information base concerning water-related activities have resulted from associated initiatives. Staffing reorganization and reassignment of activities within Engineering Division during 1992 led to creation of the Water Resources Advisor post which coincided with post-UNCED follow-up. Amongst the British engineering professionals the interest for water resource management has clearly increased as a result of the Earth Summit in Rio.

4. Intervention tools in the water sector

The following sub-sections describe the tools which ODA uses to implement policies and programmes in the assisted countries:

Policy level

Funding decisions within the bilateral country programme are made by ODA's geographical departments at headquarters or by the regional Development Divisions or country Aid Management Offices, within their delegated financial authority. They can approve activities up to US\$ 1.48 million and they report back to headquarters on the amount of funds they have spent. Advice is provided by centrally or locally based professional advisors, supplemented where necessary by specialist advice from advisors such as the Water Resources Advisor at headquarters.

The ODA assistance policy is set country by country and updated annually or biennially for most countries via "Country Review" or "Country Objectives" papers in the light of an analysis of the country's development situation and need for assistance. The principles of the Dublin statements on water resources are being integrated into ODA's policies and strategies by means of guidance for country programme officers in an ODA staff paper "A Fresh Approach to Water Resources Development".

ODA undertakes the country programme reviews. However ODA holds annual discussions with the Finance and Planning Ministries in the assisted countries, with frequent missions or contact between Embassy/High Commission and government officials in between. This is supplemented by regular contact between professionals of ODA and government line ministries, as well as mainly informal liaison between donors who are active in the sector, and with IFI officials in the country/region or at their headquarters. These discussions influence what goes into the Country Papers.

Project level

In addition to ODA's procedural guidance on the formulation and planning of all development projects, ODA has a "Manual of Environmental Appraisal", containing environmental checklists, which project officers have to consult during project preparation. A requisite part of project preparation is the study of relevant ODA evaluations in the sector. Each finished project is the subject of a project completion report, and more detailed evaluations are undertaken of a representative sample of projects each year.

Administrative heads of departments are responsible for the preparation of projects but detailed formulation is left to the project officer assisted by relevant advisors. The project officer may be the country desk officer or the most appropriate advisor acting as lead advisor. Review and evaluation of selected water projects is undertaken by the Evaluation Department, typically via an in-house Economic Advisor assisted by a specialist consultant. A country project submission which is written up by ODA, is sent to the authority in that country for review of how ODA intends to develop the project. The authority can then accept or reject the underlying terms surrounding a project. When ODA receives project proposals from the assisted countries, a pre-appraisal mission is made in collaboration with the people in the assisted country.

The document "A Fresh Approach to Water Resources Development, November 1993" was prepared within ODA as a guide to spending department staff to consider at the project identification and appraisal stages, as well as providing assistance in country policy formulation. An earlier report on "Water Resources Planning and Management in Developing Countries", prepared for ODA's Engineering Division in 1992, provides further useful suggestions for ODA's water resources planning activities.

Technical assistance

Technical Cooperation (TC) and Capital Aid are the two main components of British bilateral assistance. Consultants or individual technical cooperation officers are generally recruited in the UK or EU countries, but local consultants are engaged where appropriate. The recipient country is also encouraged to provide counterpart staff for training and technology transfer purposes wherever possible.

Joint funding between ODA and UK or local NGOs (usually on a 50/50 basis) on many smaller TC projects is increasing, especially within the water sector. Other forms of technical assistance include the ODA contribution to the British Volunteer Programme and assistance under emergency and disaster relief. Both have a significant water sector involvement. ODA also has professional linkages with research-orientated bodies such as the Natural Resources Institute, British Geological Survey, Institute of Hydrology and HR Wallingford. Staff from these institutes are frequently given TC or consultancy assignments.

Water resources and river basin management technical assistance, including training assignments, are frequently provided by consultants involving input from a UK water utility, sometimes in conjunction with a consultant specializing in the water sector. HR Wallingford also contributes in this sub-sector.

Training, research, and information support

The total financial support to water-related research almost doubled between 1988 and 1993. Four research areas in particular have been receiving more funds. Between 1988 and 1993 the financial support in the areas of "integrated water resources development and management" and "drinking water supply and sanitation" increased almost fourfold. Research in "water and sustainable urban development" almost doubled in value and research in "protection of water resources, water quality and aquatic ecosystems" increased by one fourth in this period. During 1993 nearly 80 water-related research projects were underway, along with 12 associated research dissemination projects.

Much of the research in programme areas related to water resource management is undertaken by the Wallingford institutions. The bulk of research in both rural and urban WS&S is carried out by university departments. The testing of handpump components by the Consumer

Research Laboratory is an example of a non-university commissioned contract.

A total of 275 students came to the United Kingdom in 1991 to study water-related subjects (out of a total of 12,500). A further 105 pursued environmental studies. ODA increasingly provides training within a project context. This has led to a growing number of short, tailor-made courses and training implemented in-country where feasible. Where a significant demand exists for particular skills, the training is linked to the development of local training institutions, usually over a number of years. ODA has recently agreed to projects on integrated water resources management and groundwater development in India. Over a period of three years, more than 80 practicing professionals and 12 trainers will be trained and two Indian training institutes strengthened to provide future training. A similar project focussing on water resources and environmental management is being prepared in Mexico. These projects combine both UK and in-country training, trainer development and the preparation of local case studies. ODA also supports a wide variety of non-professional, skill-specific training in the context of capital aid projects where emphasis is placed on achieving defined competence and assessment. Such training is normally undertaken in-country.

ODA is providing support to conferences/workshops being organized by HR Wallingford on Maintenance and Operation of Irrigation/Drainage Schemes for Improved Performance, Canal Linings and Seepage, Groundwater Pollution, Drought Management, River Flood Hydraulics and Integrated River Basin Planning, the WEDC Conferences on Water, Sanitation, Environment and Development, the Africa Water and Wastewater Conferences being organized by Water Africa Ltd, and the WHO Sub-Regional Workshop on Water Quality Control and Surveillance.

5. Volume and share of aid resources

Total UK aid for developing countries in the financial year 1991/92 was the equivalent of US\$ 3.3 billion. This compares with US\$ 3.1 billion in 1990/91. The British development assistance during the calendar year 1992 represents 0.31% of GNP, compared with 0.32% in 1991.

In 1991 ODA spent most of its funds, within the water sector, on projects related to "water and sustainable food production" and "water and sustainable urban development". However the funds for "water and sustainable food production" decreased by one third between 1988 and 1991. The areas which received substantially larger financial support in this period were: "water and sustainable urban development", "integrated water resources development and management", "water resource assessment" and "protection of water resources". It is likely that the funds for the three latter areas will continue to increase.

The proportion of water-related project expenditure as a percentage of bilateral aid which was allocated by sector over the five year period 1988-1992 varied, from 6% to 8%.

6. Countries where aid is concentrated

The countries which received most aid from ODA in 1991/92 were: India, Bangladesh, Zimbabwe, Ghana, Kenya, Zambia, Uganda, Tanzania, Indonesia and China, in that order. In the period from 1985 to 1991, 16 developing countries received assistance totalling US\$ 232 million for water-related activities. India, Pakistan and Malaysia received between US\$ 15 and 87.2 million (average US\$ 59.3 million). Guyana, Senegal, Ghana and Sudan received between US\$ 5 and 10 million (average US\$ 9.3 million). Bolivia, Sri Lanka and Cyprus received between US\$ 3 and 5 million (average US\$ 3.9 million). Lesotho, Gibraltar and Ivory Coast received between US\$ 500,000 and 3 million (average US\$ 1.3 million) and three countries received less than US\$ 500,000.

India and Zimbabwe are countries where emphasis is now being placed on water resources management, in addition to small island dependencies such as St. Helena.

7. Partners in project planning and implementation

Around 45% of British assistance is provided through multilateral agencies, particularly the EU, the World Bank group, and the UN Agencies. In its bilateral programme ODA collaborates with a range of British consultants, NGOs, academic and research institutions, public authorities and private companies in executive project activities as well as research. Water Aid is one of the foremost NGOs with which ODA collaborates in the water sector, but OXFAM and Save the Children Fund are also active in the sector, particularly via the Joint Funding Scheme.

Twinning between UK water utilities and certain developing country water authorities commenced on a small scale during the 1980s. Recent activity of this nature has mainly occurred in Pakistan, India and Southern Africa with the Seven-Trent, Thames and North-West Water Companies being mainly involved. Privatization of British water companies in 1989 has led to an increasing link (and take-over in some cases) with British consulting engineers specializing in the water sector.

8. Overview of promising approaches in water resources projects

Recent projects which particularly relate to strengthening of water resources management include the following:

Development of a water resources management strategy in Zimbabwe

This strategy will, among other issues, cover water resource planning for public water supply, industrial use, water pollution control, planning and prioritizing irrigation and drainage; cost recovery and pricing; regulatory and legislative issues, international water rights; institutional roles and responsibilities; and environmental and social issues. The consultants will

work through the Department of Water Development, liaise with all water sector agencies such as NAC and ZESA, as well as the farming industry and mining representatives, urban and rural councils. The first steps of this project will be to establish a steering group with sub-committees and to prepare a detailed action plan agreed to by all sub-committees and ratified by the steering group.

*Re-use of water
resources in Mexico*

The consultants of ODA will provide assistance to local staff in the collection of data required for surveys to ascertain the extent of unaccounted for water and leakage, as well as domestic use of water. Moreover advice and training will be given in determining the quality and nature of wastewater in the area of San Luis Potosi. The consultants will work in collaboration with local staff to prepare proposals; to reduce health risks in open channels and river beds; and to enforce adequate treatment of wastewater to render it safe for use by agriculture. The work will consist of making outline design of necessary works; prepare estimates of costs; negotiate with other agencies for loans and grants, etc. In phase 2 the consultants will give assistance to the local staff on how to reduce the quantity of industrial discharges. This includes discussions with the industries to stimulate the adaptation of strategies for modification of methods of using water for processing and cooling, in order to reduce volume of discharges; increase reuse of water; and improve the quality of discharges, for example. In phase 3 the consultants will assist in improving the quality of the treated water available for agriculture through advice on the design and execution of repair works, advise farmers on the most efficient use of water, etc.

9. Coordination

The ODA Water Resources Advisor consulted World Bank officials, CIDA and USAID whilst preparing the paper "A Fresh Approach to Water Resources Development" in conjunction with ODA colleagues. Through the dialogue with these ESAs, the ODA Advisor learned what kind of water resource activities and approaches they had. EU meetings have also enabled ODA to share such experience with most of the European colleagues during 1993. Moreover ODA has informal liaison with ESAs active in the sector, particularly via the meetings and working groups of the Water Supply and Sanitation Collaborative Council, for which ODA also provides funding.

In September 1993, ODA hosted a meeting for selected engineering consultants and NGOs (WaterAid & OXFAM) to prepare, with relevant ODA staff, a UK conference on "Management of Intermediate-Level Water Supply Projects in Developing Countries". Such a conference would aim to explore the problems associated with water supply projects which involve source protection, equitable distribution, and perhaps cost recovery. The concept of the conference is to encourage the dialogue between such parties.

A practical example of how ODA ensures coordination of the water-related projects is the Water Resource Strategy project in Zimbabwe, (see section 8). In the terms of reference it is made explicit that the consultants for this project are required to coordinate the project together with FAO, which is preparing an action plan for sustainable agriculture in Zimbabwe.

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CANADIAN DEVELOPMENT COOPERATION

1. Administrative aid structure

The Canadian International Development Agency (CIDA) is the central planning and control unit for bilateral and multilateral development cooperation. It is headed by a president who reports to the Minister of Foreign Affairs. CIDA provides assistance through three main operational channels, each with corresponding branches: Bilateral (or geographical), Multilateral and Partnership.

CIDA is responsible for delivery of about 80% of Canadian development assistance. The International Financial Institutions receive support through CIDA and the Ministry of Finance which provides 11.5% of development assistance. The remainder is through the International Development and Research Centre (IDRC) 4.5%, and the Ministry of Foreign Affairs, 4.3%. The International Centre for Human Rights and Democratic Development is also being funded through CIDA. The International Centre for Ocean Development ceased to exist in 1992.

In the late eighties, CIDA was partially decentralized. The headquarters in Ottawa/Hull was streamlined in favour of offices abroad, whose personnel and financial resources were expanded. Following the Strategic Management Review (SMR) of 1992, it was decided to streamline the decentralization programme and recentralize operations at headquarters. This latter process is now almost completed.

2. Staffing

In 1992 CIDA had a staff of 1420 people of which 1191 were employees with a permanent status and 229 were contract employees. Out of that total of 1,420, 212 persons were decentralized in assisted countries as specialists or field representatives. As of March 1994, the total number of employees was reduced to 1,358; 1,250 permanent and 108 contract employees, of which 122 are still abroad as field representatives.

CIDA is contracting out much of its tasks to various non-profit and profit organizations, particularly for technical support to water projects. In Canada there are more than 100,000 people involved in the overall water sector, whom CIDA has access to when necessary. The overall number of people employed for technical cooperation for the Canadian development cooperation increased between 1970 and 1992, from 3,080 to 5,835.

The water specialists have been redistributed throughout the agency. CIDA has a staff of seven specialists in water and sanitation and four in irrigation. Of these eleven specialists, four are now assigned to the African Branch (three in water and sanitation, one in irrigation), two to the Asian Branch (one in water and sanitation and one in irrigation) and three to the American Branch (two in water and sanitation, one in irrigation) and two to the Policy Branch (one in water and sanitation, one in irrigation). All these specialists

are based at headquarters, except for one in Ghana who works as a field representative. One additional specialist is seconded to the African Development Bank in Abidjan and has not been included in the present figures.

Each specialist is responsible for water resources activities for his/her designated geographic area. Of the total of twelve people, two are women. All these people have an engineering degree except for one who is a hydrogeologist. Most also have an additional degree in economics, management or a masters in their own field of specialization.

The sector specialists in the geographic branches work as team members on a wide variety of projects. In some cases, they also concentrate on the planning and management aspects of projects using capital infrastructure funds from International Financial Institutions or other ESAs. Most water and sanitation projects serve people in rural areas, as do irrigation projects. With the on-going reorganization, it is proposed that the specialists in Policy Branch coordinate with their sector colleagues and are the CIDA's representatives for questions having a broader scope than the geographic branches.

3. Aid policies and strategies

The Canadian development aid policies are based on four principles; 1. alleviation of poverty; 2. helping the poorest countries and people of the world to help themselves through strengthening their ability and their institutions in harmony with the natural environment; 3. development priorities while setting objectives for aid programmes; and 4. partnership as a key to strengthen the links between Canada and the assisted countries. To these four principles six development priorities are defined: 1. poverty alleviation in rural and urban areas; 2. structural adjustment of economy; 3. increased participation of women; 4. environmentally sound development; 5. food security; and 6. energy availability.

CIDA has also as policy of integration of environmental considerations into all of its development initiatives, and is working with its Canadian and international partners to improve the capacity of developing countries to bring about development that is environmentally sustainable.

Water, sanitation, irrigation and environment

CIDA's emphasis on water projects has evolved since the agency was created in 1968. Early projects concentrated primarily on the planning and implementation of basic infrastructures, although training and capacity building always have been regarded as integral components of such projects. More recent projects in water and sanitation, water resources management and irrigation have focused increasingly on sustainability. The emphasis of the projects is on community ownership, women's participation and involvement, operation and maintenance, sustainability, appropriate technology, human resources development and institutional strengthening.

In 1988 CIDA developed a series of issue papers concentrating on the sectors, among them Water and Sanitation Sector, in which the Professional Services Branch provided technical advice to other branches of CIDA on development projects. The water and sanitation sector was mandated to provide advice on water supply and sanitation services and on water resources management. The purpose of the paper is, among other things, to respond to the needs and priorities of the developing world and to inform on the history and future trends of the sector. The issues paper is intended mainly for CIDA, but it may also be of interest to partners in developing countries, other ESAs, Canadian development partners, training institutions and NGOs.

Although the Water and Sanitation Sector does not exist anymore, CIDA still plans water and sanitation projects with long-term conservation of the resources and sustainability as central features. CIDA's support to the water sector is therefore guided by the following six objectives:

- to increase support for health-oriented water supply and sanitation services;
- to improve management, conservation and protection of water resources;
- to strengthen the water sector institutions;
- to improve planning and implementation of water and sanitation projects;
- to enhance the use of Canadian resources; and
- to develop and implement a communication strategy for the water and sanitation sector.

Water resources management in relation to Dublin and Rio

The water resource management projects CIDA supports focus on conservation, protection and use of water, which are considered important for social and economic development and critical for agriculture, drinking water supplies and sustainability of development. CIDA supports programmes through a variety of activities, like improving data systems on existing water use patterns in all sectors, ground water availability, quality and accessibility, and water demands for economic development.

Up to now, CIDA's and Canada's intervention in the field of water resources for the developing countries have been on an "ad hoc" basis. CIDA has not adopted a global, comprehensive policy and strategy in this field although CIDA's Water and Sanitation Issues Paper was used as a guideline. The numerous projects funded in the past were the results of country-level programming or special requests or initiatives. However, the water sector projects that have been planned or implemented in the last year generally incorporated the Dublin Statement principles as did most previous projects implemented during the international Water Decade. Canada has also given considerable importance to the follow-up of the Rio conference and has designated the International Development and Research Centre (IDRC) to assume the responsibility of that follow-up.

CIDA's priority in terms of human and financial resources for water resources management has declined significantly in the last three years.

4. Intervention tools in the water sector

The following sections describe some "tools" CIDA uses to orient policies and programmes in the assisted countries.

Policy level

In the paper entitled "Sharing our Future" which is the Canadian Government's strategy for Official Development Assistance, some indication is given to sectoral orientation within the Agency, but the key Charter and strategy points express broader, more thematic approaches. The Strategic Management Review (SMR) is now being gradually implemented throughout the Agency and the Policy Branch has been reorganized with the addition of a scientific, technical and information directorate (also called technical unit).

A reorganization is under way, which will mean major changes in the way of delivering aid for the geographic branches in the future. Programme activities will have to be established on a more open-ended basis. The new unit of work proposed is the thematic programme i.e. a very limited number of long-term interventions in areas of key priorities for the Canadian programmes. Activities in the countries will be limited to a few broader thematic programmes reflecting the key objectives, themes and groupings.

Each year, the Cabinet establishes a confidential five-year bilateral planning figure for each eligible country, using criteria which take into account: the country's needs; the country's commitment and capacity to manage aid effectively; the quality of the country's economic and social policies, or its commitment to improve its policies; Canada's political and economic relations with the country; the country's human rights record; and the country's commitment to involving its population in development.

Once the general policies have been established, the Branches, through the Country Policy Development Framework (which include detailed discussions with officials in the developing countries), determine the programmes to be retained. The programmes have to be compatible with the chosen themes.

The choice of the themes and programmes must reflect the capabilities and resources in Canada as well as the needs and priorities of the assisted country. The assisted country then submits its project request to the Embassy/High Commission of Canada, which forwards it to CIDA with its comments and recommendations. The final choice for assistance is determined by its compatibility with the approved themes, its value in terms of development, economic and technical feasibility, and financial resources available. The process culminates in the signing of a formal agreement between Canada and the assisted country. NGOs, multilateral organizations

and Canadian firms can also forward their own proposals for delivering assistance to the appropriate branches at CIDA. CIDA has limited experience in discussions with assisted governments in the area of water resources. When necessary this is done like any other projects funded by CIDA.

Project level

In general CIDA leaves the management tasks and the responsibility of the project to the executing agency or organization. CIDA is envisaging the possibility of soliciting executing agencies for delivering complete country programmes, through proposal calls based on the objectives of the thematic programmes. The chosen agency would have a long-term contract and would manage all aspects of the programme delivery. Some pilot projects are being tried and the results will be evaluated before a final decision is taken on future implementation.

CIDA staff do not have formal instructions or tools to follow for formulating and reviewing technical aspects of water projects, however administrative and management procedures have to be followed closely. CIDA staff usually draw upon the agency's and their own experience. Checklists are available but not mandatory.

Once a water project has been found compatible with the broader thematic issues, it becomes the responsibility of the project team to formulate the project and manage it. The team is headed by the Team Leader who requests assistance of the Principal Specialist or Resource Officer (PRO) for the precise formulation and technical aspects related to the project. The PRO remains responsible for the technical aspects, for monitoring the project and for coordinating other specialists in the project team. The CIDA team management is now under review and other alternatives are being considered. Management of projects in the field is dependent upon the type of mechanisms used. However, in general CIDA leaves the management tasks and the responsibility of the project to the executing agency or organization.

CIDA is assessing the environmental impact of all the water and sanitation projects on a regular basis, through the environmental impact assessment group which screens all CIDA's projects before CIDA agrees to support them. The policy for environmental consideration is integrated into the Agency's decisions and activities and has as effect that it guides the Agency managers and staff in developing programmes that support environmental sustainability. It also informs domestic partners and the developing countries of CIDA's objectives and encourages cooperation with CIDA in these issues.

Technical assistance

Technical assistance is provided or managed by the country or region specialist. This specialist provides the necessary consultancy services and manages other services requested. CIDA recognizes that institutional

arrangements for water resources is a broad issue which becomes largely international and more pressing.

The private sector collectively offers expertise for a wide range of Canadian overseas aid programmes. This expertise can provide skills ranging from groundwater exploration to engineering, design and programme management, as well as services for environmental assessment, human resource development, and supply of water and sanitation equipment, institutional strengthening, community development, economic analysis and programme and project evaluation.

*Training, research,
and information
support*

Four % of Canada's International Assistance Envelope (IAE) is allocated to the International Development Research Centre (IDRC) which provides aid to research workers living and working in the assisted countries. Centres of Excellence at Canadian Universities also provide research and support in water-related fields.

Canada offers several water and wastewater treatment courses for technicians in community colleges. Canadian universities also offer courses dealing with low-cost water supply and sanitation in developing countries. The number of students and trainees receiving support from the Canadian Government has increased to a great extent: from 2,616 in 1970 to 15,572 in 1990 and to 22,494 in 1992. Canadian educational institutions also run courses in developing countries and provide long-term support to counterpart institutions overseas, in 1992. Many of Canada's 666 educational professionals with environmental teaching experience have also had overseas experience in teaching and training.

**5. Volume and
share of aid
resources**

For the year 1993-94, the total IAE budget has been established at US\$ 2.03 billion, which was about 0.42% of GNP as of January 1993. All Canadian aid has been provided in grant form since 1986. In 1994-95 the resources of the IAE have been reduced by a further 2% and will remain at the same level for the next year. One half of the assistance will be allocated to a National Initiatives Programme which comprises those parts of official development assistance in which the Canadian Government plays a direct role in determining which projects and activities will be funded. The other half, the Partnership Programme, will finance the efforts of Canada's national and international partners, who retain primary responsibility for the planning and management of projects and programmes.

During the 23-year period 1968/69-1990/91, disbursements to water-related activities for Bilateral and Partnership branches have totalled US\$ 1.1 billion in a total of 1,838 projects. During the same period, the Partnership Branch disbursed US\$ 56.1 million (3.2% of disbursement) and bilateral programmes disbursed the overwhelming majority (96.8%) of these funds. Bilateral funds have been disbursed on 454 projects while Partnership funds were disbursed on 1,284 projects.

Over the 1984/85 to 1990/91 period, CIDA's total commitments to water-related projects have on average the following allocations: water and sanitation - US\$ 32 million (41.5%); irrigation and drainage - US\$ 14.5 million (18.8%); hydroelectric - US\$ 21.4 millions (27.8%); multipurpose - US\$ 9.2 million (11.9%); amounting to a total of US\$ 77.1 million per year. However, it is to be noted that CIDA's disbursements to water-related projects have declined during the eighties like all other sectors. For the period of 1991-1994, the average yearly disbursement was US\$ 48.15 million (Can \$ 64.2 million) but with the termination of on-going projects, this figure is expected to fall to approximately US\$ 15.2 million a year if the present trend continues.

6. Countries where aid is concentrated

Seventy-five % of Canadian development aid is allocated to the poorest countries and small islands in the world. Countries in Sub-Saharan Africa receive the largest share of bilateral assistance. Between 1968-1990, approximately half of the bilateral activities have been concentrated among just 20 countries.

Over the period of 1981/82 to 1990/91 Canada supported water-related activities in nine countries for a total amount of US\$ 411 million. Another US\$ 232 million was spent in other countries during this period. India, Sri Lanka and Pakistan received US\$ 227 million (on average US\$ 76 million). Indonesia, Organization for Improvement of Senegal river and Egypt received between US\$ 32 and 48 million (on average US\$ 37 million). Bangladesh, Ghana and Belize received between US\$ 20 and 27 million (on average US\$ 25 million).

Prior to 1990, the countries/regions where CIDA's assistance was concentrated for water resources projects included: Ghana, Egypt, Leeward and Windward Islands and Indonesia. Since 1990, the new assistance projects have been concentrated in the following countries: Egypt, Ghana, Nicaragua, Dominica, SADCC and Nigeria.

7. Partners in project planning and implementation

The Government of Canada's development partners include a range of organizations in Canada and in the developing world, including domestic and international NGOs, non-governmental institutions, development organizations, multilateral organizations and the business sector. Canada involves several NGOs for the execution of water projects to assure project quality. CIDA supports more than 75 NGO projects through the Special Programmes Branch. The NGO projects are concerned with community participation, involvement of women, and they take a grassroots approach to the provision of new water supply and sanitation services. Countries in Sub-Saharan Africa receive the largest share of bilateral assistance.

8. Overview of promising approaches in water resources projects

Riseralda River Basin management plan in Colombia

The purpose of the project is to make the CARDER (Corporation Autonoma Regional de Riseralda created by the Government) self-sufficient in terms of river basin management planning. At the end of the project, CARDER should have acquired the technical and managerial capability necessary to develop management plans for the remaining six river basins in the Riseralda Department without further intensive technical assistance. To achieve this the Canadian team will concentrate on transfer of knowledge and methodology related to river basin management planning. The project activities will include, among other components, the following: determination of resources which need protection, appropriate and optimum land use plans, guidelines and policies, a strategy for community and inter-institutional participation, and a watershed protection plan. Early on in the process the Canadian team will develop, with CARDER, a strategy for involving both women and men from local communities and institutions in the planning process. Training will be an important part of the project, both on-the-job coaching and through seminars. Where appropriate the role, knowledge and participation of women will be integrated in the technical aspects of those seminars.

Capacity building to ensure safe water supply in Uganda

An integrated water supply project is being implemented which includes: drilling of new boreholes, replacement of handpumps, spring catchment and protection, gravity schemes. The project aims to establish: a financially sustainable and replicable system for initiating and supporting community-based improvements in health, sanitation and safe water supplies; a reduction of mortality and morbidity; a reduction in women's workload and an increase in women's decision making. A three-step approach is being followed: 1. building community mobilization within user community; 2. building and strengthening district institutions and infrastructures for efficient delivery of community external resources; and 3. assistance in creation of an enabling environment for community management through advocacy, development of policies and legislation at community, district and national levels. The main activities of the project have been training of trainers, development of pump committees, stimulating these committees to take over the ownership and stimulate the Government to decentralize its decisions. The project is jointly funded by Canada, Sweden, UNICEF and the Government of Uganda. CIDA and SIDA channel their assistance through UNICEF.

Community participation to develop sustainable water supply in Ghana

For two decades support has been provided to develop potable water resources in small communities in the poor Northern and Upper Regions of Ghana. Most of the activities have been in partnership with the Ghana Water and Sewerage Corporation (GWSC). Successive projects have seen an evolution in approach, moving from an engineering hardware approach to a more social approach centered on enabling communities to acquire and manage the facilities. Experience has demonstrated that community

ownership and management of small water systems, which focus on having villagers as "partners" rather than "beneficiaries" is a sound principle and a prerequisite for sustainability. Training has been one of the main activities during the development of this programme. The community management and ownership approach has been adopted by the Government of Ghana and is the basis of a ten-year, US\$ 215 million rural water strategy, which is being financed by the World Bank and the Government. CIDA intends to concentrate future efforts in institutional development and capacity building at local level.

9. Coordination

CIDA works in cooperation with Canadian government agencies and departments, and with international institutions to promote policies that support environmentally sustainable development in developing countries.

In the recent years, CIDA has started to support regional initiatives in the field of water resources management. CIDA has provided consultancy services for the Nile River Basin Hydromet Project and for a hydrological study in the Zambezi River Basin and for the Colombia/Riseralda Department River Basins Planning Project.

The specialists in Policy Branch coordinate with their sector colleagues and are CIDA's representatives for questions having a broader scope than the geographic branches. They are going to be CIDA's interlocutors vis a vis international organizations involved in water resources management and development.

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DANISH GOVERNMENT

1. Administrative aid structure

On 1 May 1991 a new organizational structure for the Danish Foreign Service was introduced. As a result, the Danish Ministry of Foreign Affairs is now divided in two main groups, the North Group, which covers the industrialized countries, Central and Eastern Europe and most of the former Soviet republics, and the South Group which covers all developing countries. The regional divisions in the South Group, are responsible for all Danish bilateral relations with a given developing country: political, economic, commercial and development assistance. With the new organization Danida is the acronym for Danish International Development Assistance.

In January 1993 the Danish Prime Minister appointed a Minister for Development Cooperation to manage the official development assistance as well as assistance to Central and Eastern Europe.

The Minister for Development Cooperation is advised by a Board on International Development Cooperation consisting of nine members. All project proposals must be submitted for consideration by the Board, before financial commitments can be given. The composition of the Board ensures a broad contact with organizations and groups of central importance for Denmark's participation in international development.

A process of decentralization to embassies was initiated in the late 1980s. Embassies are now authorized to approve small projects and enter into contracts with e.g. local private companies, local NGOs, etc. in amounts up to DKK 3 million (US\$ 500,000). The embassies, however, have to report back to the Board on how the funds are being spent. Between 1988 and 1993 the number of embassies with development cooperation personnel have increased from 9 to 16. Two more such embassies are opened in early 1994.

2. Staffing

Danish development assistance personnel have been integrated in the unified Foreign Service, effective 1 September 1991. By July 1993 the South Group in total employed a full time staff of 382, out of which 117 were on assignment abroad.

The Technical Advisory Service has a personnel of thirty sector professionals and eight support staff and provides the South Group with professional assistance especially in relation to feasibility, appraisal and review of development assistance projects in the Third World. In the Technical Advisory Service three engineers (two male and one female) and one anthropologist (male) deal with drinking water and sanitation projects. Additionally, three technical advisors (biologists/male) are dealing with environmental issues; two technical advisors with natural resources (anthropologists/one male and one female); and one technical advisor (agronomist/male) with agricultural projects, inclusive of irrigation. Water

resource activities are generally dealt with together with water supply, agriculture and environmental issues. Technical advisors from the Technical Advisory Service can be posted at the Danish embassies to deal with preparation of project proposals and with implementation of projects in sectors having a key priority in the agreed Danish development assistance in that particular country. Three such postings in relation to water-related projects have so far taken place.

Besides the permanent staff in the Technical Advisory Service a large number of consultants are employed on short assignments to supplement the in-house professional skills.

3. Aid policies and strategies

The basic objective of the Danish development assistance is poverty alleviation through promotion of economic growth and social development. Protection of the environment, participation of women in development and promotion of human rights and democratic values and processes are other important objectives. Key principles in Danida's policy for development assistance are partnership and participation as well as replicability and sustainability of the development programmes and projects.

A strategy for Danish Development Policy towards the Year 2000: "A World in Development" was discussed and endorsed by Parliament in March 1994. Main elements in this strategy are concentration of Danish development assistance on 20 countries and within these countries on a few selected sectors; increasing support to programmes and sector programmes at the expense of project support; promotion of ownership on the side of the recipient country through partnership and dialogue; more active involvement from and support to the private sector and the voluntary sector as well as support to the public sector.

Water, sanitation, irrigation and environment

According to Danida's sector policy document for water supply and sanitation the objectives for Danish support to this sector are provision - within identified poor areas - of equal access for as many people as possible to water supply and sanitation facilities, while safeguarding the environment for future generations. Danida's sector-specific guidelines are followed while planning and implementing water projects. The guidelines address the following key issues: provision of technical and financial aid for water supply and sanitation to rural, small towns and peri-urban (slum) areas, management and institution building to strengthen local organizations, use of simple and affordable techniques, community participation, promotion of sustainability of water projects through cost recovery, involvement of women, and promotion of coordination of water project with other donors.

Water resources management in relation to Dublin and Rio

Danida fully endorses the principles for water resources management as developed in the Dublin conference and the UNCED conference in Rio. Danida together with the other Nordic donor agencies, actively supported the preparatory work for these conferences, for example through the Copenhagen Informal Consultation on Integrated Water Resources Development and Management in November 1991. As a follow-up to the Copenhagen-Dublin-Rio process Danida has since entered into agreements to finance a Water Action Plan for Uganda, and an Action Plan for Water Resources Development in Upper Srepok Basin in Vietnam under the Mekong Secretariat (See Section 8).

4. Intervention tools in the water sector

The following sections describe the "tools" Danida uses to orient policies and programmes in the assisted countries.

Policy level

Annual negotiations are held between Danida and the 18 programme countries, as a follow-up of ongoing projects and to discuss new project proposals. Normally ideas for projects are formulated by the programme country. Danida comments on the ideas. The appropriate person/institution in the programme country is provided with the water sector policy guidelines of Danida, as a help to develop the idea further into a proposal. For each of the 18 programme countries Danida prepares rolling five-years plans, where the key sectors mutually agreed upon for collaboration are indicated.

Project level

Danida applies the Logical Framework Approach along with "Guidelines for Project Preparation" which were revised by Danida in January 1992. They specify among other things the format required for a project proposal to be appraised for Danish financing. They also specify the format for a project document, which is the basis for the formal agreement between the two governments and will guide project implementation.

The "Guidelines for Project Preparation" together with Danida's Sector Policy document for water supply and sanitation are the basic tools to be followed while formulating, appraising, implementing and reviewing water and sanitation projects. Water resources and environmental aspects represent one of the eight focal points mentioned in Danida's Sector Policy. The Dublin Statement is also used as guidelines for project preparation together with EIAs in a dialogue with the programme country.

Normally the desk officer in charge at the Embassy will carry out the project identification and formulation - if the recipient country cannot do it - resulting in a project proposal in a standard Danida format. For those developing countries without a Danish Embassy, the desk officer in the regional division at the South Group will undertake this assignment.

Appraisals are carried out under the responsibility of the Technical Advisory Service (in the South Group). Appraisals are normally carried out by a team headed by one of Danida's technical advisors and comprising external consultants and resource persons from the assisted countries.

Technical assistance

Depending on a needs assessment technical assistance may be offered to the recipient country. Such technical assistance by Danida is a supportive function to the implementation of development projects, and advisors will be placed at central or local level depending on the identified need. The Danish private and public sectors and Danish NGOs provide an important resource for Danida's technical assistance.

Training, research and information support

Danida offers scholarships for training in Denmark, as well as seminars, study tours, etc. to staff involved in project planning and implementation. In 1992 Denmark provided support to 422 students and trainees from developing countries for study in Denmark, to which should be added 93 supported to study in other European countries and 1923 for studies in Third World countries. Danida provides training for staff at various levels within ministries/agencies to strengthen their capacity in managing water issues.

5. Volume and share of aid resources

Denmark's development assistance reached a level of 1% of GDP (disbursements) by 1992.

From 1985 to 1992 Denmark has spent between DKK 300-450 million (US\$ 50-75 million) per year in the drinking water supplies and sanitation sector. This is between 10 and 15 percent of the total Danish bilateral assistance. 63 percent has been for rural water supplies, 34 percent for urban water supplies and only about 3 percent for urban sewerage. Water resource management allocations has up to now been insignificant, but will increase in the future. No investment was made in hydropower.

As a result of the Rio conference the Danish Parliament has in December 1992 decided to establish a special programme of assistance for environmental and emergency purposes. Starting from DKK 100 million (US\$ 15 million) in 1993 and an estimated DKK 1 billion (US\$ 147.8 million) in 1994, the financial allocations for the programme are scheduled to reach 0.5% of GDP by year 2000. The allocations for the programme are additional to the development assistance budget amounting to 1 percent of GDP.

6. Countries where aid is concentrated

Danida spends most of its bilateral assistance in the following 18 programme countries: Bangladesh, India, Nepal, Bhutan, Thailand, Vietnam, Mozambique, Tanzania, Zimbabwe, Kenya, Egypt, Eritrea, Ghana, Uganda, Benin, Zambia, Burkina Faso and Nicaragua. Out of these countries, Burkina Faso, Eritrea, Nicaragua and Vietnam were added to the list in 1993. The total number of countries getting support will gradually have to be reduced from about 70 in 1989 to 20 countries, as decided by

Parliament. The remaining two programme countries are likely to be selected during 1994.

7. Partners in project planning and implementation

The main partners in project planning and implementation are the institutions at central and lower levels and the communities of the recipient countries.

Apart from these Denmark is cooperating with multi- and bilateral organizations and private institutions. Denmark's aid programme is distributed more or less equally between bilateral and multilateral assistance. Multilateral aid is mainly distributed between UN agencies, World Bank agencies, regional development banks and the EU.

The funds channelled through Danida to NGOs have continued to grow since a decision was made in 1987 to increase the cooperation between Danida and the NGOs. It now makes up 11 percent of Danida's total aid. Consequently the NGOs are encouraged to build elements to strengthen the capacity of their local partners in all project cooperation.

8. Overview of promising approaches in water resources projects

Water resource development and management in Uganda

Support is provided to the development of a Water Action Plan to provide a framework for integrated management of water resources at local, national and international level. The Water Action Plan will allow the local authorities to select a set of coordinated programmes which are in line with the national water policies and international agreements. The project is emphasizing among other issues: linkages between land and water resources, capacity building at national and district levels, database systems for ground water information and monitoring guidelines. The national partner of the project is the Directorate of Water Development of the Ministry of Water, Minerals and Environment Protection.

Action plan for water resources development in Vietnam

Assistance is provided for the development of an Action Plan for water resource development and management in the Upper Srepok Basin, which will give an overview of the overall provincial development opportunities and constraints. The counterparts in Vietnam are the Mekong Secretariat and the Government of Vietnam. Key issues of the project are among others: energy study of demand for hydropower, environmental impact assessment of sensitive areas and sensitive agricultural practices, review of economy to identify bottlenecks, and an institutional study. Guidelines on water resource management will be developed for short-, medium- and long-term activities.

Action plan for management of water resources in Nicaragua

A project is in preparation in order to provide support to development of a Water Action Plan, which will develop a framework for coordinated development and management of water resources in Nicaragua. The Water Action Plan will establish the necessary information systems on water

resources; the appropriate coordination mechanisms among sectors and institutions; and propose coherent policies, consistent regulations and targeted Government actions. Further economical and financial issues and capacity building at local and national level will be a key issue for the project. The national partner of the project is the National Water Commission including among others Ministries for Agriculture, Energy and Environment. The Action Plan will be prepared as an integrated process between the relevant ministries and institutions.

9. Coordination

Danida gives high priority to coordination between the relevant recipient country institutions and the donors at the national level. Apart from this Danida also coordinates several water-related project with other ESAs and particularly with the Nordic countries. Moreover Danida participates actively in the Water Supply and Sanitation Collaborative Council. The Nordic water sector specialists have been consulting each other for a number of years. In the beginning of 1980, these sector professionals took the initiative to informally meet once a year together with World Bank representatives and later the Secretariat of the Collaborative Council. In 1991, Danida and the other Nordic agencies developed the Nordic Freshwater Initiative, where they together identified key principles for effective water resources management. A result of this initiative was that the Nordic agencies coordinated their financial support to the East African Water Resources Seminar, which took place in Entebbe in May 1993.

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FINNISH GOVERNMENT

1. Administrative aid structure

FINNIDA is one of the five departments of the Ministry for Foreign Affairs. The Minister of Development Cooperation has the political responsibility and the Under-Secretary of State has the operational responsibility for the foreign aid administration and the overall policy on international development cooperation. The operations are divided in three functional divisions: Bilateral Functions, Multilateral Functions and Service Functions. FINNIDA has field representatives in all the 11 programme countries. Their activities concern, among others, coordination of water-related projects.

2. Staffing

In 1990 FINNIDA had a staff of more than 200 people, including 125 professional staff (civil servants and consultants). About 25 of the available 100 professional-level officers working on development cooperation were stationed in the diplomatic representations of Finland in developing countries. The main task of these representatives is to participate in policy dialogue and coordination activities. Preparation and implementation of projects are contracted out to public and private agencies.

FINNIDA has one advisor in water and sanitation working at the headquarters. FINNIDA has about 20 administrators all dealing with a variety of projects including water projects.

3. Aid policies and strategies

The main objectives of Finnish development cooperation are: alleviation of large-scale poverty in developing countries; warding off of global environmental threats by helping developing countries to improve their environment; and promoting democracy, equality and the respect for human rights in developing countries. These objectives are the starting point for the Finnish development assistance programmes.

Finland tries to tackle the circle of poverty, environmental degradation and population growth by the development and improvement of basic services, such as water. The development cooperation is based on the assumption that the receiving country assumes responsibility for its own development and that the role of external assistance is always a supplementary one. Bilateral assistance is directed to areas which are central in the recipient countries' development and where Finland can provide internationally competitive resources responding to the recipient countries' needs. To avoid that Finland supports commercially viable projects, they are tested with an evaluation package, called the Helsinki Package.

Water, sanitation, irrigation and environment

The key issues of FINNIDA's water policy are community participation, hygiene education, institutional development, capacity building at local as well as national level, development of appropriate technology and involvement of women. FINNIDA is mainly supporting projects related to water supply in rural areas, environmental hygiene and erosion control.

Water resources management in relation to Dublin and Rio

FINNIDA is very much in the process of developing an integrated water resources management policy, but it is taking time due to external reasons. FINNIDA is not supporting any specific project that emphasizes water resources management aspects. Instead, water resources management is considered an integrated part of the water projects. For example, before FINNIDA initiates a water project, investigations of the water resources and detailed water master plans are made to determine the quantity and quality of the water, to define how it best can be used.

Where it is applicable, the policy of the assisted country is used in the water project. When the countries do not have any such policy FINNIDA emphasizes the following in order of priority: i. local potable water use; ii. other potable water use; iii. local agriculture; iv. others. Development and use of renewable sources are encouraged while water mining is avoided.

4. Intervention tools in the water sector

The following sections describe the "tools" FINNIDA uses to orient policies and programmes in the recipient countries.

Policy level

FINNIDA's support is based on demand, which means that FINNIDA responds to project proposals from the assisted countries. If the proposals are within the framework of FINNIDA, the proposals are considered.

FINNIDA develops development assistance policy plans country-wise, which include sectoral strategies. FINNIDA has developed Environmental Impact Guidelines, which cover water sector issues, though there are no specific guidelines which enforce the water resources management aspect.

The policy plans are developed at headquarters and the outcome is discussed during consultations and project monitoring meetings in the programme countries. The principle is to involve the partners in the assisted countries as much as possible.

Project level

FINNIDA staff use sectoral strategies, project preparation guidelines, EIA guidelines and Rapid Gender Analysis as tools to formulate and review water projects. These tools include checklists, of which water resources management is an important part. A special unit is responsible for formulation of the projects as well as for post-evaluation. The unit usually has a planning and design engineer, who together with representatives from the executing agency are responsible for water resources management issues.

Technical assistance

Technical cooperation plays a major role in Finnish bilateral assistance. The main activity is the provision of experts. Technical assistance personnel in Finnish bilateral programmes are to a large extent recruited and administered by the executing agencies of the Finnish projects, especially in the case of water resources management. A change has taken place in the

role of the technical assistance staff, from being implementors to becoming supporters of the projects.

*Training, research
and information
support*

Courses in water engineering and sanitation for professionals from Eastern Africa were organized at Tampere University of Technology, Finland, until 1991/92. One of the reasons to why these courses were stopped was that FINNIDA found it more effective to provide them in the assisted countries. The postgraduate training is, however, still at a planning stage. The training FINNIDA provides is in fields where skills are in short supply in the assisted country and where Finland has particular experience, like in water supply and forestry. In 1989 Finland supported 742 students and trainees from developing countries. Finland provides support to research activities which contribute to planning of development policies and design of development cooperation projects. Finland also supports a number of intergovernmental, international and regional non-governmental research institutes and local organizations. An example is FINNIDA's funding of the African Office of Third World Forum.

**5. Volume and
share of aid
resources**

Finnish development assistance is characterized by a high multilateral share and a large concentration on the poorest countries or strata of populations. Following the decision taken by the Finnish Government in 1980 to achieve 0.7% of GNP in terms of development assistance appropriations by the end of the decade, the growth of Finnish assistance has been one of the most rapid and sustained among the DAC members. In 1991 net disbursements reached US\$ 930 million. In April 1992, due to overall budget constraints the Finnish Government revised its development aid target to 0.4% of GNP. The total amount of Finnish aid in 1992 was US\$ 366 million, of which water and sanitation was about 7% (US\$ 25 million). Around 8 to 13% of the whole water sector expenditure is spent on water resources management components.

**6. Countries
where aid is
concentrated**

In 1994 the following countries received assistance for water-related activities: Egypt, Ethiopia, Kenya, Mozambique, Namibia, Tanzania, Zambia, Nepal, Sri Lanka and Vietnam.

From 1987 to 1991 FINNIDA financed 13 countries for water-related activities. Vietnam received most of the assistance, US\$ 87.5 million. Egypt, Kenya, Mozambique and Tanzania received between US\$ 20 and 38.7 million (on average US\$ 29.6 million). China, Nepal, Sri Lanka, Cameroon and Namibia received between US\$ 5 and 20 million (on average US\$ 10.1 million). Three countries received less than US\$ 500,000 (on average US\$ 160,000).

**7. Partners in
project planning
and
implementation**

FINNIDA develops some water projects together with other Nordic countries, although such activities are diminishing. An active dialogue is held between FINNIDA and the assisted countries, through which the involvement and political responsibility and accountability of the assisted

governments increase. FINNIDA has also relationships with NGOs at country level.

8. Overview of promising approaches in water resources projects

Demand-driven participatory rural water supply and sanitation project, Nepal

The demand for improved water supply and sanitation is created through health education. The procedure is a participatory one where participatory techniques are used step by step to involve the villagers as much as possible in the project. The national extension workers provide health education and elementary environmental hygiene information. When interest is created the target group is advised to organize itself by forming a water committee, which makes the request for improved water supply. After the request has been made a mapping of the resources is undertaken together with village inhabitants, from which the technical staff plans the scheme and calculates the implementing costs. In a meeting, the results are presented and the village inhabitants are asked to contribute their share of investment (10-15% of the cost in money or in kind). When an agreement is made, a contract is signed. The actual implementation phase has a strong training component in technical and managerial skills. For improved sanitation systems there are no subsidies made for construction of private sanitation facilities, only for public latrines, such as for schools. Many villagers have, however, financed the construction of latrines themselves. One method of creating this strong motivation among the villagers has been through approaching opinion leaders in the communities, like health educators, school teachers and people in the richer classes, and stimulate them to build latrines. In general the project strongly emphasizes coordination with other sectors and with the Nepali authorities.

Water resources development and management in Namibia

Support to the development of the water sector in the Northern part of Namibia has been given to the country's government. The main activity is to monitor the groundwater sources in the area and to support sustainable use of the sources for rural consumption, mainly for drinking water and household activities. Capacities will be built among the people to enable them to take care of and use the sources by themselves. The Namibian counterpart is the Department of Water Affairs, which participates in the project implementation and the central administration.

Development of water master plans for water projects in West Kenya, Tanzania and Hanoi, Vietnam

The water master plans in these countries were made jointly with the representatives of the respective authority in each country. The plans were comprehensive and included among other issues, identification of all water resources, an analysis of the expected consumption per inhabitant, population forecasts, plan of the city development, cost of various alternatives, and recommendations. The objective of the plans were to identify the quantity and quality of the water resources and to define how they best could be used. The project development was facilitated by a Finn, employed in the project as an advisor. Through this configuration the apparent responsibility of the work was in national hands, except in the

Tanzanian case where the Finnish side carried out the whole task, assisted by the local staff seconded by MAJI.

9. Coordination

Finland strongly supports all country-level assistance coordination of the ESAs and the active involvement of the assisted countries in such endeavours. Attempts are being made to coordinate their support with other ESAs, particularly the Nordic agencies, to make the assistance more effective. FINNIDA has developed a water-related project with UNDP in Tanzania, and is having discussions with the World Bank and the Asian Development Bank for a joint programme concerning the building of Infrastructure in Hanoi, Vietnam. FINNIDA has already developed a Water Master Plan and a Water Development Plan and is currently looking for co-financers. Other examples of coordination are FINNIDA's participation in the World Bank Consultative Group Meetings and the UNDP Round Tables.

FINNIDA has expressed the need for assisted countries having to define a clear strategy for water supply and sanitation, which could effectively guide the external support agencies. The lack of these kinds of strategies has led to individual agencies operating according to their own guidelines and traditions. FINNIDA expressed that this kind of management structure has complicated matters for the assisted organizations and in some cases even led to reverses in development. Therefore, FINNIDA is advocating the tuning of development cooperation within a certain sector with the guidelines of each assisted country.

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FRENCH GOVERNMENT

1. Administrative aid structure

The French Ministry of Cooperation and Development is responsible for bilateral aid. The Ministry of Foreign Affairs is responsible for overall development policy and for those countries not handled by the Cooperation Ministry, as well as for multilateral development aid. The Ministry of Finance and Treasure decides on contributions to the multilateral financing institutions, including the EU. The Ministry for Overseas Departments and Territories handles aid for France's overseas territories and provinces. The French Development Fund is authorized to grant loans to about 45 countries, most of them in Africa, within an overall budget fixed annually by the Government.

2. Staffing

France has a large staff working with development aid. However, the number of staff members decreased between 1970 and 1990, from 33,122 to 11,526 persons.

At the Ministry of cooperation four persons are responsible for water: one for irrigation, one for institutional aspects; one for distribution systems and urban environment; and one is for the improvement of rural water resources management. Among the French Development Cooperation representatives abroad there are 30 people dealing with rural development which includes water issues, but none deals exclusively with water issues.

There are 37 technical assistants working on water-related issues either in local ministries in 12 countries concerned or in regional institutions. Among these technical assistants there are no women.

3. Aid policies and strategies

The general concern of French aid is to provide positive development and investment in social and economic conditions and to make people responsible for their own lives. France considers sustainable development as building upon real economic markets in areas of political stability and is therefore strongly supporting economic growth in the assisted countries. The tradition of French development cooperation is to direct the support to the least developed countries in the world.

Water, sanitation, irrigation and environment

The guiding principles underlying French participation in water projects are: participation by the groups involved, the use of existing assets, the use of appropriate technology, and integration of projects in a broader development plan.

French development cooperation supports, among others, the following kind of water projects: institution building through planning; sector policy development; water resources management; provision of water supply to cities, villages and semi-urban areas; restructuring of water distribution systems; and irrigation.

Water resources management in relation to Dublin and Rio

The French cooperation efforts have for years followed a similar approach based on management of the water resource's volume and quality, with the aim of making the resource available to the user while encouraging responsible use. France is active in all large waterworks areas, dealing with regional, national and local levels. In large-scale activities like the Interafrican Committee for Hydraulic Studies (CIEH), the Organization for Improvement of the Senegal River (OMVS), the Nigeria Basin Authority (ABN), the Sahara and the Sahel Observatory, the French cooperative efforts are mostly preoccupied with giving expert advice, either through resident experts or by funding studies.

French efforts are increasingly concerned with promoting holistic management of water resources, keeping in mind the environmental perspective. On the one hand, France is helping setup coordinating organizations for the management of water resources at the hydrographic basin level, like the Brantas River in Indonesia, the Rio Doce in Brazil and several rivers in Poland. On the other hand, France is contributing to the inventory and monitoring of water resources in many countries using various geophysical and tele-detection methods, like within the framework of the Sahara and the Sahel Observatory.

4. Intervention tools in the water sector

The following sections describe "tools" French development cooperation uses to orient policies and programmes in the assisted countries.

Policy level

The Ministry of Cooperation and the French Development Fund provide guidelines for strategies and priorities for every assisted country on a mid-term basis. These guidelines form the basis for programmes and cooperation. French Development Cooperation defines the programme policies and strategies together with the authorities of the assisted country. These meetings are held every three to four years.

French Development Cooperation is paying particularly attention to four issues while considering funding water supply projects: the geographical and sectorial context, expected impacts, economic and financial viabilities, and sustainability of the project.

While the effect of the project is analyzed there are three issues which are given priority: consideration of environment, integration of women in the development and social consequences.

Project level

Every project originates from a request from an assisted country. The design of the project, after a feasibility study, can be done through the cooperation representative in the country or by the central service. The project is presented to the Committee Director of the French Development Cooperation. The implementation of the project can be undertaken either by the cooperation representative in the country, the central service in Paris

or directly by an institution in the assisted country. The project evaluations are made by the central service.

Technical assistance

French technical assistance involves provision of experts, like technical advisors and hydrogeologists. Next to direct technical assistance it may also be channelled indirectly: through contracting consultants or individuals for a specific task and time. Assistance can also be provided through the programme Solidarite l'Eau, which mobilizes local organizations and NGOs and can directly engage non-governmental help through groups, micro-enterprises, and communities. Finally the International Office of Water gives support as indicated below.

Training, research, and information support

France supports various training centres for water management, such as engineering colleges, universities, governmental vocational training centres and refresher courses. France is also providing support to schools and institutes concerned with water-related activities in various parts of the world, like EIER and EITSHER in Burkina Faso. These colleges deal with water-related issues, among others water resources management and river basin management. After 1990, two popular approaches to training evolved: 1. to strengthen local training facilities; and 2. to provide short-term in-service training courses for mid-career professionals. In 1990, France sponsored 18,411 students and trainees from different developing countries.

France has also developed an observatory and research centre in the Sahel and Sahara. The goal of the centre is to provide new means in the struggle against drought and desertification by complementing and reinforcing existing mechanisms in North, East and West Africa. France is also supporting statistical networks which keep up-to-date inventories of surface water resources throughout West and Central Africa. Another important institute working with water resources management issues is the International Office of Water, which mobilizes French expertise in water management, provides training for related services, supports documentation cooperation and data management. One of the objectives of this office is to help local organizations to build the capacities for management and operation necessary to a sound development and protection of water resources.

5. Volume and share of aid resources

France's net development assistance (including flows to the Overseas Developments and Territories) was US\$ 9.5 billion or 0.56% of the GNP in 1991. Over 50% of French multilateral assistance goes to the EU/EFD; about 25% to the World Bank group. Of the remaining 25%, contributions to regional Developments Banks have risen more rapidly than those to the UN System. Detailed information on share of resources which are provided to the water sector is not readily available as it is spread over different ministries.

6. Countries where aid is concentrated

In 1990 France supported more than 39 developing countries. The countries receiving most support were Cameroon, Côte d'Ivoire, Morocco, Senegal and Zaire, reflecting the priority for African and Indian Ocean countries.

Over the period 1985 to 1991, 57 countries received support from the French Government for water-related activities. China received the most assistance amounting to US\$ 115 million. Seven countries received between US\$ 30 and 70 million (on average US\$ 40.5 million): Egypt, Guinea, Madagascar, Niger, Rwanda, Indonesia and Haiti. Another 6 countries and 1 region received between US\$ 20 and 30 million (on average US\$ 27.3 million); Mali, Mauritius, Nigeria, Senegal, the Southern Sahara, Sri Lanka and Ecuador. Ten countries received between US\$ 10 and 20 million (on average US\$ 16.8 million), 13 countries received between US\$ 3 and 10 million (on average US\$ 7.5 million), 10 received between US\$ 500,000 and 3 million (on average US\$ 1.5 million) and 9 received less than US\$ 500,000 (on average US\$ 200,000).

The water resources management projects France is supporting are concerned with big aquifers which cross frontiers, like Senegal/Mauritania, Benin/Togo; river basin projects, like in Senegal and Niger; preservation of water resources, like in Cape Verde, Mauritius, Djibouti, Sahel countries; and integrated river basin management, like in Côte d'Ivoire.

7. Partners in project planning and implementation

The French development cooperation works with international organizations, like the World Bank group, EU and the UN System. Other important institutions are the French finance systems, for example the French Development Fund and the Fund for Aid and Cooperation. The influence of NGOs on aid seems to be negligible in French development cooperation. On the one hand French NGOs are not well integrated into the government cooperation network, and on the other hand the French cooperation rarely calls on local levels to help build a project. However, there are a few individual cooperation structures which are close to both the government authorities and the NGOs, like GRET (Group for Research and Technological Exchange).

8. Overview of promising approaches in water resources projects

Provision of water in South Benin

This project is concerned with definition of a political and institutional framework, the definition of a model of responsibility sharing, elaboration of an organizational overview, and an economical analysis. The following will be dealt with during the project development: selection of water supply systems, organization and maintenance of facilities, an economic analysis of the financial viability, definition of level of user participation, establishment of level of recuperation of investments; organization of rural credit, and financial resources for management. The project aims to build autonomous water points with a distribution system. The characteristic of this project is the emphasis on the institutional framework which is making

use of local human resources. The Water Department has delegated the project to a local consultancy firm after tendering. This firm will be in charge of planning and control of the implementation of the project. Installation and maintenance of systems, will after consultation be designated to local enterprises. The Water Department will supervise the initial planning phase as well as monitoring and evaluating the installations. The project will start in the beginning of 1994.

River basin management

The French development cooperation is supporting river basin projects in Brazil, Mexico, Venezuela, Indonesia and Poland. In its own country, France has established six river basin committees (RBCs), whose territories closely correspond to the main river basins. They have been specializing in WRM (planning and macro management) for 25 years and facilitate coordination among all parties in WRM. The RBCs have become the centres for negotiations and policy making regarding WRM at the river basin level. This expertise related to water management is now being provided to others through a cooperation between one of the French water agencies and local partners. These projects follow several steps: 1. coordination of all sector activities in the river basin area; 2. coordination of decisions regarding water resources management and environment through a committee; 3. participation of users, with particular attention on gender issues; and 4. water being emphasized as an economic good and making the polluters pay. The first points mentioned have until now been attained in most cases, but there are difficulties with the last two points due to socio-economic, cultural and religious reasons.

9. Coordination

A programme called Solidarite Eau was started by the French and other European Ministries of Environment in 1985. This programme involves local cooperatives, development aid organizations and professionals within the water sector. The objective of this programme is to stimulate European countries to take action for improvement of the water situation in the world, to provide information for better interventions and to decentralize management of water resources.

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GERMAN GOVERNMENT

1. Administrative aid structure

Development assistance is mostly the responsibility of the Federal Ministry of Economic Cooperation (BMZ). Once BMZ has approved an official assistance project it is generally contracted out through one of the two major implementing bodies, the German Agency for Technical Cooperation (GTZ) or the Bank for Reconstruction (KfW). GTZ's main field is technical cooperation while KfW deals with financial assistance. BMZ also supports projects executed under the responsibility of NGOs and UN bodies (voluntary funds-in-trust contributions), apart from general contributions via regional (EU) and global (UN, World Bank, etc.) organizations.

2. Staffing

In 1993 BMZ had a staff of about 550 persons (technical and support staff) of which 35.4% were women. One male staff member works specifically with urban water supply and sanitation issues.

KfW had a total of 1,170 staff members. Some 300 of these employees are working in the country departments and are particularly guiding and monitoring projects. Over 20% of them are primarily dealing with water projects. In the technical and sectoral departments 27 professionals including one female staff member advise on projects related to water resources management including drinking water supply and irrigation. One of these specialists is nominated as coordinator of water resources management issues. KfW provides financial support to 1,600 projects in 103 countries.

GTZ has 1,900 collaborators under contract of GTZ headquarters, 453 are under local GTZ contracts, 840 contracted as integrated experts and there are 1,270 employees at headquarters. GTZ participates in more than 2,260 projects in 126 countries.

Ten engineers, all male, are working in the water and sanitation sector at GTZ headquarters and 55 professionals, all male, are working under direct GTZ contract. There are 40 professionals under consultancy contracts in the assisted countries. The projects are concerned with water supply and sanitation, water resources management and solid waste management, river basin management, and water resources quality problems in rivers.

3. Aid policies and strategies

The German Government stresses basic needs in the developing countries, including food, housing, water supply and sanitation. The policy is oriented towards the poor, always keeping in mind environmental concerns.

Water, sanitation, irrigation and environment

German development cooperation guidelines for the water sector (1984) give priority to projects in rural areas which include components of low-cost technology, training, institution building, health education, community participation and sanitation.

Water resources management in relation to Dublin and Rio

High priority in terms of human and financial resources is devoted to water resources management. The inter dependence between policy at the national and target group levels, management, technology and finance are stressed, as well as the inter relations between freshwater supply and sewerage and those between macro-micro economic and social issues. General studies on water resources problems are being prepared and will be ready in 1994. Dublin and Rio have had a moderate influence on this development within GTZ and KfW although the majority of issues indicated in these meetings were already part of the agencies' policies.

4. Intervention tools in the water sector

The following sections describe "tools" used by German development cooperation to orient policies and programmes in the assisted countries.

Policy level

A prerequisite for any bilateral support is a request from the government of the developing country. Large or complicated projects (drinking water supply) begin with a preliminary planning phase. Pre-feasibility studies and feasibility studies are made prior to investment. The studies include social, political and cultural aspects. It is a rule to coordinate all the investigations closely with the partner government. A favourable decision on aid approval may be made when the project aims at strengthening self-supporting and autonomous structures and if community participation will be encouraged. The policy plans are negotiated in government negotiations and consultations. Plans for the water sector are dealt with by the technical cooperation project under the full responsibility of the assisted country.

Project level

GTZ and KfW follow the BMZ policy outlines while preparing, executing and reviewing water projects. GTZ and KfW are responsible for the detailed project formulation and BMZ is responsible for review and evaluation of the water projects. BMZ is presently updating its checklist for water projects and is going to place stronger emphasis on integrated water resource management aspects.

Technical assistance

BMZ's programme is the focal instrument of German development assistance. Technical assistance is mostly provided through GTZ and consists in general of specific advisory services, training and assistance in project formulation. Technical assistance also includes inputs by NGOs and assistance via multilateral bodies. Through KfW financial assistance is provided in the form of soft loans for basic investments and services. Often German consultants are involved in projects being implemented with financial support from KfW.

Training, research and information support

Training and research are important elements of German development aid. In the field of training two government (BMZ) institutions play an important role: Carl Duisberg Gesellschaft (CDG) and German Foundation for International Development (DSE). Research projects are encouraged mainly by the governments of the individual States of the Federation, mostly run by specialized institutions and, last but not least, the wide range of NGOs

and enterprises. These institutions together with GTZ, BMZ and KfW form a network which promotes research activities. When a developing country wants to initiate a research project it has to make a request to the German Government, which then considers whether they can assist the project. Within the water sector the Germans hold workshops and seminars and provide training and advice.

5. Volume and share of aid resources

In 1991 German development assistance reached US\$ 6.8 billion (or 0.4% of the GNP), which was an increase over the previous year of 5% in real terms, after an increase of 7% in 1990. Bilateral aid remained stable after the previous year's exceptionally high growth of 17%, which was due in particular to the extension of a large volume of assistance to countries affected by the Gulf War. Multilateral contributions which had dropped by 14% in 1990, increased by 18% mainly benefitting the EU and the UN family. The share of water supply and sanitation projects in 1992 (not including projects under the responsibility of NGOs or other UN-autonomous bodies) was the largest (6% or US\$ 317 million) of the total German official aid commitments. Moreover water supply-related projects registered under other sectors like agriculture, industry and energy should be added on to the amount above. The sub-sector "irrigation" had an overall share of US\$ 19.4 million, while the "hydropower" had US\$ 104 million.

6. Countries where aid is concentrated

In 1991 more than 35 developing countries were receiving aid from Germany. The countries that received most assistance were: Egypt, Turkey, China, Jordan and India.

From 1985 to 1991 Germany provided 61 countries with aid for water-related activities, amounting to US\$ 1462 million. Turkey was the country which received most assistance (US\$ 303 million). Peru, Bolivia, Senegal and Tunisia received between US\$ 50 and 150 million (on average US\$ 71.1 million). Eighteen countries received between US\$ 20 and 50 million (on average US\$ 31.9 million); Morocco, Chad, Zaire, Mali, Namibia, Sudan, Burkina Faso, Egypt, Benin, Ghana, Kenya, Niger, Syria, Israel, Brazil, Ecuador, Indonesia and India. Twenty-three countries received US\$ 5 to 20 million (on average US\$ 9.7 million) and ten received between US\$ 1 and 5 million (on average US\$ 2.8 million). Four countries received about US\$ 900,000.

The aspect of water resources management is particularly emphasized in projects in the following countries; Jordan, Tunisia, Morocco and Yemen.

7. Partners in project planning and implementation

The implementation of projects relies largely on the services of private consultants and NGOs and the provision of investment goods from firms throughout the world. In general the German methods of cooperation are innovative in that they rely most heavily on other public, private or associated bodies which cooperate closely together on the type of project selected and the methods of execution.

8. Overview of promising approaches in water resources projects

Water monitoring and protection of the River Tiete, in Sao Paulo, Brazil

The state has adopted a comprehensive programme for rehabilitating the River Tiete, which has turned into an open sewer, to combat the threats posed to the groundwater, drinking water reservoirs and to the people's health. The programme increases the requirements of water monitoring, which is the responsibility of the state environmental authority CETESB. The KfW-financed project aims to put CETESB in a position to meet these requirements. CETESB has submitted a plan for improving the water monitoring and the main components are: the determination of locations for stationary and automatic monitoring stations, a list of additional instruments required to improve the analytical and sampling facilities of the laboratories, advisory services in selecting equipment, and training of technical staff for operating the equipment.

Development of a water master plan and an inter-institutional task force in Brazil

GTZ, together with the Ministry of Planning of Brazil, are intending to initiate a sustainable system of water management in the state of Rio de Janeiro, with improved systems of inter-institutional coordination. The reasons are that in this state the cost of potable water treatment is increasing, there are plans for large investments into flood protection and river management without consideration of the environmental effects, and there is no coordination between the agencies of the public administration. The Ministries of Environment and of Public Works are also going to participate in the project. The assistance will go towards supporting development of comprehensive diagnosis of present and future water sector problems, and formulation and evaluation of alternative strategies. Key issues are legislation, water pricing and organization. A major tool to develop the project will be training, public awareness campaigns and seminars. The project is planned to cover about ten years.

Development of a water resources strategy and planning unit in Jordan

In 1993 GTZ started to assist the Government of Jordan to establish support departments, particularly a Strategy and Planning Unit. The project aims at organizational strengthening of this Unit, formulation and discussion of water policies and strategies, and an improvement of inter-institutional coordination. The background of this project is that the water resources are insufficient to cover all projected needs and the groundwater is over-exploited, which will effect the water supply for future generations. The consequences of this lack of water resources management have already been indicated by high salinity levels in the groundwater and drying-up of oases. Policies and strategies are therefore needed which regulate and control the use of water, and reduce water losses and pollution. The national water master plan will be updated as a permanent task. Key issues of the project are water scarcity awareness, use of water pricing as a policy tool and improvement of normative tools (laws and regulations). The project will be long-term, approximately eight years.

Sewage treatment and protection of water resources in Tunisia

The KfW-financed project activities are concerned with the improvement of the sewerage networks and of constructing sewage treatment plants to protect the Medjara catchment area, the River Medjara and the barrage of Sidi Salem. In addition, controlled garbage dumps are to be opened to ensure the proper disposal of domestic waste of three towns. The objective is to ensure acceptable drinking water supply for the majority of the Tunisian population (currently as well as long term) and to prevent pollution of the Mediterranean.

Sewage treatment and drinking water conservation, China

This concerns financial support through KfW for construction of an initial central sewage treatment plant. The project aims to reduce water contamination in the urban and nearby coastal areas of Yanti, to protect groundwater resources and to reduce health hazards. The partial recycling of treated wastewater as industrial water will contribute to the conservation of the limited drinking water supplies.

9. Coordination

Close coordination and cooperation with the EU (Lome Convention and beyond) and the World Bank in the fields of conceptual frameworks, programming and executing, as well as their active role in the Collaborative Council have to be highlighted. Examples of coordination at country level are GTZ's cooperation with NORAD for the development of water policies in Zambia and with USAID in Jordan.

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IRISH GOVERNMENT

1. Administrative aid structure

Responsibility for Irish aid rests with the Department of Foreign Affairs. Its Development Cooperation Division is headed by an Assistant Secretary. There are Development Cooperation Offices in Lesotho, Tanzania and Zambia. New offices will be established in Uganda and Ethiopia during 1994. Monitoring is carried out by the country office with the Dublin-based Desk Officer. This is supported by the Planning and Evaluation Unit. This Unit comprises four development specialists who cover urban and social, finance and management and rural development. The chief project analyst has more than twenty years experience in developing countries. All projects considered by Irish aid are appraised by this Unit. Project reviews are carried out on a periodic basis. The Unit is semi-autonomous within the Development Cooperation Division. All reports are brought to an inter-departmental committee for approval. The rural development advisor is responsible for water projects.

Irish aid includes multilateral and bilateral aid programmes for developing countries; Humanitarian Assistance from which allocations are made for emergency relief; the Agency for Personal Service Overseas (APSO) which funds volunteer work; and the Irish Aid Advisory Committee (IAAC). IAAC facilitates the expression of views by interested segments of the public.

2. Staffing

Irish aid employs 39 people at headquarters, of whom 19 are women. The programme is managed on a country basis with technical support provided by the Planning and Evaluation Unit. The rural development adviser in cooperation with the Desk Officer of the country involved deal with the support to the water projects.

In the four field offices/embassies there are 48 people, of whom ten are women. Specific water projects are funded in Zambia (three Irish water engineers), in Lesotho (one Irish water engineer), in Tanzania and Sudan (supported by Irish consultants).

3. Aid policies and strategies

The first priority of Irish aid is to provide assistance to poorer developing countries. This assistance is designed to meet basic needs, particularly of the more disadvantaged segments of the population, and to contribute to long-term economic and social development. The original four priority countries are among the poorest in the world. With the Irish aid country programmes the aim will be to maintain a high level of expenditures on meeting such basic needs as clean water supply, health care and primary education.

Irish aid projects aim to establish structures which enable their development partners to manage their future themselves. Irish aid therefore gives priority to projects which are designed to increase the capacity of decision makers

at all levels, including grassroots level, and to improve their management of available resources, both material and human, in the interests of sustainability. It is a fundamental principle of Irish aid that sustainable development is possible only when adequate attention is paid to the particular role of women in development and to environmental issues.

To maximize effectiveness and impact, project aid is concentrated on specific sectors or specific geographic areas. The choice of sectors is influenced by the availability in Ireland of appropriate skills, capacity and experience.

*Water, sanitation
irrigation and
environment*

The Irish aid programme funds low technology village water supply projects that emphasize community ownership and participation, as well as health education and sanitation. All projects are implemented in cooperation with the host government.

*Water resources
management in
relation to Dublin
and Rio*

The International Conference on Water and the Environment, hosted by the Irish Government and convened by the World Meteorological Organization (WMO) was held in Dublin from the 26 to 31 January 1992, in preparation for Earth Summit in Rio. The conference provided a focus for discussion of water issues and many of the conclusions reached were reflected in the chapter dealing with water in the Earth Summit conclusions.

The Dublin Statement, adopted at the conclusion of the conference, highlighted the need to create the enabling environment and build the capacity for integrated water resources management.

This approach is consistent with the activities of ongoing Irish aid projects in developing countries. In all four priority countries water projects are funded. Although all of the projects focus on clean water supply, the situation in each country differs as a result of a combination of natural and man-made factors.

Following the commitments made by Ireland at the Earth Summit in Rio additional financial resources will be spent in our priority countries wherever possible. The emphasis on water supply will continue and any new recipient countries considered for Irish Aid in the future will be closely examined in terms of their water needs.

**4. Intervention
tools in the
water sector**

The following sections describe some "tools" the Irish development cooperation uses to orient policies and programmes in the assisted countries.

Policy level

Irish aid is based on a technical agreement drawn up on a bilateral basis with the host government. All projects are implemented in cooperation with the government, and staff are on occasion seconded to Irish aid. All projects fall within the national development plans of the host country and the

official development assistance policy of the Irish government. Irish aid works in cooperation with the governments of partner countries, both at central and at local level, to ensure coherence with their own development strategies. Where appropriate such involvement also directly involves local communities. The approach is based on a dialogue between Ireland and its partner organizations aimed at improving the effectiveness of the aid programme.

Project level

The formation and review of water projects is the responsibility of the Planning and Evaluation Unit, specifically under the Rural Development Adviser. External consultants are employed by Irish aid to support this process when required. The guidelines used in developing water projects include safe water supply in a sustainable technical manner, supported by health education and sanitation. Community participation and ownership are key aspects.

Systematic attention is given to gender and environment questions at all stages of project implementation, including project identification, appraisal, implementation, review and evaluation. In general, Irish aid prefers to integrate these considerations into mainstream projects. Projects aimed at improving the condition of women in developing countries, and environmental projects are also supported where appropriate.

Technical assistance

A substantial part of Irish aid is in the form of technical assistance which frequently involves the use of Irish consultants in project design and Irish personnel in subsequent project implementation. All water projects are managed by Irish engineers who have experience in social and health aspects of sustainable water systems in developing countries, as well as technical knowledge with regard to supply.

Training, research and information support

Irish Aid supports the Department of Hydrology in University College Galway and the University of Dar es Salaam in the development of expertise in hydrology. Approximately 200 students have been awarded M.Sc. degrees while 10 have gone on to complete Ph.Ds between 1979 and March 1994. All are now employed in their countries of origin and are engaged in the development of water resources for human, industrial and agricultural purposes. Training for local counterparts to enable them to manage projects without further need of external assistance is a priority issue in the projects.

5. Volume and share of aid resources

The 1993 figure for Irish aid was increased to 0.2% of the GNP or US\$ 77 million. In 1994, this was raised to 0.24% or US\$ 98.3 million. It is proposed to reach the target of 0.4% by 1997. All Irish aid is given in the form of direct grants to avoid the creation of debts.

In 1992, approximately US\$ 1.2 million (12%) of bilateral aid was spent on water-related programmes. Almost all of this was spent on rural water supply schemes. One irrigation project is co-funded with the UC in Lesotho.

6. Countries where aid is concentrated

There are currently four priority countries: Lesotho, Sudan, Tanzania and Zambia. Uganda and Ethiopia will open offices in 1994. Assistance is also given directly to Mozambique, Somalia, Zimbabwe, Vietnam, Cambodia and Burundi. Support through NGOs cover an additional 20 countries in 1992.

7. Partners in project planning and implementation

All Irish aid projects are implemented in cooperation with the host governments. In countries where assistance is given but where no Irish Embassy is based, NGOs or the EU may act as partners.

8. Overview of promising approaches in water resources projects

Integrated water project in Zambia

The local government structures have been totally integrated in this project. The construction has been carried out under the auspices of the Northern Province Department of Water Affairs. The technology used is appropriate and includes a large amount of manual work which allows the local community to play a full role during implementation. Both men and women are involved in this work and all labour is provided free by the village as their contribution to the project. The project began in 1983 and has served some 50,000 people.

Rehabilitation of urban water supply in Tanzania

Irish aid has supplied materials for the town water supply in Kilosa. Some technical assistance is provided but construction costs are locally funded by the town Kilosa.

Development and protection of piped water supply from springs in Lesotho

The only source of water in this district Qachas Nek is from springs, some of which are over an hour's walk through very difficult terrain. The project aims to tap these springs and pipe water to distribution points in the village. Local participation is good and two villagers are trained to maintain the system after the project is completed.

9. Coordination

Irish aid coordinates at the national level with the Ministry of Planning as well as the department responsible for water projects. As most projects are rural, support is given through District Councils or government. Close coordination is also followed with other donors working in the sector within the country. Irish aid is also co-financing certain projects with a number of international agencies (principally in the World Bank group).

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ITALIAN GOVERNMENT

1. Administrative aid structure

Development cooperation policy falls under the authority of the Minister of Foreign Affairs. The main channel responsible for delivering assistance is the Directorate-General for Development Cooperation (DGCS) in the Ministry of Foreign Affairs. The DGCS is responsible for all bilateral programmes, multilateral contributions to EU/EDF, UN organizations and emergency assistance. The Treasury deals with the international financing institutions and the assessed contributions to multilateral agencies.

The administrative structure of the Italian Development Cooperation is undergoing significant changes at the moment, as a result of new political priorities which might lead to change in the law regulating sector.

2. Staffing

The total headquarters staff of DGCS is approximately 500 persons, of whom about 90 are programme officers (cooperation experts) working in the Central Technical Unit (UTC).

Fifteen of the 90 UTC programme officers work in water resource related projects. About 20 Italian embassies in developing countries have "operational support groups" formed by a varying number of experts in different fields. Out of 50 officers serving in the embassies about 15 work in water-related fields, of which two to three are female officers. Additionally, DGCS has deployed technical advisors in the field in several Italian water-related programmes in developing countries. The number of female staff involved in water-related programmes is very low. All staff members involved in the sector have a technical background.

3. Aid policies and strategies

The priorities of the Italian development aid are: health, agriculture, infrastructure, water and sanitation, hydraulic works, industry and energy, housing, education, environment, improvement of women's conditions, training and technical assistance in general, and commodity aid.

Water, sanitation, irrigation and environment

During the International Drinking Water Supply and Sanitation Decade 1981-1990, Italy was involved in many rural water supply projects, especially in the Sahelian area. Gradually, in recent years, the focus has shifted towards large urban water supply programmes, due to a change in beneficiary country priorities dictated by water scarcity leading to emergency situations in fast-growing cities. Italy has also been, and still is, involved in large irrigation programmes and in the construction of dams for irrigation, drinking and industrial water supplies and hydropower.

Water resources management in relation to Dublin and Rio

Italy pioneered the formulation of the Primary Environmental Care (PEC) concept, having presented it to the OECD/DAC in a 1989 meeting, and in several other international fora since. Water is a significant element of Primary Environmental Care strategies, and it is foreseen that future

community-level water projects will be increasingly based in the PEC concept.

4. Intervention tools in the water sector

The following sections describe some "tools" the Italian development cooperation uses to orient policies and programmes in the assisted countries.

Policy level

Following the recent political trend towards reducing the number of recipient countries, the Italian Development Cooperation is contemplating the adoption of country programmes, according to OECD/DAC recommendations. The idea is to include in such country programmes the priority sectors of assistance, as defined by preliminary studies and bilateral negotiations, in coordination with other ESAs. It is envisaged that the elaboration of country programmes is going to be initiated by the Local Technical Units (UTL) that are being organized in priority countries.

In the definition of the bilateral aid agenda, contacts are normally made with various local ministries, including the Ministry of Foreign Affairs, the Ministry of Planning, and the Ministry of Finance. Plans are periodically negotiated with recipient governments (every 2-3 years), in Mixed Committee meetings.

Project level

There is a Focal Point for Hydraulics within the Central Technical Unit, which is in charge of gathering and circulating technical guidelines and tools. Project formulation responds also to specific administrative regulations, to the request of beneficiary countries and to the political and diplomatic inputs of "regional" offices within DGCS.

Projects are normally formulated and presented by beneficiary governments or Italian NGOs. UTC cooperation experts review project documents and request changes in project formulation, if necessary, in order to prepare a proposal for funding. Project review normally includes a field visit.

In the project assessment phase, contacts are made locally with the relevant counterparts: water utilities, municipalities, irrigation and water resources authorities.

Technical assistance

Technical assistance is normally included in water supply and sanitation and water resources development projects, in order to guarantee correct execution of works, to train local personnel and provide appropriate operations and maintenance skills. Furthermore, specific technical assistance is provided to ministries and water sector agencies in the framework of institutional capacity building initiatives.

Training, research and information support

A number of Italian scientific and technical institutions operating in the field of water resources have collaborated with DGCS in specific programmes through research, training and information support. Worthy of mention are

ISS (Istituto Superiore della Sanità), IRSA/CNR (Istituto di Ricerca sulle Acque/Consiglio Nazionale della Ricerca), and the universities of Florence, Pisa and Padua. Italy also supports inter-university cooperation programmes. For example in the urban sector, agreements have been reached with Mozambique and Angola, among others, to provide training facilities for technicians in these countries. In 1988 Italy supported 5402 students and trainees from various developing countries. Recently, DGCS supported and coordinated the Urbanization Working Group of the Water Supply and Sanitation Collaborative Council, with the participation of CERFE, a Rome-based research institution. One of the results of this work has been the establishment of an information bank on urbanization issues in water and sanitation. It is based upon information (desk evaluations, published and unpublished material, academic work, statistical data, cases studies, etc.) from a selected number of working group members, as well as publications and reports available at the Ministry of Foreign Affairs of Italy or present in one of the various databases managed by CERFE. The 271 documents contain 400 analysis units, equal to 14,000 pages. The filing of the information was based on formal criteria (date of publication, author, etc.) and on documentation of the findings of the analysis of the 400 units (related to constraints, resources, etc.).

5. Volume and share of aid resources

Italian development assistance in 1993 amounted to about US\$ 830 million. Development aid was reduced by 45% in 1993 compared to 1991. It has been the multilateral aid in particular that has fallen. About 15 to 20% of the development funds concern water-related programmes distributed over the five geographical sections and mostly concentrated (about 60%) in Sub-Saharan Africa (mainly on grant basis) for infrastructure projects for basic needs (water distribution systems, rural water supply, etc). NGO funds for 1993 (about US\$ 88 million), were mainly for integrated projects, often including water-related activities.

6. Countries where aid is concentrated

Italy is mostly supporting countries in Eastern Sub-Saharan Africa, particularly Ethiopia. However, aid to the countries facing Italy in North Africa and the Mediterranean neighbours is also expanding, as is aid to Latin America, particularly Argentina and Peru. The newly launched aid programmes for Eastern Europe (mostly Poland and Hungary) are financed with resources on top of the aid programme. The number of assisted countries is being significantly reduced, in order to improve effectiveness.

From 1985 to 1991 the Italian Government supported water-related projects in 56 countries for a total amount of US\$ 929.4 million. Egypt received the most assistance (US\$ 93.1 million). Nine countries received between US\$ 30 and 60 million (on average US\$ 44.4 million): Kenya, Mozambique, Niger, Senegal, Somalia, Tanzania, Burkina Faso, Zambia and Argentina. Fourteen countries received between US\$ 10 and 30 million (on average US\$ 18.6 million), ten between US\$ 3 and ten million (on average US\$ 6.1 million), 16 between US\$ 500,000 and 3 million (on average US\$ 1.4

million) and six countries received less than US\$ 500,000 (on average US\$ 260,000).

In the following regions/countries water resources management is emphasized by the Italian Development Cooperation: The Sahel region; the Horn of Africa, Angola and Mozambique, the Andean region.

7. Partners in project planning and implementation

The Italian Development Cooperation usually contracts private enterprises, NGOs, universities and research institutes and local governments to assist local governments in the development of projects. Another group that recently have been involved as partners to the Italian Development Cooperation are Italian local governments. The idea is that these governments, municipalities, regions, etc. will establish their own initiatives to exchange experiences and knowledge in local administration, management of local services and so on with the countries Italy is assisting. The initiatives of the local governments must correspond with the overall plan of Action defined by the Ministry of Foreign Affairs. Italy is also participating in multilateral funding, particularly to EU and UN agencies, including the UNDP-World Bank programme.

8. Overview of promising approaches in water resources projects

Community-awareness-raising activities and involvement of users for funding in Mali and Niger

In the rural water supply projects in Mali and Niger emphasis has been placed on user participation in the financing of activities related to the establishment of water points. The villagers were provided with awareness-raising campaigns and hygiene education (protection and conservation of water resources, O&M), after which each village paid a certain amount for installing a water point. The villagers contributed also through labour and equipment. Moreover the project stimulated the development of a water committee in each village. The committee is responsible to facilitate proper operation and maintenance, to mobilize the people for meetings, cleaning sessions, etc. The local partners of the project are the Ministry of Hydrological Industry and Energy under the national directory of hydrology and energy.

Water resources management and development of an operational manual on effective irrigation in Ecuador

The technical assistance component of the Chambo-Guano project has been supporting irrigation authorities to come to grips with many of the problems that are common to irrigation schemes in the developing world: water wastage, lack of cost recovery, shortcomings in operation and maintenance. Major repair work on the existing channels have been undertaken, as well as the expansion of the irrigated area. An operations manual for the irrigation scheme has been developed by the project, covering such subjects as tariff structure, staffing, maintenance routines, user involvement and participation, etc. The local partner has been the Ecuadorian Institute of Hydraulic Resources (INERHI), which manages hydrological projects in the country. Their role in this project has been to provide technical and administrative staff and equipment. INERHI has, moreover, continued to develop the project after Italy completed its involvement.

Sanitation as water resource protection in Brazil

An Italian NGO, AVSI, has been active for over ten years in the upgrading of informal settlements in Belo Horizonte. Water supply and sanitation infrastructure is a major part of the upgrading process, which has intense community participation as one of its main features. Sanitation in informal urban settlements is seen also in terms of its potential as a water resource protection intervention, by Italian development cooperation.

9. Coordination

The contacts Italy has with other ESAs on country level are normally informal and entertained locally. Italy moreover supports Italian NGOs that develop projects together with NGOs in the assisted countries. A special office within the DGCS handles the coordination of the contacts. About 70% of such projects include water components. An example of coordination on international level is Italy's participation in the Water Supply and Sanitation Collaborative Council.

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JAPANESE GOVERNMENT

1. Administrative aid structure

Overall development assistance policy is formulated through consultation among four ministries: Ministry of Foreign Affairs (MOFA), Ministry of Finance (MOF), Ministry of International Trade and Industry, and Economic Planning Agency. MOFA is responsible for aid negotiations with the foreign governments. Within MOFA, the Economic Cooperation Bureau is the focal point for foreign aid policy formulation and coordination. The Bureau handles all bilateral aid matters up to the point of approval.

Overseas Economic Cooperation Fund (OECF), which implements the yen loan programme, is under the supervision of Economic Planning Agency, although overall lending policies are formulated by the four ministries. Negotiations with recipient countries is the task of MOFA.

Grant aid policy is formulated by MOFA in consultation with the Budget Bureau of MOF. Technical cooperation is implemented by Japan International Cooperation Agency (JICA) and implementation of part of the grant programme has also been delegated by MOFA to JICA. Other ministries and agencies are involved depending on the nature of the aid activities and expertise required.

2. Staffing

The total number of staff working in Japan's development assistance programme in 1991 was 1729 including those in ministries, OECF, and JICA. Out of these 487 (28%) were posted abroad. Neither MOFA, JICA nor OECF has any section specialized in water sector projects. So, it can be said that staff dealing with water resources development and management are spread over many different departments of MOFA, JICA and OECF based on forms of assistance and/or region. It is difficult to assess the exact number of staff in this field.

JICA's activities related to water resources development and management are divided into the following categories: sewerage, flood/erosion control, water supply, integrated/comprehensive water resources development, including groundwater development, hydropower and irrigation.

Among the 129 JICA long-term and short-term experts engaged in environmental assistance for 1993, there were 13 for water pollution control, 13 for drinking water supply, 9 for sewerage, 37 for natural resources management including flood/erosion control, 7 for forestation, and 8 for solid waste management. OECF's activities related to water resource development are divided into the following categories; multipurpose dam, irrigation and flood control, water supply and sewerage. They have also had senior technical advisors to give highly specialized advice to water resource development such as in the field of hydro, water supply, irrigation, and environment.

3. Aid policies and strategies

Japan's Official Development Charter, issued in June, 1992, stipulates that Japan will work for globally sustainable development while meeting the requirements of environmental conservation. It also stipulates that it implements its development assistance through developing socio-economic infrastructure and meeting the basic human needs. These principles are common background for the promotion for the water sector.

Water, sanitation, irrigation and environment

The start of the International Drinking Water Supply and Sanitation Decade (1981-1990) was an influential international event for the promotion of water supply in Japan's aid. Japan began water supply projects in Africa in 1980, and in 1991 a total of 74 projects in 21 African countries were implemented.

Water resources management in relation to Dublin and Rio

UNCED (Rio, 1992) was an important event, where Japan played an active role announcing that it would work to expand its environmental development assistance to about US\$ 7 to 7.7 billion during the five-year period starting with fiscal year 1992. This announcement is the basis for the promotion of environmental aid, which also includes many water-related projects, such as water supply, sewerage, flood/erosion control, integrated/comprehensive water resources development.

Furthermore, at the Tokyo International Conference on African Development in October last year, it was announced by the Minister for Foreign Affairs that Japan will provide grant aid of US\$ 250 to 300 million over the three years starting 1993 to help increase the supply of hygienic water in various parts of Sub-Saharan Africa.

4. Intervention tools in the water sector

The following sections describe "tools" the Japanese development cooperation uses to orient policies and programmes in the assisted countries.

Policy level

In several developing countries in Asia, JICA cooperates in the preparation of comprehensive watershed management plans under the scheme of Dispatch of Development Survey Teams, which is one of the categories of technical cooperation. The plan establishes the framework, including various aspects of water resources development and management such as water supply, hydropower, flood control, irrigation, etc. Based on this comprehensive master plan, the assisted country can select priority projects for urgent implementation. For these priority projects, JICA is able to cooperate in the preparation of more detailed studies/feasibility studies.

On completion of the study, the government of the assisted country will look for financial sources for the project proposed by the study. It may be funded by self-financing or an international financial institution, but many of the studies lead to loans by the Japanese Government which are granted by the OECF.

Project level

For the purpose of incorporating environmental considerations into JICA's activities, "Environmental Guidelines on JICA Development Studies" have been prepared. The Guidelines concern the development of social and economic infrastructure in fifteen areas. Four areas out of the fifteen are related to water resources development and management, namely, construction of dams, flood/erosion control, groundwater development and water supply and sewerage.

In order to promote the efforts of developing countries to help themselves, the Japanese Government respects the initiatives of these countries. Therefore, JICA cannot carry out any development assistance projects without formal requests from the developing countries. However, when Japan recognizes that the water sector is important for the assisted country, Embassy and JICA staff abroad hold discussions with the government officials of the recipient country to formulate appropriate development assistance projects in the water sector.

OECF has assistance facilities designed to assist developing countries' project formulation and to enhance sustainability of OECF-assisted projects. For the purpose of incorporating environmental considerations into OECF's activities, the OECF Environmental Guideline has been prepared. The Guideline concerns the development of social and economic infrastructure in the fifteen areas. Sometimes research, training and information support related to the water projects are provided to the people in the recipient countries for smooth implementation and successful operation of projects through consultant services by the OECF. For a project where a request for an OECF loan has been made and the developing country cannot develop a feasibility study, OECF can carry out a supplementary study.

Once a project is completed, the recipient country has sole responsibility for its management, operation and maintenance. However, if problems are detected, the OECF will study the need for assistance requested by the recipient country and, depending on the results of the study, may provide SAPS (Special Assistance for Project Sustainability) assistance. In fiscal year 1992, the OECF implemented SAPS for an irrigation project in Sri Lanka. The OECF made recommendations and gave advice on effective water management and establishment of an agricultural extension service system for water conservation.

When OECF receives a request for a loan to finance a project upon completion of a feasibility study, OECF then sends an appraisal mission and appraises the request according to specific criteria, such as whether the project enjoys high priority in the socio-economic development plan of the borrower's country.

Technical assistance

Experts from Japan are assigned mainly to government agencies and research centres in the developing countries. Within the framework of technical cooperation, JICA conducts trainee acceptance programmes, expert dispatch programmes, equipment provision programmes, project-type technical cooperation programmes and development study programmes.

Training, research and information support

The number of students and trainees has increased greatly between 1970 and 1990, from 3675 to 39 737. JICA offers over 250 group training courses annually in response to the common needs of the developing countries. There has been a dramatic increase in the number of students and trainees coming to Japan under the development assistance programmes. Moreover, JICA also provides training courses in the developing countries. Training is offered at centres operated by JICA, and at other special institutions. The Institute for International Cooperation (IFIC) is handling recruitment of development specialists, for training and research, and study, collection and dissemination of information on technical cooperation. A centre that contributes to the capacity building of the Japanese environmental cooperation is INTEP, which offers education, research and information exchange on this subject. In 1993 INTEP started a training course for prospective volunteers under the Japan Overseas Cooperation Volunteers Programme. A short training programme has been formulated in the field of drinking water supply, sanitation, public health and water quality analysis.

With regard to training programmes, the following groups of training courses were offered during 1992 in water resources development and management: Water Supply Engineering; Sewerage Works Engineering; River and Dam Engineering; Hydrographic Survey; Irrigation and Drainage; Irrigation and Water Management; Water Resources Development and its Use in Arid Areas; Hydro-Electric Power Engineering; Environmental Engineering (Water Pollution Control); Environmental Engineering (Water Quality); Lake Water Quality Management; System of Environmental Management on Enclosed Coastal Seas; Marine Environment Protection; Industrial Wastewater Treatment Techniques; and Domestic Wastewater Treatment Techniques.

5. Volume and share of aid resources

Japan was the largest DAC donor in 1992. In that year, Japan's development assistance passed the level of US\$ 11 billion. In 1992, loans aid shared more than half of total bilateral development assistance, while grants shared the rest. The Fifth-Medium Term Target stipulates expansion of the portion of grants (grant aid, technical cooperation, and contribution to multilateral organizations).

Table: Performance of Japan's aid in water supply and sewerage in fiscal year 1992 (million US\$)

	<i>Fiscal year 1990</i>	<i>Fiscal year 1991</i>	<i>Fiscal year 1992</i>
Loan Aid	189.1	231.2	849.8
Grant Aid	161.5	126.3	182.7
Technical Cooperation	25.3	20.9	14.8
Small Scaled	0.25	0.44	0.61
Grant Aid NGO	0.13	0.13	0.2
Subsidy			
Total	376.3	378.9	1048.1
(% GNP)	(2.51)	(2.65)	(7.05)

6. Countries where aid is concentrated

The Development Assistance Charter identifies Asia - with which Japan has close historical, geographical, political, and economic ties - as a priority region. The ratio of Japan's development assistance to countries of the Asia region to the total of its bilateral development assistance has recovered to the 60% level - 65.1 % in 1992 - after falling below it for two years in a row, to 59.3% in 1990 and 51.0% in 1991. Apart from Asia, Japanese aid is now provided to Africa, Central and South America, the Middle East, Oceania, etc. Of the ten largest recipient countries of Japan's development assistance, five countries are East Asian and Asian countries.

In fiscal year 1992, Japan provided loan aid for water supply and sewerage projects to the following countries: Thailand, Indonesia, India, Mexico, Costa Rica, Chile, Brazil and El Salvador. In the same year, 30 grant projects were provided in the same sector, one half of which were to Asia, and the rest to Africa and Middle East.

7. Partners in project planning and implementation

JICA does not have any target countries for provision of its cooperation. However, the record of its performance shows that most of JICA's projects and programmes have been in Asia. The water sector also follows this tendency. JICA has provided development studies on comprehensive water resources development and management for the South-East Asian countries, and recently more emphasis has been placed on groundwater development projects for the African countries.

8. Overview of promising approaches in water resources projects

National water resources study in Malaysia

This project was carried out by a JICA study team in collaboration with the officials of the Government of Malaysia over a three year period, starting in 1979. The purpose was to establish a basic framework for the orderly planning and implementation of water resources development programmes, and for rational water resources management consistent with the overall national socio-economic development objectives. In this study, the establishment of institutions was recommended to ensure coordination of various sectoral activities in water resources development and to execute additionally required administrative actions.

Wastewater disposal project in the city of Jakarta, Indonesia

The purpose of this OECF project is to improve the sewerage system in order to enhance the natural and human environment in Jakarta. The loan covers part of the consulting for a wastewater treatment plant and consulting services. The executing agency is the Directorate-General of Human Settlements, Ministry of Public Works.

Yamuna action plan in India

The purpose of this OECF-supported project is to contribute to India's efforts to improve the water quality of the River Yamuna, a major source of drinking water for many cities, by tackling problems arising from the disposal of domestic and solid waste in the river. The loan covers the procurement of both sewerage and non-sewerage project components (such as low-cost sanitation, bathing ghats, improved crematoria, afforestation and landscaping), consulting services and a public awareness campaign. The executing agency is the Ministry of Environment and Forests.

Valparaiso water supply and sewerage improvement project in Chile

The Greater Valparaiso Area is the third biggest city area in Chile with a population of approximately 770,000. The purpose of this project is to improve the efficiency of water supply, to reduce water leakage and to improve the sanitary conditions of the coastal region by constructing/improving water production, water treatment, sewerage treatment and other sewerage facilities. The loan is to be utilized for construction/improvement of water supply and sewerage facilities and consulting services. OECF is co-financing it with the World Bank (IBRD). The executing agency is the Empresa de Obras Sanitarias de Valparaiso S.A.

9. Coordination

Firstly, JICA contacts the ministry responsible for coordinating all the foreign assistance projects and programmes. With regard to the implementation of specific projects, discussions are also held with the technical ministries and finance ministry. Particularly because the water sector is related to many other sectors, it is recognized that good coordination among various ministries and agencies involved in projects is crucial.

OECF maintains close contact and cooperation with the World Bank, the Asian Development Bank and the Inter-American Development Bank for

activities related to the protection and improvement of the environment. OECF is also closely cooperating with JICA, emphasizing exchange of information and co-financing.

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NETHERLANDS GOVERNMENT

1. Administrative aid structure

Within the Ministry of Foreign Affairs, development assistance is the responsibility of the Minister of Development Cooperation, except for the relations with IMF, for which the Minister of Finance is in charge. Responsibility for the liaison with the World Bank Group and the Regional Development Banks is shared between the two ministers.

The Minister of Development Cooperation is assisted by the Directorate-General for International Cooperation (DGIS). DGIS is organized in three geographical Directorates: Africa, Asia and Latin America. It has a Directorate for special programmes and technical advice, one for multilateral aid, one for international organizations, and another for international education and private sector initiatives. DGIS contracts out the majority of its projects to private sector companies and NGOs. Bilateral aid is entirely dealt with by DGIS and channelled through the following four accounts: 1. Programme countries; 2. Programme regions; 3. Special Programmes; 4. Emergency and Humanitarian Aid.

In policy development the NAR (National Council for Development Cooperation) plays a role in that it presents scientific advice and suggestions for priorities to the Government and Parliament.

2. Staffing

The total number of persons involved in technical cooperation projects increased between 1970 and 1992 from 1177 to 3581. DGIS has about 500 staff in the Hague and some 500 are posted in the embassies abroad. SNV, the former Netherlands Volunteers Foundation which used to be a branch within DGIS, has become an independent organization supporting projects and providing technical assistance to organizations in developing countries. SNV has a staff of 60 in the Netherlands and some 600 persons in 26 developing countries.

Staff dealing with water resources-related issues are spread over different sections within the ministry. At headquarters DGIS has 2 technical advisors for drinking water supply, sanitation and water resources (one on part-time basis), 5 for rural development (this includes the field of irrigation), 5 for environment (2 females), of whom one is acting as focal point for water and the other is dealing with environmental impact assessments. In the field DGIS has 26 specialists (2 women) working in Dutch Embassies in the following water resources-related fields: water resources assessment and planning (1), drinking water supply (5), rural development (14), and environment (6). DGIS has also 15 specialists working on women and development issues. Furthermore it financially supports some 7 expert advisors in water sector institutions in Zimbabwe and Namibia. In addition DGIS has established technical advisory groups in the Netherlands for India (one on rural water supply and sanitation), Yemen (rural and urban water supply and sanitation) and Egypt (land drainage and water resources).

3. Aid policies and strategies

The overall purpose of the Dutch aid policy is poverty alleviation. This means investing in people so that they can themselves be productive, assuring that their basic needs are satisfied, and helping poor people become part of political decision-making procedures. Emphasis is placed on sustainable improvement of living conditions of the poor, taking into account the needs of future generations. The policy stresses the need for international cooperation to make progress in reducing poverty in the world.

Historically, priority has been given to rural development although some limited emphasis was also placed on water supply, sanitation and health in urban areas. In 1990 a policy document on development cooperation was presented, which next to alleviation of rural poverty, also specifically prioritizes urban poverty alleviation. The new policy gives particular attention to work and income generation, empowerment strategies for local organizations, development of regulations, and a direct approach in favour of the weaker sections of the population. As a result of this policy four special programmes have been established for women and development, environment, research and urban poverty alleviation.

Water, sanitation, irrigation and environment

A policy paper on drinking water supply and sanitation was established in 1989. This paper addresses a number of key issues including community participation, delegation of management tasks to lower levels, institutional development and knowledge transfer, cost recovery, technology development and international cooperation.

Water resources management in relation to Dublin and Rio

A policy paper on water resources management is currently being developed which will include the principles endorsed in Dublin and Rio. The major components planned to be addressed are: a comprehensive analytical framework for national water resources planning and management, poverty alleviation, environmental impacts, institutional and regulatory systems, decentralization, capacity building, water as an economic good, incentives, cost awareness and cost recovery.

4. Intervention tools in the water sector

To implement its policy and influence developments in the water sector DGIS applies different types of strategies and tools.

Policy level

For each of the programme countries and regions specific development assistance policy plans are being established. Most of them include a section on drinking water supply and sanitation with specific objectives and a summary of main activities. The plans specify objectives, agreed activities, parties involved and available resources. These plans also aim to establish the relationship with other sectors. The Dutch policy paper for water supply and sanitation is used as a reference document for these plans. With the development of the policy paper on water resources it is expected that more emphasis will be placed on water resources in these plans.

Project level

Within the context of the agreed plans, projects are being formulated by the recipient countries. In this they may request support from specialists at the Embassy or more intensive support through establishing a joint formulation mission. DGIS has a comprehensive set of instructions for its staff which include detailed checklists. These provide a good basis for the development of terms of reference (TOR) for project formulation and review. Project proposals are reviewed at the Embassy and by the technical advisors at headquarters, and specifically screened for their influence on poverty alleviation, environment and women, for which a checklist is available. A positive score on at least one of these areas is needed and negative scores lead to rejection or reformulation of projects for funding. An Environmental Impact Assessment may be requested unless it is clear that the project will not have a negative effect on the environment. An increased emphasis may be expected on water resources in the screening process and in the TORs for missions when the policy paper on that issue is complete.

Technical assistance

Technical assistance takes different forms. Some water sector specialists are made available to some government institutions through DGIS or SNV. Furthermore, review and support missions are being carried out to monitor progress of projects and suggest adaptations. Direct assistance by specialized consultant teams is being provided in a large number of projects.

Twinning arrangements have been established between water companies in the recipient countries and Dutch water companies, particularly in Indonesia, to contribute to more efficient management of water systems. These arrangements were co-financed by the Dutch water companies and DGIS, and after a conclusion of the Indonesian-Dutch cooperation some are continuing on their own.

Training, research, and information support

Education and research institutions are strengthened in developing countries by means of programmes for research and appropriate technology. The research is carried out by institutions in the developing countries in collaboration with Dutch institutions.

Training is provided both in the Netherlands and in the recipient countries. Annual and short courses on different water-related issues including water resources are being provided by different organizations including IHE, ITC, IAC and IRC. This activity is part of a programme called the "The Dutch Model" which covers the training of students from developing countries in various institutions in the Netherlands. For example, in 1990, 1505 students and trainees from developing countries were supported by the Netherlands Government.

The Netherlands Government puts a high value on information and technology transfer and therefore is supporting the IRC International Water and Sanitation Centre, which is an independent foundation involved in information and technology transfer, advisory support, training and research.

5. Volume and share of development assistance resources

The Netherlands development assistance volume declined by 1.4% in real terms in 1991, remaining at US\$ 2.5 billion (0.88% of the GNP). Contributions to multilateral organizations increased by 8% mainly on account of higher payments to the EU. Bilateral assistance showed a decline of 4.8%.

Out of the total bilateral ODA, 17% (approximately US\$ 150 million) is spent on water-related projects. This concerns rural and urban drinking water supply (50%), irrigation (20%), waterway development and dredging (10%), flood control (7%), water resources development and planning (7%) and other water-related activities (6%).

6. Countries where aid is concentrated

Countries are selected on the basis of need, for which the human development indicator (prepared by UNDP) is being used, and on the level of agreement with the country's policy. This relates to both economic policy and socio-political commitments, including human rights and position of women.

In 1991, 39 developing countries received support from the Netherlands Government. The main emphasis is on the ten programme countries: Bangladesh, India, Sri Lanka, Pakistan, Egypt, Kenya, Sudan, Tanzania, Yemen and Surinam.

Over the period of 1985 to 1991, 44 countries received support for water-related activities. Indonesia, India and Bangladesh received between US\$ 80 and 160 million (on average US\$ 115 million). Burkina Faso, Cameroon, Egypt, Kenya, Sudan, Pakistan, Colombia, Netherlands Antilles and Aruba received between US\$ 10 and 50 million (on average US\$ 22.3 million). Ghana, Guinea Bissau, Mali, Mozambique, Niger, Tanzania, Yemen and Zimbabwe received between US\$ 3 and 10 million (on average US\$ 6.7 million). Fifteen countries received between US\$ 500,000 and 3 million (on average US\$ 1.2 million). Nine countries received less than US\$ 500,000 (on average US\$ 260,000).

Countries especially indicated as receiving support for water resources assessment, planning and management are: Egypt, Kenya, Mozambique, Yemen, India, Bangladesh and Pakistan.

7. Partners in project planning and implementation

The first partner in the recipient countries is the government and with their consent government institutions, state agencies, private sector, research and training institutes and NGOs.

In terms of support the Netherlands gives aid for water sector-related activities through multilateral organizations including: UNDP, UNICEF, WHO, ILO, FAO, UNEP, UNCHS, World Bank and the regional banks. In the bilateral programme a large number of partners are involved. The majority of the support projects are contracted out through Dutch-based

private firms, SNV and NGOs. Particularly the support through NGOs is of interest as this is very flexible and can open up new venues for sensitive issues, for example, human rights and environmental improvements.

8. Overview of promising approaches in water resources projects

DGIS supports a number of programmes and activities which it considers particularly promising for better water resources management.

Water resource assessment in Yemen (WRAY)

This project started in 1982 within the framework of the bilateral cooperation between the governments of Yemen and the Netherlands. The executing agencies are the General Department of Hydrogeology (GDH) of the Yemen Ministry of Oil and Mineral Resources and the TNO Institute of Applied Geoscience, Delft, the Netherlands. The main purpose of WRAY is institutional development of GDH. GDH and WRAY have sponsored the development of a National Water Resources Information Centre, which today has a high operational performance and efficiency. The Centre has experienced professionals working in programming and database management, who can provide interested agencies with information on groundwater levels, rainfall, etc. The staff at GDH today operates three monitoring networks, and they can give advice on installation and operation of automatic monitoring stations. GDH also cooperates with the responsible authorities to provide water resources assessment studies for improved planning. The GDH is seeking more alliances for coordination with other organizations in the Yemeni water sector-organizations that are responsible for planning, developing and/or managing the water resources, or environmental protection.

Water resources management in Egypt

This programme started with technical assistance activities on land drainage in Egypt, in 1976. An Advisory Panel was formed of high-level Dutch and Egyptian "land and water" experts, which still reviews the programme regularly (with some modifications). During the years more activities have been included, such as water resources planning and management. Currently, a programme of cooperation exists which includes groundwater assessments and planning, hydraulic studies, regional water management and weed control, reuse projects, monitoring and environmental studies. A new project concerning the transfer of know-how on planning of integrated water resources management has recently started. Cooperation takes place with different institutions in the Ministry of Public Works and Water Resources, such as the Egyptian Drainage Authority, the Water Resource Centre, the Department of Public Works and Water Resources in the Government of Fayoum, and the Planning Sector of the Ministry.

The Ministerial Conference in Noordwijk, The Netherlands

During the Ministerial Conference in Noordwijk, the Netherlands announced to support the global water resources training programme of the training institute of the World Bank, EDI. It will further support the programme which is part of the capacity building programme of UNDP.

**Compartmental-
ization pilot project**

This project forms part of the Flood Action Plan (1990-95), which aims to identify, plan, design and construct water management projects in Bangladesh which are technically, financially, economically and environmentally sound. The objective is to provide, through integrated water resources management, a more secure environment for intensive agriculture, fisheries and integrated rural/urban development, thereby improving the economic security and quality of life of the flood plain population. Specifically, the project aims to establish appropriate water management systems for the development of protected areas, so that criteria and principles for design, implementation and operation can be made available for the Action Plan. The project is aimed at all groups of the population, including farmers, fishermen, women, landless households and urban population. The pilot project will determine whether compartmentalization is a practical, viable and justifiable solution.

9. Coordination

DGIS is actively supporting the issue of wider coordination and cooperation and participates and supports the work of the Collaborative Council. Furthermore, its staff participates in inter-agency meetings in the different countries receiving support for the sector. They share projects or project activities with other donors in different countries including India (Danida).

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NORWEGIAN GOVERNMENT

1. Administrative development assistance structure

The Norwegian Agency for Development Cooperation (NORAD) was created in 1968, as an external directorate under the Ministry of Foreign Affairs. From 1983 it became administratively an internal directorate within the newly created Ministry for Development Cooperation, until this was absorbed by the Ministry of Foreign Affairs in 1989. NORAD then reverted to the status of an external directorate under the Ministry of Foreign Affairs. NORAD has different departments which are involved in water programmes: two geographic departments (one for Africa and one for Asia and Latin America), a technical department, a private sector department and a department for NGOs, volunteers and culture. In the 1989 reorganization, decision-making powers were clearly delegated to the geographic departments.

2. Staffing

NORAD employs 214 people at headquarters, of whom 132 are women. Twenty-two professionals work in the geographic departments and thirty-three in the technical department. One advisor (female) in this department works full time on water issues (primarily domestic water supply programmes) and two others (both male) who primarily deal with hydropower and environmental issues spend some 20% of their time on water resources issues. Two staff (one female and one male) in the private sector department spend some time (less than 15%) on water-related activities. In the 12 field offices/embassies there are 78 people (approximately 30% women) sent out from Norway. None work exclusively on water sector issues, but three have this as a major part of their work. A number of local staff also work in these offices, quite a few of them professionals, but none work on water issues.

3. Aid policies and strategies

One of the basic aims of Norwegian development cooperation is assisting the nations' own development, and thereby contributing towards improving the lives of underprivileged groups. Norway's development cooperation has as a goal to promote lasting changes in the economic, social and political conditions of the population in developing countries. The priority areas Norway has chosen for its development cooperation are the following: alleviation of poverty through economic growth, including development of human resources, human rights and democracy, gender issues, children and environmental issues. The full responsibility of the partner countries for their own development is a guiding principle.

Water, sanitation, irrigation and environment

High priority is given to provision of water supply and sanitation services to meet basic needs and promote improved health and better quality of life. Water sector support is guided by three main goals: 1. Improvement of public health; 2. Reduction of the physical burden of fetching water, particularly for women and children; and 3. Betterment of economic conditions. To help reach these goals, NORAD has a wide definition of the water sector, including water supply in rural and urban areas, environmental

sanitation and waste management as well as water resources management. The link between the water sector and interrelated activities, e.g. primary health care, agriculture/ commercial/industrial development and environmental management and protection is actively promoted. Historically the water sector was technically oriented, but in recent years more attention is given to socio-economic aspects.

Water resources management in relation to Dublin and Rio

Water resources management has so far not been given high priority in terms of human resources by the Ministry of Foreign Affairs and NORAD. In terms of finance there has been no real increase since Dublin/Rio. Discussions on how NORAD and the Ministry of Foreign Affairs are going to better coordinate their ongoing activities in water resources and follow up the Dublin and Rio meetings are planned to take place in the near future.

4. Intervention tools in the water sector

The following sections describe "tools" NORAD uses to orient policies and strategies in the assisted countries.

Policy level

Norway's bilateral assistance is restricted to a small number of countries, and in these, a rolling country programme is negotiated annually with the relevant authorities. This programme sometimes covers three years, but usually five years. NORAD gives priority to sector cooperation rather than to individual projects. This leaves room for greater flexibility and improved coordination and integration with the plans of the partner country. The country programme is developed by the resident representative in consultation with the Ministry of Finance in the assisted country, within a framework set by the Norwegian Ministry of Foreign Affairs. The resident representative presents a document every year to NORAD containing an analysis of the present status of the country programme, and a report on the political, economic and social developments in the assisted country. The resident representative also submits a suggested budget for each sector programme for the next planning period. Discussions are held within NORAD and a mandate is then given to a NORAD delegation to negotiate with the assisted country within the set parameters. During the negotiations there are fairly open discussions and decisions are taken jointly and minuted. If there are differences of opinion these are recorded in the agreed minutes from the negotiations. Based on their negotiations, as well as the individual sector agreements, NORAD can make payments to the Ministry of Finance for the various programmes and then monitors progress through reviews and annual sector programme meetings.

Project level

Formulation of a project/programme proposal is done by the assisted country, which may contract experts with financial support from NORAD. It is then appraised by NORAD and certain checklists are used. Sustainability is a key issue, but there are no particular questions relating to water or water resources. Moreover NORAD has developed a tool called the Logical Framework, which helps formulation and review of projects.

- The procedure for appraisal and decision-making regarding all projects is being reformulated at present. Reviews of all projects are the responsibility of the resident representative, with assistance from the technical department at the head office.
- Technical assistance** Technical assistance can be either in the form of individually recruited experts, institutions or consultants. As it is NORAD's policy to leave programme planning and implementation to the recipient countries, the number of directly recruited technical assistance has been reduced to 60 in 1993.
- Training, research and information support** Norway offers graduate courses in the fields of environmental protection, technical subjects, fisheries management, shipping and women law. Some of these courses have recently been transferred to cooperating institutions in developing countries. An annual share of training funds is allocated to NORAD's regional departments. The funds are used by local NORAD offices, which are in a better position to relate training plans to requirements within the sectors. NORAD has also set up a Training Centre for its own staff to strengthen the skills of the agency. Some of the basic courses are compulsory for all staff, while others are only for staff in specific positions. The intention is that the centre will offer these courses to anyone working in development cooperation. The major issues dealt with are institution building and human resource development. Environment and gender issues are well integrated aspects of all the courses. There are also two methodological courses, one on the impact of gender and one on the impact on the environment of NORAD-supported projects. In 1991, Norway sponsored 2489 students and trainees from developing countries. Support is also provided to finance cooperation with NUFU (National Committee for Development-related Research and Education). At present there are no research, training or information support activities specifically related to water resources which target students from developing countries. However, there is research being undertaken at the Technical University of Norway in Trondheim on various aspects of water resources management.
- 5. Volume and share of aid** In 1992 Norway spent US\$ 1.05 billion of which 1.7% was spent on water and sanitation programmes. Of the bilateral country programme support 2.5% was spent on water supply and sanitation. Approximately half of Norway's development cooperation is channelled through the UN system and other international organizations. The other half consists of bilateral assistance.
- 6. Countries where aid is concentrated** Although NORAD's bilateral assistance reaches approximately 90 countries, nine of these have the status of main partners in development. In addition there is cooperation with the regions SADCC (Southern African Development Coordination Conference), the Sahel and Central America.

Over the period 1985 to 1990, 15 countries and one region received support from the Norwegian Government for water-related activities. Kenya, Tanzania, Zambia and Zimbabwe received between US\$ 17 and 36.8 million (on average US\$ 26.3 million). Uganda and Lesotho received between US\$ 3 and 5 million (on average US\$ 3.8 million), while Mali, the Sahara region, Bangladesh and Sri Lanka received between US\$ 500,000 and 3 million (on average US\$ 1.5 million). Six countries received less than US\$ 500,000 (on average US\$ 120,000).

Water resources management has a limited place in most of Norway's bilateral country programmes. However in Zambia and Zimbabwe, where the water sector is a major sector, there are ongoing discussions on what elements of water resources management should be included in the sector programme. Within the energy sector agreement in Tanzania, there is work ongoing on the Pangani River Basin management. In NORAD's cooperation with SADC (Southern African Development Community), water resources management has a major place, through their support for the Zambezi River Action Plan (ZACPLAN).

7. Partners in project planning and implementation

NORAD has partners on various levels in the assisted countries. For state-to-state cooperation it is the Ministry of Finance or Planning which tends to be the prime partner for the Norwegian Embassies and the local NORAD offices. Non-governmental organizations (NGOs) are also important partners for NORAD, often contributing to pluralism and local participation. Support is provided to international, local and Norwegian NGOs. For large NGOs it is possible to develop long term agreements with NORAD. A special department at NORAD solely works with NGOs, Volunteers and Culture. This department recruits and deploys Norwegian "volunteers", who are qualified junior experts with a minimum of three years experience. Other partners are Norwegian enterprises, which are encouraged to make contact directly with firms in the assisted countries.

8. Overview of promising approaches in water resources projects

Water policy formulation and involvement of women in Zimbabwe

The water sector support for Zimbabwe has been ongoing since 1982. Planning and coordinating structures within the rural drinking water sector are being supported to enhance sector coordination and clarify policy issues. NORAD is, for example, supporting a permanent secretariat called National Coordination Unit (NCU), which has effectively strengthened the implementation of the country's Master Plan for Rural Water Supply and Sanitation. Another promising example of this project is the strategy to involve women in water projects, which the Working Group on Gender of the NCU has developed. The newly initiated work on overall water policy development is a good example of a developing country which is capable of starting up and controlling the process of water policy formulation, with technical and financial support from different donors.

Development of a water board and a River Basin Water Office in Tanzania

In connection with the re-development of the Pangani hydroelectric power station, which was initiated in 1991, a local water board was formed and a Pangani River Basin Water Office created. This is a good example of water resources management at the appropriate level, with participation of stakeholders.

Establishment of a River Action Plan

The Zambezi River Action Plan (ZACPLAN) contains many different modules and its planning process has taken a long time. The studies that are presently being undertaken, of varying practices regarding water use and legal frameworks in the different countries, will provide a good basis for future interaction among the assisted states.

9. Coordination

NORAD coordinates its support to the assisted countries, at international level, through various commissions and meetings. NORAD is, for example, actively participating in the Commission for Sustainable Development and the Water Supply and Sanitation Collaborative Council. However, at country level NORAD considers the assisted countries and UNDP as being responsible for the coordination of the development assistance.

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SPANISH GOVERNMENT

1. Administrative aid structure

The State Secretariat for International and Ibero-American Cooperation (SECIPI) has overall responsibility for the management, control, and evaluation of all activities carried out by the Ministry of Foreign Affairs in the area of international, cultural, economic, scientific and technical cooperation. Under the aegis of SECIPI, the Spanish Agency for International Cooperation (AECI) is an autonomous agency that promotes the socio-economic, cultural, institutional and political growth of developing countries, in particular those with Hispanic roots and with Arab countries. AECI was established in 1988 and serves as the link dealing with bilateral programmes of assistance and is the main channel responsible for aid delivery. AECI is headed by a President, supported by a Cabinet which advises on the implementation of development projects and programmes. The main roles of AECI are: 1. Assistance to national and international organizations by providing experts; 2. Providing trainers to the assisted countries; 3. Financing, control and evaluation of the developments of projects.

AECI is made up of two Directorate-Generals: one for the Institute for Ibero-American Cooperation (ICI) and one for the Institute for Cooperation with the Arab World (ICMA) and the Institute for Development Cooperation (ICD); these last two institutes have recently amalgamated.

Other institutes are also involved in water supply and sanitation programmes, but more on an "ad hoc" basis. These include Sub Directorate-General for external relations of the Ministry of Health, the Institute for Conservation of Nature (ICONA), the State Secretariat of International Cooperation of the Ministry of Foreign Affairs (SECIPI) and several regional and municipal governments which work within the framework of long-standing exchanges organized between the Spanish Government and a certain number of Latin American and Arab-African countries. Their activities and staffing, however, are not covered in this profile.

2. Staffing

The three institutes under AECI have a staff of 1024 persons of which 354 work in the central services. The number of staff responsible for water-related projects fluctuates and depends on the number of projects existing in the respective region.

The ICI has 119 staff members working in Madrid, 88 expatriates and 162 local staff working in Latin America. Three staff members in Madrid (including one female) and another three males in Latin America are particularly working on water and sanitation as part of their work on environmental issues.

ICMA has 45 staff members mostly working on cultural cooperation and library aspects, of which 66% are women. About 15 staff members work

with technical and scientific cooperation. ICMA's staff function is mainly to select projects through embassies in the Arab countries, maintain relations with firms or consultants who execute the projects, and administrate projects and follow-up. The largest number of projects being supported concern drinking water supply, followed by irrigation projects.

3. Aid policies and strategies

The overall objective of the Spanish development cooperation is to promote economic development and social, cultural, institutional and political progress of developing countries. The guidelines for the Spanish development cooperation policy give priority to the following sectors: agriculture, health, teaching of the Spanish language, professional training, institutional development and basic infrastructure; and to some other sectors in a more selective way: industry, research, energy and exploitation of raw materials.

Water, sanitation, irrigation and environment

The general objective is to achieve the protection of natural resources, by proper utilization and management of all levels of administration, in accordance with the philosophy of the Rio conference.

The most immediate objectives of the bilateral cooperation include the improvement of living and sanitary conditions; food production, creation of jobs, increase of income and as a result stopping migration from rural areas.

Water resources management in relation to Dublin and Rio

All the Spanish water-related projects are in line with the Dublin and Rio agreements. Since Rio the Spanish president has strongly brought forward environmental issues, like soil erosion and quality and quantity of water. ICI, for example, gives top priority to these issues and focuses their activities in the water sector, on natural resources protection and/or sustainable development. Integrated water resources management is an objective of all important projects the Spanish Government supports. This includes projects promoting national parks, the development of agriculture and forestry projects in a framework of a river basin, integrated rural development and management, and integrated projects of municipal development programmes in Latin America.

An example of Spain's involvement in water resources issues is Spain's adoption of the Mediterranean Water Charter in October 1992. The Mediterranean Water Network was subsequently established in October 1993 in Valencia, when the Spanish Ministry of Public Works organized a governmental expert meeting. Its objective is to protect and improve the management of the water resources in the Mediterranean zone, with the perspective of a holistic integration of regional and hydrological aspects. Spain chairs this assembly and is represented in the executive committee of the organization.

Within ICMA the growing attention to water resources has not been so much influenced by Rio as by the situation in the geographic regions of their

projects, in the Maghreb and Middle East countries, where water is a priority sector. In this last region water has become a key element of the ongoing peace process. An example of ICMA's active involvement in the water resources sector is their participation in two Multilateral Working Groups, particularly in the Water Group. In the framework of its activities it organizes specialized training courses in water management with the technical assistance of the Ministry of Agriculture and the financial support of the EU.

4. Intervention tools in the water sector

The following sections describe some "tools" the Spanish development cooperation uses to orient policies and programmes in the assisted countries.

Policy level

The Spanish development cooperation develops national and regional plans together with the assisted countries' representative. If an initial agreement is reached follow-up plans are negotiated by the institutes with the requesting government through meetings of a Joint Commission for Scientific and Technical Cooperation. If no overall agreement has been signed specific projects can be discussed and financed through the Spanish embassies.

Project level

The national governments approach the Spanish development cooperation for assistance. The requests which are presented are screened by the Ministry of Foreign Affairs. A mixed commission accepts and approves the request. The initial step of the project is taken by the development cooperation, which gives instructions on how to proceed. The general coordinator of the Spanish cooperation in the assisted country is responsible for the Spanish support of the programme.

There is no special person in charge of formulation and review of water resources projects. Normally, specialized consultants are hired to do this work. Projects supported by one institute can be formulated by the assisted country as well. The institutes usually review projects with the help of the Technical Ministries.

Technical assistance

Spain gives priority to integrated projects with a large technical assistance component. Twinning of towns is one of Spain's ways to provide technical assistance.

Training, research and information support

Spain gives specific priority to training within its development cooperation. It is often implemented through major exchange programmes and fellowships. For example, AECI works together with the Instituto Nacional de Administracion Publica and with the help of several regions in Spain which together have created a "Centro de Estudios Municipales y de Cooperacion Interprovincial". Courses on water resources management-related issues are provided in the following countries: Guatemala - course on environmental management in collaboration with PAHO and WHO;

Mexico - course on hydroforestry restoration and erosion control; the Amazon region - course on biological diversity and rural culture in the management of the environment; Chile - course on environmental impact of water work; Paraguay - course on evaluation of environmental impact; Bolivia - course on environment and development and another on natural resources management. In general seminars and training sessions are organized with the specific aim of improving local government management techniques and drawing together Ibero-American and Spanish municipalities. Institutions responsible for hydrology research are the Higher Council for Scientific Research and the University of Valencia in collaboration with ICI/AECI.

5. Volume and share of aid resources

In 1991, Spain spent US\$ 1.2 billion on development assistance, or 0.23% of its GNP. In recent years technical cooperation has received more funds, while multilateral contributions have declined. Data on the share of water and sanitation-related projects are not readily available as this concerns expenditure and loans provided through different organizations. Detailed information, however, is available on the expenditures for water projects receiving support from AECI. In 1992 the support through its three institutes ICCI, ICMA and ICD amounted to about US\$ 6 million, which was almost four times more than funds spent in 1991, and further increase of funding for water-related activities is foreseen. Over 75% of the funds for water supply and sanitation programmes was spent by ICI, on three types of support activities: 1. Support to national and international water institutions; 2. Planning and implementation of training courses, including courses on environmental impact assessment to public services and hydrology institutions in Chile; and 3. Construction of waterworks.

Water resources management is also an issue in other AECI projects in which some US\$ 2.2 million was spent in 1992. This includes promotion of natural parks, forestry activities in river basins, integrated rural and urban development.

6. Countries where aid is concentrated

Special attention is paid to countries historically associated with Spain, but countries in Africa having potential for economic relations with Spain can also be considered for funding. Furthermore Spain provides financial contributions to the European Community. In the urban sector, it is the Central and Latin American countries that remain the main beneficiaries. Spain is, moreover, paying increasing attention to the Arab countries.

Spanish development cooperation was supporting more than 38 developing countries in 1991. Through ICI it supported several countries with specific water resources management projects and courses. These included: Guatemala, Honduras, Nicaragua, Bolivia, Mexico, Argentina, Dominican Republic, Paraguay, and Colombia.

Other countries where Spain supports water-related projects are: Morocco, Tunisia, Syria, the Palestinian Occupied Territories and Jordan.

7. Partners in project planning and implementation

At international level, an agreement exists with the United Nations Volunteers, and negotiations are under way with the World Bank. The number of actors in the field of decentralized cooperation has grown considerably. Local governments of Spain's principal cities and medium-sized towns are involved in the development cooperation. The main national counterparts of the Office for International Cooperation are the Spanish NGOs. Other counterparts are the private sector and universities.

8. Overview of promising approaches in water resources projects

Demonstration and training farm in Syria

This applied research and demonstration project is financed and supervised by ICMA and is being implemented by the Syrian Ministry of Agriculture with Spanish technical assistance. It aims at testing different irrigation methods in order to select the most efficient ones (maximum water saving) under real growth conditions; it will also be used to give practical training to farmers. This pilot irrigated farm comprises an area of 64 ha.

River basin management projects

In the context of sustainable development technical assistance is being provided to the development and management of river basins in the Dominican Republic, Guatemala and Honduras. Project activities focus mostly on reforestation, but sometimes also include social mobilization of communities concerned, improving irrigation systems and rehabilitation of water supplies.

Decentralization of water distribution and management in Argentina

This project is being implemented by the General Irrigation Department of Mendoza Province and the Spanish "Centro de Estudios y Experimentation de Obras Publicas" (CEDEX), with support of ICI. The project objective is to support decentralization of the management of distribution of water through users organizations in Mendoza province. It assists the Irrigation Department in adapting to the requirements established by the provincial water policy.

9. Coordination

The relation between the Spanish cooperation and the ministries of the assisted countries is channelled through the Spanish Ministry of Foreign Affairs. This Ministry formulates the initial project for discussion and analysis together with the assisted countries. Another example of cooperation between Spain and the assisted countries is a twinning programme in Nicaragua which was strengthened with cooperation by the self-governing communities and NGOs.

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SWEDISH GOVERNMENT

1. Administrative development assistance structure

Within the Ministry of Foreign Affairs the Minister of Development Cooperation is responsible for development assistance including human rights issues. The Minister is assisted by the Department for International Development Cooperation in the Ministry of Foreign Affairs. This department prepares the data on which the Government bases its decisions and its proposals to Parliament both where direct assistance to recipient countries (bilateral assistance) and assistance channelled through various international organizations (multilateral assistance) are concerned. The Ministry of Foreign Affairs is responsible for multilateral assistance.

The Swedish International Development Authority (SIDA) is the central government agency for bilateral development cooperation. In addition to SIDA bilateral assistance is also administered through three other agencies, i.e. BITS (Swedish Agency for International Technical and Economic Cooperation), SAREC (Swedish Agency for Research Cooperation with Developing Countries) and SWEDECORP (Swedish International Enterprise Development Cooperation). BITS promotes economic and social development through the transfer of knowledge and technology from Sweden to partners in development, coordinates technical cooperation, arranges international seminars, administers development credits, and coordinates Swedish cooperation with countries in Eastern and Central Europe. SAREC helps developing countries build up their own research facilities and promotes scientific cooperation between these institutions and Sweden. SWEDECORP promotes the development of competitive enterprises in developing countries and countries of Eastern and Central Europe.

SIDA is managed by its Board of Directors appointed by the Government. According to the instructions issued by Government, SIDA should plan, implement and monitor bilateral cooperation, of which the core is the assistance to 19 so-called programme countries. In 16 of these countries there are development cooperation offices (DCO), forming an integral part of the Swedish embassies. A DCO is responsible for the administration and follow-up of Swedish development assistance and is active in the dialogue with the recipient country. The DCO's also develop environmental profiles and background documents on the respective countries. SIDA headquarters in Stockholm is responsible for planning and preparation of new projects and for coordination, monitoring and evaluation of ongoing projects.

The administration of water programmes is divided between two sector divisions of SIDA. The overall responsibility for water resources rests within the Infrastructure Division, which also is in charge of support to water supply, sanitation, waste disposal, drainage and water resources management. The Natural Resources Management Division is in charge of

planning and protection of natural resources including aspects of water in bio-mass production in agriculture, forestry and fishery projects.

2. Staffing

SIDA has a staff of around 500. Approximately 20% of the staff is stationed at the development cooperation offices. The number of SIDA contract employees in development countries has decreased from 230 in 1970 to 82 persons in 1990. Each year SIDA concludes a large number of agreements with consultants and the consultancy staff has increased at the expense of the contract employees.

There are thirteen staff members working in the water and sanitation sector at present, five are women. None have been especially nominated to work with water resources issues. Two persons have a technical background in water engineering. The staff is working with rural drinking water supply programmes, including environmental hygiene and hygiene education. Four are working at SIDA headquarters. One is regional advisor for rural drinking water supply programmes in East Africa stationed in Nairobi. Seven are programme officers in the field offices in Botswana, Ethiopia, India, Kenya, Laos, Tanzania and Zimbabwe. One is based in Guatemala City and is in charge of activities in the water sector in Central America. Their main task is to follow up the implementation of the activities. The staff at headquarters is mainly responsible for coordination, monitoring, analyzing and assessing the programmes.

3. Aid policies and strategies

The overall aim of Swedish development assistance is to raise the standard of living of poor people. Five specific goals toward this end have been formulated, the first four in 1978 and the fifth in 1988. They are: 1. economic growth; 2. economic and social equality; 3. economic and political independence; 4. democratic development; 5. environmental quality. To achieve these goals Swedish aid is concentrating particularly on five areas: rural development, protection of the environment and soil conservation, disaster relief, development of infrastructure and women's liberation. SIDA's role is to provide "help to self-help". In the coming decade recipients of Swedish aid will assume a greater and more active role in the execution of assistance programmes and projects. SIDA's role will therefore be mainly strategic, with an emphasis on analysis, coordination and evaluation of development efforts.

Water, sanitation, irrigation and environment

SIDA's objectives for the water sector are to support development of sustainable domestic water supply to improve health of the people and to protect water resources. The support is focused upon four issues: improved water supply for domestic purposes, environmental sanitation, hygiene education and capacity building. These activities are implemented in rural as well as peri-urban areas. Emphasis is placed on community participation and women's involvement.

Water resources management in relation to Dublin and Rio

SIDA shall integrate the environmental aspect in all supported activities. SIDA has reviewed its policies and programmes in the water sector and has come to the conclusion that they by and large adhere to the principles agreed by UNCED.

The protection of water resources includes support to: integrated water resource planning, water resources protection, hydrological and geohydrological investigations, support to national institutions, capacity building, water laws, systems for quality and quantity of water resources, prevention of conflicts concerning use of shared water resources, development of Swedish human resources dealing with water issues.

4. Intervention tools in the water sector

The following sections describe the "tools" SIDA uses to develop policies and programmes in the assisted countries.

Policy level

SIDA support is based on requests from developing countries or other partners in development. A formal request is often preceded by an informal consultation with the DCOs on whether or not SIDA would be in the situation to support a certain project. The request will be turned down if its objectives are contradictory to SIDA's goals. When in line with the goals and with the water strategy the preparation starts with an assessment of the proposed project.

Project level

Swedish assistance programmes and projects are evaluated from the point of view of the environment with a view to improving current projects and planning better ones to come. SIDA also has specific checklists to determine the environmental impact of all SIDA-supported projects. Such assessments will help promote solutions that are environmentally sound and cost-effective. The procedure of the environmental checklists is as follows: first a judgement is made whether the suggested project will effect the environment or not. If there are any potential problems indicated one goes a step further to make a more detailed analysis of the possible consequences. If there are problems indicated at this stage an even more extensive analysis is made and SIDA considers whether they will proceed with the project. The outcome of this analysis is made explicit in the project proposal. The checklists include questions covering 13 project areas, including water supply and water distribution.

Technical assistance

Technical assistance financed by SIDA takes different forms. Water sector specialists are made available to government institutions in developing countries.

Training, research, and information support

SIDA supports human resource development on different levels. This includes training of village health workers, local craftsmen, management training for staff at village and district level, as well as training for national agency staff. SIDA integrates aspects of environment in the development

projects through providing its own staff with environmental education and gender issues training, to stimulate them to integrate these aspects in practice in the projects and programmes. SAREC is responsible for promoting research of importance in developing countries. This includes assistance to build the developing countries' own capacity for research, to create research facilities and to promote scientific cooperation between the developing countries and Sweden. Moreover, SIDA is collaborating with the University of Linköping concerning issues of water resources management. SIDA is also developing joint activities with the Royal Institute of Technology (KTH), especially in the field of effective use of water resources. SIDA supports international, regional and local seminars on water resource management.

5. Volume and share of aid resources

The volume of development assistance increased in 1991 by 0.6% bringing the development assistance ratio of the GNP from 0.90% to 0.92%. Bilateral aid declined while multilateral contributions increased by 4%, particularly to UN organizations. Due to overall budget constraints the Swedish Government readjusted its development assistance target from 1% of GNP to 0.9% in September 1992. Swedish aid is almost exclusively (97%) given as grants. Sweden spends approximately US\$ 30 million on water projects annually, mainly on rural drinking water supply. For the budget year 1993/94 approximately US\$ 2 million is allocated for special programmes within the sector. Out of this amount US\$ 475,000 is specifically allocated for policy development of water resources management.

6. Countries where assistance is concentrated

Sweden provides assistance to more than forty countries. Out of these, 19 are so-called programme countries (where the major part of the assistance is concentrated). These are Angola, Botswana, Cape Verde, Ethiopia, Guinea-Bissau, Kenya, Lesotho, Mozambique, Namibia, Tanzania, Uganda, Zambia, Zimbabwe, Bangladesh, India, Sri Lanka, Laos, Vietnam and Nicaragua.

According to current planning for the period 1989-1995, eight countries and one region will be assisted with a total amount of approximately US\$ 87 million as support for water-related activities. India will receive US\$ 27 million. (Botswana) Kenya, Tanzania, Uganda and Central America will receive between US\$ 5 and 20 million (on average US\$ 11 million). Three countries will receive between US\$ 1 and 3 million (on average US\$ 2.3 million). Sweden also supports water supply activities in other countries through NGOs.

7. Partners in project planning and implementation

Swedish development assistance reaches the recipient country through four different channels: through international development programmes promoted by, for example, UNDP, UNICEF and the World Bank (24%); through development cooperation through SIDA (52%); through other development programmes (14%); and through administration (10%). The bilateral assistance is handled by SIDA, but also by NGOs in the developing

countries and via other development agencies, like SAREC and BITS. A number of Swedish private consultants are involved in the water sector as advisors to the programmes or to SIDA.

SIDA cooperates primarily with government institutions or departments in the assisted countries, but support to NGOs, such as AMREF (African Medical Research Foundation) and KWAHO (Kenya Water and Health Organization) has also proven to be an effective way to reach target groups.

8. Overview of promising approaches in water resources projects

Reuse of wastewater for agriculture in Cape Verde

The University of Lund has supported the Instituto Nacional Investigacao Technologica (INIT) with SAREC funding for development of technology for reuse of wastewater. SIDA is now financing a programme for training personnel in design, construction and operation and maintenance to reuse wastewater for agriculture.

Long-term conservation of surface and groundwater in Nicaragua

SIDA is supporting the development of methods for conservation and management of surface and groundwater. The aim is to strengthen capacity building to develop effective management of water resources with an emphasis on watershed management and protection. Another goal is to strengthen institutions responsible for research and regulations of water questions. The main actors in the project are the Nicaraguan Institute for Natural Resources and the Environment (IRENA) and the Royal Institute of Technology in Stockholm. Several other universities and organisations in both countries also participate.

Water management in Coimbatore, India

This research concentrates on water resources at the local level. The main conflict relates to the growing demand for domestic water, which decreases the availability of water for agriculture and industry. The expected outcome of the research is recommendations on improved water management systems, regulations, price setting, etc. The partners in the study are local institutions, the University of Linköping in Sweden and the World Bank.

Environment strategy for Botswana

SIDA has financed the development of a national environment strategy with assistance from IUCN. As a tool to follow up the national environment strategy SIDA is giving support to the National Conservation Strategy (Coordinating) Agency - NCS Agency.

Social forestry and water resources in Tamil Nadu, India

The objectives of this programme are multipurpose. Its principle aims are re-forestation to cater to socio-economic needs of local communities, particularly the disadvantaged sections, and to arrest and prevent erosion and environmental degradation. In the so-called Interface Forestry Projects (IFPs), carried out within the framework of catchment areas, an additional concern is to conserve water resources. The implementing agencies are Department of Forestry (for IFP) and Department of Agriculture. Implementation is based on the premise that the disadvantaged groups (landless, poor and women) are employed to build dams, plant trees, etc.

The employment is advantageous for the development and management of the project, since it will help the villagers stop abusing the Reserve Forest areas, by, for example, no longer sending their goats for rearing in RF areas. SIDA is supporting this programme and is involved in similar work in Orissa and previously Bihar. These projects are monitored and among the efforts are activities to involve women in training programmes. An important question that remains is the financing and management of dams, plantations, etc. once the project staff and Department resources stop flowing into the areas. The Village Interface Forestry Committees are supposed to take over these responsibilities. The support from SIDA has been channeled through ISO/Swedforest.

9. Coordination

SIDA is supporting country-level coordination in the water sector. Moreover, a close working relationship has developed between the Nordic countries and similar approaches towards water and sanitation development have evolved. SIDA is also collaborating with other external agencies within the framework of DAC.

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SWISS GOVERNMENT

1. Administrative development assistance structure

Based on federal legislation on international development cooperation and humanitarian aid of 1976 two units of the federal administration are responsible for the implementation of the Swiss Public Aid. The Swiss Development Cooperation (SDC) is a Directorate of the Federal Department of Foreign Affairs. It coordinates development cooperation and humanitarian aid within the administration and carries out the majority of the programmes (84%). The Federal Office of External Economic Affairs (BAWI) in the Federal Department of Public Economy handles the economic measures of cooperation. In the context of UNCED, other federal offices are dealing with specific aspects on environment (e.g. GEF) or water resources management. SDC has four divisions: policies and development planning, development cooperation, humanitarian cooperation and general affairs. The operations are organized in five geographical sections and seven sectoral services, one of which deals with water and infrastructure.

2. Staffing

In 1994 the SDC has a total of 244 persons working for it, out of which there are 111 female. At professional level there are 114 males and 27 females. In each geographical section one staff member functions as an anchor point (10%) to the Water and Infrastructure sector. Two other services have limited capacities related to water resources management. In the Water and Infrastructure Service two male staff devote about 50% of their time to water and sanitation and irrigation issues. In the Forestry and Environment Service one female staff member (35%) and one male staff member (10%) deal with water resources management aspects in the framework of protection of the environment. In the Industry, Vocational Training and Urban Development Service one male staff member devotes about 20% of his time to institutional/ management aspects of the peri-urban and urban environment.

In the 21 field offices there are 46 professional staff (6 female) who have been sent out from Switzerland. Depending on the importance of the water and sanitation sector in a country programme one staff member devotes up to 50% of his/her time to this sector in about half of the offices. The expatriate staff members are reinforced by local professional staff who work on water issues accordingly.

3. Aid policies and strategies

Guidelines for action in the nineties define the following priorities for Switzerland's support to the partners in the South (1991). The main goal is to foster the optimal development of the individual within his or her natural, cultural and social environment. Major lines of actions are: i) the provision of food, shelter, basic health care and education for the poor; ii) strengthening of efficient public and private institutions. Respect for human dignity and human rights are essential prerequisites for the development of the individual and the community; iii) economic growth that is compatible with sustainable development. Countries possess considerable potential which would enable them to augment productivity in agriculture,

handicraft, small industry, transportation and credit. SDC is dedicated to foster development while respecting the environment and preserving natural resources.

Water, sanitation, irrigation and environment

Within the present development policy context, the SDC's support to water supply and sanitation is one of the focusses to promote the self-reliance of developing countries and to improve the structural conditions in the struggle against poverty. A revised sector policy for water supply and sanitation was approved in May 1993. It covers the use of water for drinking, the disposal of wastewater, excreta and solid waste as well as hygiene promotion.

Water resources management in relation to Dublin and Rio

The guiding principles for the water resources management aspects are built upon the statements made in the Delhi and the Dublin meetings as well as the UNCED meeting in Rio de Janeiro. The following principles are related to Chapter 18 in Agenda 21: 1. involve local communities in planning and implementation of water projects to improve water resources management; 2. improve use, operation and maintenance of water resources, partly through applied technology; 3. protect water resources to assure good health and environment of people in the assisted countries; and 4. water and soil should be managed at the lowest institutional level possible.

The following lines of action are priorities to meet the challenges of the nineties: i) access to and use of qualitatively and quantitatively sufficient drinking water; ii) promotion of low-cost, environmentally sound installations for excreta and wastewater disposal; iii) development and implementation of community-based, solid waste management schemes; iv) the promotion of improved hygiene behaviour in the population concerned; and v) training within the sector. In future, special emphasis will be given to environmental sanitation in urban areas, made possible by specific credit lines of SDC and BAWI oriented towards the management of the environment.

Water resources management programmes in the broad sense do not have a high priority in SDC. Within the agricultural sector, support to irrigated agriculture is restricted to a few countries (Pakistan, Sri Lanka, Niger and Ecuador). Priority is given to on-farm water management as a key factor for sustained land use. Watershed management is supported in Nepal, India and Bolivia.

4. Intervention tools in the water sector

The following sections describe some "tools" SDC uses to orient policies and programmes in the assisted countries.

Policy level

SDC's bilateral assistance is concentrated on 18 countries and the Sahel region as such. In each country intervention is limited to two to three sectors. This concentration for effectiveness was adopted in the mid-eighties. For each country a country programme (programme par pays - PPP) defines the

objectives, strategies and programmes/projects to be supported for a period of five years. Annually, the resident representative presents a document to SDC containing an analysis of the present status of the PPP, and a report on the political, economic and social developments. It sets the operational priorities and budgets for the forthcoming financial year of SDC. Both documents are internal documents approved by management. Negotiations with the partners concentrate on a sectoral approach with the respective line ministry as a partner. The format of negotiations is not uniform but there is a tendency to hold annual review meetings on the overall cooperation with the respective ministry handling foreign assistance as well. SDC gives a high priority to the coordination and integration of its assistance to national policies and programmes.

Project level

Formulation of a project/programme proposal is done jointly with the partners in the country. Consulting firms or individual experts are - normally - contracted by SDC to assist. Preference is given to local consultants or joint teams whenever feasible. (Preparation of co-financed projects follows the rules and regulations of the partner institution, with SDC playing an active role in appraisal and monitoring). The planning methods to be applied are not specified as such, but tools fostering participation are used in most cases (logical framework, participatory rural appraisal etc.). Given the fact that cooperation in the sector covers several project phases, planning within a project cycle is normally done inside the given project set-up as an expression of partnership. The head office is responsible for the appraisal and decision-making procedures. Monitoring of the implementation is first the responsibility of the project (built-in evaluation tools exist) with support from the local offices if required.

The sector policies form part of SDC's operational management tools and contain directions for the work in a given sector. Deviations must be justified. The considerations regarding the strategies and the proposed operational principles serve as references. However, there are no blueprints for the formulation of programmes and projects. The new sector policy calls for a balanced development strategy to implement drinking water and sanitation projects. It takes into account the important contextual condition that the use of drinking water, disposal of liquid and solid waste and hygiene behaviour of the population are all part of the socio-cultural and natural context. It implies a balanced consideration of social, institutional, economic, and technical aspects as well as those related to knowledge and skills. Overemphasizing one of those aspects, like for example technology choice, without due consideration of the effects on the others, has usually led to poor overall performance of services and utilities.

A number of very useful tools regarding indicators for sustainability, built-in and external evaluations have been developed by SDC's evaluation section.

Technical assistance

Most of the bilateral projects include a technical assistance component. It can be in the form of individually recruited experts for project preparation, appraisal, monitoring and evaluation. In the drinking water and sanitation sector, a substantial part of the projects are, nevertheless, given to private companies or NGOs as executing agencies. These contracts provide a high degree of flexibility to the staff concerning project implementation allowing for justified adaptation during execution. Helvetas, a recognized Swiss NGO, has acquired a high competence in the sector so much so that it is charged with overall technical programme management in Nepal, Mali, Lesotho and Mozambique. It carries out its own programme (with a 66% government contribution) in countries like Haiti, Sri Lanka, Philippines, Nepal and Togo.

Training, research, and information support

Promotion of research and exchange of experience within regional and international networks is a key element of SDC's strategy to overcome gaps in skills and knowledge. In the framework of the ITN network the two regional centres NETWAS (Network Water and Sanitation) in Nairobi and CREPA (Centre regional de l'eau potable et de l'assainissement à faible coût) in Ouagadougou are funded. Their mandate being information, documentation and training for the transfer of appropriate technology, they form an important transfer element towards engineering education (CREPA) on one side and towards governments, NGOs and user groups on the other. As regards the water supply and sanitation sector, a series of manuals on health, drinking water and sanitation will be published in 1994¹⁾.

SDC supports or initiates user-oriented research projects if they consolidate its sector policy and if they are useful to operational activities. In the framework of the UNDP/WB WSS programme, SKAT (Swiss Centre for Development Cooperation in Technology and Management, St. Gallen) is mandated with the coordination of the standardization of handpumps available in the public domain (Afridev, Yaku-Maya, etc.) and manages the newly established Handpump Technology Network. The International Reference Center for Waste Disposal (IRCWD) at EAWAG/SFIT Dübendorf is mandated with several research activities in the field of liquid and solid waste. Municipal solid waste management, reuse of wastewater, roughing filter technologies and solar disinfection are current research topics. SKAT and IRCWD are strongly linked to respective networks like GARNET.

1) The publication is coordinated with IRC/The Hague. It will contain volumes on spring and river catchments, wells, water storage/distribution, building construction and engineering. A second set deals with health and sanitation. A specific volume will be dedicated to the project cycle. Several authors are coordinated by SKAT.

In the field of general water resources management, SDC funds staff positions at the AIT-Bangkok, the Mekong-Committee and the national polytechnic university in Vientiane (Co-financing with IDA). The Swiss Federal Institute of Technology (SFIT) in Lausanne executes a programme of graduate courses in water resources management (hydrology, hydraulics and water treatment) at the EIER in Ouagadougou, coupled with post-graduate courses at Lausanne. The University of Neuchâtel provides course modules in hydrogeology and related fields. A total of 464 fellowships are granted for post-graduates in Switzerland, of which about 10% are in the field of engineering and environment. Several staff members are mandated to lecture in specific courses at the SFIT in Zürich. Professional contacts exist with the WHO PEEM for vector control at the SFIT in Zurich and with the Institute for Tropical Diseases in Basel.

5. Volume and share of aid resources

Official Development Assistance of Switzerland in 1992 was US\$ 923 million or 0.39% of GNP. US\$ 713 million was managed by SDC (US\$ 550 million for multilateral and bilateral aid, US\$ 163 million for humanitarian cooperation). US\$ 20 million was spent on drinking water and sanitation in urban and rural areas. About the same amount goes to irrigation, water resources management (mainly training), and other activities related to the protection of the aquatic environment. Total allocation related to the bilateral aid: 7.3 %. Not included are funds for the sector channelled through multilateral aid funds allocated to humanitarian aid in favour of water supply and hygiene in crisis situations and in the framework of economic measures (BAWI).

6. Countries where aid is concentrated

SDC's bilateral assistance concentrates on 18 countries; limited programmes are supported in a number of countries. Regional programmes are supported in the Sahel, SADC, Central America, Himalaya (ICIMOD) and the Mekong River basin.

Over the period 1985 to 1991 24 countries were assisted for water-related activities by SDC for a total of US\$ 150 million. Five countries received between US\$ 10 and 15 million (on average US\$ 12.3 million): Burkina Faso, Mali, Mozambique, Bangladesh and Nepal. Seven countries received between US\$ 5 and 10 million (on average US\$ 6.6 million): Botswana, Madagascar, Niger, Tanzania, Indonesia, Sri Lanka and Ecuador; five between US\$ 3 and 5 million (on average US\$ 3.9 million), four between US\$ 500,000 and 3 million (on average US\$ 1.9 million) and three countries received less than US\$ 500,000 (on average US\$ 190,000).

In 1992 drinking water and sanitation projects were assisted in the following countries: Bangladesh, Indonesia, Nepal, Mozambique, Lesotho, Madagascar, Rwanda, Niger, Mali, Cape Verde, Regional (NETWAS, CREPA, EIER), Honduras, Nicaragua, Central America and Global programmes: WASSANCO, UNDP/WB WSS, SKAT, IRCWD. Irrigation projects were supported in Pakistan, Sri Lanka, Nepal and Ecuador in 1992.

Water resources management projects (including hydrogeology, hydraulics, watershed management, groundwater resources) were supported in Bangladesh, India, Nepal, Niger, Sahel and Bolivia in 1992. Training in WSS was funded in Laos, Mekong region (Thailand) and Tanzania.

7. *Partners in project planning and implementation*

SDC's collaboration within the sector is oriented towards implementation at the lowest institutional level possible. In the countries there are the different ministries responsible for the sector, like Finance, Health, Water (resources), NGOs, or specialist institutions like universities. SDC has several operations in co-financing with IDA or with UNICEF as executing agency. Qualified personnel are used, whenever necessary, to help the partners acquire more competence. Consultancy services are untied, like all assistance through SDC. Moreover, SDC fosters and coordinates the dialogue with other federal departments, NGOs, universities, the private sector, and other interested partners in and outside Switzerland in order to strengthen its own professional competence. Since 1983 the sectoral service heads an interdisciplinary coordination group, called AGUASAN. Its members are from the following institutions: IRCWD, Helvetas, SKAT, SFIT Lausanne and Zurich, WHO, Zurich University and SDC. Though informal, the group has proven to be a most effective clearing house for sector-related issues. SDC offers an annual AGUASAN training course for about 25 staff working in the sector, discussing priority issues in the sector (1992, Water and sanitation knowledge systems, 1993, Water is no more a free good, but who pays?).

8. *Overview of promising approaches in water resources projects*

Water resources plan for the Laikipia district in Kenya

In the framework of the Laikipia research project of the Geographic Institute of the University of Berne, a comprehensive water resources assessment and management plan was established in the late eighties. It proved an effective tool to overcome competing interest for the use of water for irrigation, livestock and drinking water.

Comprehensive master plan with emphasis on water resources development in Yogyakarta

Since 1988, the establishment of a comprehensive master plan for urban infrastructure with emphasis on water resources development and environmental protection has been developed. The strategies are geared towards an integrated approach to water supply and the disposal of liquid and solid waste. Special attention is given to community-based management concepts to allow for implementation at the lowest institutional level possible. Implementation is financed by a credit from ADB and a grant by JICA.

Marine based waste stabilization ponds, Indonesia

This research project is funded as part of the special funds made available in relation to UNCED follow-up. It looks at the potential (based on laboratory investigation) to locate waste stabilization ponds in shallow lagoons along the coast of Indonesia, the aim being to avoid the use of land required for urban development. Testing at a larger scale is currently under discussion.

- On-farm water management, SWABI-SCARP, Pakistan* Since 1990, an applied research project has been undertaken in the framework of this multi-donor programme to introduce improved on-farm water management concepts. It addresses the levels and responsibilities of the institutions involved, improved participation by the users in decision making related to water management, and farming techniques.
- Promotion of a pump, Bangladesh* SDC actively supported the promotion and marketing of a pump by the NGO IDE. The pump itself was developed locally and represents a major step forward towards an affordable water-lifting device at family level. The success is striking, with several hundred thousand pumps been sold on a private basis. They either replace non-functional motorized (deep-well) pumps or are the first technology the farmers can afford themselves. Return on investment is very high. The technology is equally a major contribution to a more rational use of the groundwater resources.
- Efficient use of rainwater for plant use, Niger* An applied research programme for the efficient use of rainwater for plant use based on small water retention structures integrated to the environment of the plant. Besides a better understanding of the physical processes involved the programme integrates the aspects of the management of the structures by the population.
- Protection of small, steep catchment areas, Bolivia* An integrated approach for protection of small, steep catchment areas. Floods (coupled with mud flow) threaten the densely populated outskirts of the city of Cochabamba. The conservation strategy involves all aspects of the concerned environment: soil and plant protection in the catchment area and conservation measures in the creeks based on bio-engineering methods. The promotion of sustainable land use technologies as well as appropriate engineering technologies create long-term jobs for the population and reduce the need to emigrate. The chosen strategy proves to be efficient and is replicable.
- 9. Coordination** As outlined above the support by SDC is planned in the framework of country programmes (PPP). The coordination with the ministries involved is done by local offices, so-called Coordination Offices.
- SDC gives a high priority to a coordinated approach by the donors. For this reason, SDC has a number of co-financed programmes with UNICEF, the World Bank and other development banks in the water sector. SDC for example, co-finances the UNDP/WB joint Water and Sanitation Programme and the Water Supply and Sanitation Collaborative Council on global level.
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UNITED STATES DEVELOPMENT COOPERATION

1. Administrative aid structure

The US Agency for International Development (USAID) has operational responsibility for implementing the US development assistance programme. The head of the Agency is the Administrator. USAID has nine bureaus in Washington and 72 field missions throughout the developing and transitional world.

USAID's four regional bureaus coordinate policy and programmes for Africa, Asia and Near East, Europe and the Newly Independent States, and Latin America and the Caribbean. The Agency's other bureaus focus on 1. management; 2. policy; 3. legislative affairs; 4. disaster assistance; and 5. global programmes, field support and research. Each bureau is led by an Assistant Administrator. The Global Bureau offers technical expertise to field missions in water resources, sanitation, pollution prevention, and other development topics.

2. Staffing

USAID Washington and country missions are staffed through both the federal personnel system and various contracting mechanisms. As a whole, USAID's work force is 55.9% male. Above the level of clerical workers, 74% are male.

Much of the field work of USAID is carried out by NGOs, universities, and private businesses under contract. Employees of USAID primarily design and monitor projects, administer contracts, and coordinate efforts of different groups within USAID or the development community.

3. Aid policies and strategies

Under the leadership of the Clinton administration, USAID is undergoing a reorganization that sets clear goals in four areas deemed fundamental to sustainable development: 1. protecting the environment; 2. building democracy; 3. stabilizing world population growth and protecting human health; and 4. encouraging broad-based economic growth. Water resources management will play a role in all four of these interrelated objectives.

Water, sanitation, irrigation and environment

Based on the lessons learned from its experience in potable water supply, USAID encourages developing countries to integrate these components into water supply projects:

- support for construction of systems that integrate water and sanitation;
- education activities to improve hygiene and public health knowledge;
- training of host country personnel in management, technical tasks and operation and maintenance for successful administration of the water projects;
- encouraging local manufacturers to produce local equipment;
- promotion of financing systems to enable local people to support water and sanitation;

- participation of users in water supply and sanitation systems, whether in rural or urban and peri-urban communities;
- a private sector role in providing water supply and sanitation services and a government role which creates a supportive institutional, financial, and legal environment for private sector participation;
- making operation and maintenance plans before facilities are constructed to help ensure that sustainable technologies are selected;
- appropriate mix of donor, national government, and community financial resources.

Water resources management in relation to Dublin and Rio

USAID endorses the principals of the "Dublin Statement" and of Agenda 21, and feels that its policies reflect these agreements as well. As part of the US response to Agenda 21, USAID is participating in the UN Commission on Sustainable Development US - Colombia Technology Initiative, which is designed to foster the transfer of proven and affordable environmental technologies to developing countries. USAID is continuing to integrate work in water resources across the specialized divisions of the Agency. Irrigation, industrial water use, residential water use, sanitation, and protection of wetlands and aquatic ecosystems cannot be effectively treated as separate problems. Recognizing the increasing need to protect the quality of freshwater resources, USAID projects reflect the multiple contributors to the problems and solutions, including economic and environmental considerations, institutional strength, legal/regulatory issues, policy and the public. For example, with respect to wastewater, interventions include assessment of public health risks and public health standards; policy instruments include economic and regulatory instruments; technical approaches include waste reduction, wastewater reuse, alternative treatment, recycling and safe disposal.

4. Intervention tools in the water sector

The following sections describe "tools" USAID uses to orient policies and programmes in the assisted countries.

Policy level

USAID programmes in an assisted country are planned and carried out in cooperation with the host country authorities and institutions. Technical officers in the USAID Washington bureaus provide information and expertise to support USAID field mission activities. The process for approval of assistance is the following: the USAID mission and the host developing country authority identify together the development problems of the country. Specific project ideas are initially formulated in a concept paper, which describes a project and what it could achieve. This paper is submitted to USAID Washington, discussed, and if approved, leads to in-depth feasibility studies. These studies are then reflected in a basic document, which attempts to describe the project and present detailed implementation and financial plans. If this document is approved by USAID management, a funding commitment is formalized through a project agreement document signed by appropriate officials of both countries.

Project level

For USAID staff at the project level a handbook for monitoring and evaluation has been developed to assist them in making well-informed decisions, through tracking progress towards the project objectives. As an "institutional tool", the bureaus in Washington are designed to provide technical expertise for the foreign missions.

USAID does not uniquely assign the role for formulation and review of water projects to any part of the organization. Field missions routinely run water projects with minimal involvement of the Washington offices. Other projects may be coordinated in Washington, by either the regional bureaus or by the Global Bureau.

Technical assistance

Missions may also obtain assistance from pre-existing programmes in the Global or regional bureaus that are designed to meet wide spread needs, e.g., in industrial pollution or sanitation. For instance, in 1980 with the launching of the International Drinking Water Supply and Sanitation Decade, USAID decided to augment and streamline its technical assistance capability by establishing the Water Supply and Sanitation for Health (WASH) Project. WASH has worked in eighty-five countries in Africa, Asia, Latin America, Eastern Europe and the Newly Independent States, on some 800 activities, most of them in response to requests from USAID overseas missions.

Other USAID technical assistance projects also emphasize water resources activities, notably the Irrigation Support Project for Asia and the Near East, the Environmental Pollution Prevention Programme, the Project in Development and the Environment, and the Environmental and Natural Resources Policy and Training.

Training, research and information support

USAID provides training, strengthens institutions and exchanges information with private and public parties in developing countries, primarily through NGOs and private firms. Dissemination of "lessons learned" is a goal of all projects. Certain programmes focus solely on environmental education and communication, whereas others, such as a coastal resources management project in Sri Lanka, Thailand, and Ecuador, incorporate workshops, training, and publications in their broader efforts.

Most research in USAID is similarly integrated into larger programmes. Research is used both to solve specific problems and as a tool to increase technical skills in developing countries. USAID uses a broad definition of research that encompasses mapping, statistical evaluations, monitoring, operations research, and scientific training, in addition to standard experimentation and assessment.

5. Volume and share of aid resources

For the fiscal year 1993, USAID's economic and humanitarian assistance programme totalled US\$ 7.7 billion. Programmes devoted largely to water resources management accounted for roughly US\$ 240 million. US\$ 100 million was spent on physical infrastructure rather than on management

programmes per se. These figures are approximate because the protection and provision of water resources is integrated into the overall Agency goals, rather than being isolated from them. The money was spent on wastewater management (46.4%), potable water supply (19.5%), agriculture (14.1%), coastal and wetland resources (8.5%), and other sectors (11.5%). (These figures do not include projects in hydropower for which roughly US\$ 2.5 million was spent.)

6. Countries where aid is concentrated

Over the period 1985 to 1991 the US spent more than US\$ 1,708 million on water-related activities. Egypt was provided with the most aid (US\$ 1,210 million). Oman, Pakistan, India, Sri Lanka and Indonesia received between US\$ 30 and 74 million. Morocco, Senegal, El Salvador, Haiti, Honduras and Philippines received between US\$ 10 to 30 million (on average US\$ 19 million). Eight countries received US\$ 3 to 10 million (on average US\$ 6 million), ten received between US\$ 500,000 and 3 million (on average US\$ 1.5 million), and five received less than US\$ 500,000.

7. Partners in project planning and implementation

USAID relies on consultants at American and foreign universities, NGOs, other federal agencies, and private companies to meet the specific needs of host country people, governments and institutions. Projects are implemented by local NGOs whenever possible.

8. Overview of promising approaches in water resources projects

Environmental planning and management projects (EPM)

EPM projects embody many of USAID's sustainable development policies in water and other sectors. They emphasize technical capacity, informed planning, and local participation. They are designed to 1. assist in the development of national or regional environment and natural resources strategies by providing advice and technical support; 2. provide governments, NGOs, local communities, and donors with concise and complete data necessary to formulate policies; 3. increase the ability of NGOs and local communities to participate in the development of plans for the use of natural resources; and 4. coordinate developments in a specific sector, such as water, with the overall goals of the national resource strategy.

Water resources management project in Morocco

This project is designed to secure water supplies in Morocco by promoting improved irrigation management through an integrated programme of policy analysis, technology transfer, research and demonstration, and institution and private sector strengthening in the area. The project began in 1993 and is expected to last for seven years. It will be implemented through four components: improved irrigation system management (such as monitoring surface and groundwater); improved on-farm management (by, for example, promoting more efficient irrigation); sustainable environmental management; and private sector strengthening (for example, through assisting cooperatives).

Improving water quality and conservation in Jordan

The project is designed to ensure adequate water supplies for agriculture in the Jordan Valley and to protect drinking water from agricultural and industrial pollution. The project has four components: water resources monitoring and management (through support to authorities to monitor water quality); water pollution prevention and cleanup (for example, by assisting industries to assess pollution problems); irrigation water management (for example, through helping the Ministry of Water and Irrigation to develop a plan to reduce water loss); and water management education (by means of a public education campaign to encourage people to conserve water).

Leveraging resources in Tunisia

USAID assisted the Government of Tunisia to institutionalize a country-wide system of water users associations responsible for the operation and maintenance of all rural water supply systems. Kreditanstalt für Wiederaufbau (KfW), a German agency, coordinated with USAID by carrying out a simultaneous programme of rural water projects totalling US\$ 15-20 million over four years. Funding from KfW was contingent upon communities having formed a water users association according to the system worked out by USAID and the Government of Tunisia.

North Coast development support project in Jamaica

USAID is cooperating with the Government of Jamaica and Japan in projects to improve coastal water quality, potable water supplies, flood safety, and commercial infrastructure on Jamaica's north shore. The US\$ 5 million effort is designed to ensure the sustainability and effectiveness of infrastructure. In Montego Bay, USAID is monitoring environmental quality around a new sewage treatment plant discharging near an important mangrove forest. In Negril, USAID reduced municipal water losses by about 40% through a maintenance and training programme and involved NGOs in a water monitoring programme that has attracted support from the EU.

9. Coordination

The willingness of a host government to reform harmful policies greatly influences USAID's willingness to invest energy and resources in a country. USAID's general goal is therefore to develop the host government's capacity to rationally plan resource use, by increasing the professionalism and technical/analytical skills of its agencies.

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AFRICAN DEVELOPMENT BANK

1. Administrative aid structure

The African Development Bank as an institution was created to finance economic and social development in Africa, and to promote intra-African cooperation and economic integration. It has 76 member states including 51 African regional member countries (RMC) and 25 non-regional states.

The structure of the Bank includes the Board of Governors in which all the powers of the Bank are vested, and the Board of Directors responsible for conduct of the Bank's general operations. The President, elected by the Board of Governors, manages the day-to-day running of the Bank. In the operations three departments which fall under a Vice-President are responsible for the physical support of all projects from identification to implementation. The Country Programmes Department is responsible for planning, preparation and management of the Bank's lending programmes and for ensuring efficient support in the member countries concerned. It is thus the negotiator between the Bank and the regional member countries. The other two are project departments. The Bank has three lending windows: the African Development Bank (ADB), the African Development Fund (ADF) and the Nigerian Trust Fund (NTF).

2. Staffing

All of its nine staff members working as water or sanitary engineers are based at headquarters. They are all male and have extensive technical background and expertise in this field. The water/sanitary engineers are engaged mainly in the Bank's operations in water supply and sanitation for both rural and urban areas. Their main functions include identification, preparation and appraisal of water and sanitation projects and studies to ADB group financing, and monitoring their implementation. Two units of Central Projects Departments (CEPR), which fall under a different Vice President, review projects in all sectors (including water supply and sanitation) to ensure that the Bank's policies including the environment and women are taken into consideration. The same department is currently drafting a policy document and guidelines on inland water resources management.

3. Aid policies and strategies

The fundamental purpose of the Bank is to contribute to the economic development and social progress of its regional member countries. The loans of the Bank are intended to offer long-term finance for agricultural development, public health, infrastructure and industry. Where necessary finance may also be given for technical assistance.

Water, sanitation, irrigation and environment

The sectoral goals in water supply and sanitation include assistance in providing adequate water supply and sanitation to the greatest number of people in the regional member countries. The Bank Group seeks to achieve the greatest coverage of services with available means, in order to improve public health; enhance the quality of life; promote community organization; and; contribute to social and economic development (1991).

4. Intervention tools in the water sector

The following sections describe "tools" the African Development Bank uses to orient policies and programmes in the assisted countries.

Policy level

The Bank encourages its RMCs to prepare National Sector Plans, elaborating policies and development strategies and priorities. The Bank's policy paper for the sector emphasizes early involvement in the project process and recognizes that standardized procedures are necessary for efficient launching, implementation and sustainability of projects. Need for community involvement, particularly of women, is also stressed. Guidelines for project preparation and appraisal have therefore been prepared to ensure that the water supply and sanitation sector policy is properly applied, and that the Bank Group's experience in project generation and design is taken into account by the member countries and the Bank Group.

The Bank has as policy to get involved in the project process at an early stage and recognizes that standardized procedures are necessary for efficient launching, implementation and sustainability of projects. Guidelines for project preparation and appraisal were therefore prepared to ensure that the water supply and sanitation sector policy is properly applied, and that the African Development Bank Group's experience in project generation and design is taken into account by the member countries and the Bank Group.

Project level

The requesting country must first of all supply the Bank with sufficient information to enable it to decide whether to go ahead with an examination. This includes a description of the project, plan of operations, anticipated expenditure, total of loans required, and reports of all studies carried out, plus a proposed financing plan of the entire project. Four more stages follow: 1. a Bank mission will be sent to study the project and to obtain any further information which is required; 2. a document will be drawn up for approval by the Board of Directors; 3. when it has been approved a loan agreement is prepared; and 4. loan signing.

The Bank's Operations Manual provides checklists to follow for different stages of a project cycle. In the case of water and sanitation these are given in more detail in the Bank's "Guideline for preparation and appraisal of water supply and sanitation projects". The water/sanitary engineers are responsible for formulation and review of water/sanitation projects.

Technical assistance

The type of technical assistance that the Bank provides is usually project specific. It is usually provided in the form of experts, training, or equipment as a component of a project or a study.

Training, research, and information support

Any assistance given in these areas are as explained under technical assistance.

- 5. Volume and share of aid resources** African Development Bank Group lending to the water supply and sanitation sector for the period 1970 - 92 amounted to US\$ 1.7 billion.
- 6. Countries where assistance is concentrated** The Bank has no preferences for countries for concentration of its funds. Bank funds are allocated to countries based on their per capita income and population. Allocation for a specific project or a study is usually based on a Bank study and on the borrowing country's priority programme. Water resources management is generally included as part of projects financing.
- 7. Partners in project planning and implementation** The African Development bank co-finances projects and studies with many multilateral and bilateral organizations, some of which include the World Bank, EIB, NORAD, OPEC, JICA/OECF.

8. Overview of promising approaches in water resources projects

Groundwater investigation study of north-western Namibia

This study aims at investigating and then exploiting the groundwater resources of rural water supplies.

9. Coordination

The African Development Bank considers it urgent for the regional member states to formulate their own strategies for sectoral development and to establish long-term project priorities based on a national assessment of water supply needs. The Bank Group assigns high priority to the preparation in each member country of sectoral studies and master plans. The preparation of these documents should be coordinated between the agencies responsible for health and education. The Bank encourages member states to develop collaborative relationships among national operating agencies, private sector groups, and community organizations.

The Bank Group supports sectoral planning on international and regional levels. It recognizes the value of collaborating and participating with the ESAs and member countries in international programmes, conferences and seminars. Since 1991 the Bank Group strives to play a much more active role in support of planning and coordination of external assistance to national sectoral programmes.

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ASIAN DEVELOPMENT BANK

1 Administrative aid structure

The Asian Development Bank (ADB) is an international financing institution owned by its 53 member governments (1993). It was established in 1966 to lend funds and provide technical assistance to developing member countries in Asia and the Pacific.

The Bank's highest policy-making body is its Board of Governors which meets annually. The President of the Bank is elected by the Board of Governors for a term of five years. The President is Chairman of the Board of Directors and under its direction he conducts the business of the Bank.

The Bank has 21 departments and offices at its headquarters, in Manila, one regional office in Vanuatu and five resident offices (in Bangladesh, India, Indonesia, Nepal and in Pakistan).

2. Staffing

At the end of 1993, ADB had a staff of 1898 comprising 645 professional and 1253 supporting staff - mostly from the Philippines. In 1993, 8.8% of the professional ADB staff were women.

About 10% of the professional staff work in water-related projects and they comprise mostly engineers, economists and financial analysts.

3. Aid policies and strategies

ADB works with the objective of promoting investment and fostering economic growth in the region through its financial and technical assistance programmes.

Water, sanitation, irrigation and environment

Initially the focus of loans within the water and sanitation sector was upon large urban water supply and sewerage systems in major cities, but this policy has changed. ADB is currently putting more emphasis on balanced development in urban and rural areas with the aim of promoting social equity and improving health. ADB makes every effort to check that the projects financed are adapted to the economic, environmental and social situation of each country.

ADB's experience is that water projects become cost-effective and sustainable when autonomous agencies are responsible for the water supply system, since they operate in a financially self-sustaining manner. The Bank advocates that tariffs are set to recover the full costs from the user. The Bank, however, also recognizes that there must be a balance between cost recovery and equitable access, since water is a basic human need. Moreover the Bank strongly promotes operational efficiency to ensure that both water resources and financial resources are soundly managed.

Water resources management in relation to Dublin and Rio

The Bank has taken into account the outcome of the UNCED meeting in Rio, while planning its agenda for the 1990s. Water resources management forms part of one of the main strategic objectives of the Bank: "To promote sound management of natural resources and the environment". That more specific attention is being given than in the past to water resources management is reflected by the water resources management policy paper, which currently is under preparation.

There are also practical examples of the inclusion of water resources management aspects in ADB-supported projects. For example, conditionality of loans for water supply systems is sometimes tied to complementary action on national water resources management, and new approaches are being introduced to reduce unaccounted-for water in supply systems, such as privatized contracts for water distribution.

Considerable attention is now being given to capacity building of water utilities and related institutions.

4. Intervention tools in the water sector

The following sections describe some "tools" ADB uses to formulate and implement policies and programmes in the assisted countries.

Policy level

There is an Office of the Environment at the Bank, which checks that the projects of the Bank are environmentally sound. Through this Office the Bank is committed to, among other things, systematically examining all its development activities from an environmental perspective (policies, programmes and projects); cooperating with developing countries; assisting developing countries in environmental protection and line agencies with monitoring and enforcing environmental laws and regulations. There is also a Social Dimension Unit which ensures that Bank-financed projects properly address concerns such as women in development, involuntary resettlement and indigenous people.

Policy reform has become important in all loan projects, not just those for sector or programme loans as in the past. This policy reform, which is formalized in a "Sector Policy Statement", is discussed with governments and agencies throughout the project processing and culminates in an agreement at "loan negotiations".

Project level

When a member government or other eligible agency applies to ADB for assistance for a specific project, the bank carries out an initial study to determine whether or not the proposal appears to justify further actions. Where the project is found to be viable, a fact-finding mission is dispatched. The mission members collect data, hold preliminary discussions with the relevant country and executing agency, and estimate the nature and scope of the preparatory work needed for loan appraisal. After the fact-finding is completed, a Project Brief is prepared and a Management Review Meeting

is held to determine if the appraisal mission can be sent to the field. Upon its return to Manila, the mission prepares a draft Report and Recommendation of the President (RRP) and draft loan documents which are discussed by a Staff Review Committee. The next step is to negotiate loan documents with the parties concerned. When the negotiations are satisfactorily completed, the President submits his recommendations together with the loan documents to the Board of Directors for loan approval. To follow up loan administration, ADB dispatches frequent review missions to projects which require special attention, while attempts are made to visit all projects at least twice a year. ADB is using the environmental impact assessment procedure to decide whether to approve a project proposal or not, depending on its influence upon the environment. Moreover, ADB has developed a handbook to provide guidance on ADB's policies concerning Benefit Monitoring and Evaluation and for the design and implementation of these activities. The book is meant for the staff of ADB, for staff in executing agencies, and for consultants. The handbook includes specific monitoring procedures for water supply projects. A handbook for social analysis of projects has also been prepared.

Technical assistance

ADB provides technical assistance for a variety of activities in the assisted countries, such as identifying and formulating projects, improving institutional capabilities, formulating development policies, fostering regional cooperation, promoting transfer of technology and promoting the consideration of issues vital to economic development and policy. The Japan Special Fund, which was established in 1988, is a major source of grant funding for the Bank's technical assistance projects - over US\$ 300 million has been provided to date. Recently a major regional technical assistance programme, "Managing Water Resources to meet Megacity Needs" was sponsored by the Bank, which culminated in a Regional Consultation in Manila in August 1993. In November 1993 the Bank published a Water Utilities Data Book for the Asian and Pacific Region.

Training, research, and information support

Some of ADB's activities are designed to strengthen the existing institutions by providing training for local personnel in design, site supervision and operation and maintenance of water supply systems. The Bank is also providing a range of training courses for its own staff, particularly management and communication courses. The Economic Development Resource Center (EDRC), a department of the Bank, is responsible for research into economic development issues relevant to the region; for developing methodologies for the economic analysis of projects; for collecting statistical data; and for providing statistical support services and maintaining a statistical database. The Bank publishes its research findings as a service to member countries and the development community. The Bank is also actively involved in human resource development in the region. It provides opportunities for mid-level officials to work at the Bank to gain on-the-job-experience.

5. Volume and share of aid resources

During 1993, the total Bank lending and investment operations amounted to US\$ 5,304 million for development assistance, which was an increase of 3.5% compared to 1992.

Although historically, over the period 1968-1993, total Bank lending to the water sector has averaged 20% of all Bank lending, in recent years this has been much reduced. Over the last six years it has averaged about 12% and in 1993 was just over 12% which was broken down as follows: 5.4% in water supply and sanitation, 3.8% in hydropower and 3.2% in irrigation, drainage and flood control.

6. Partners in project planning and implementation

The regional member countries of the Asian Development Bank are: Republic of Afghanistan; Australia; Bangladesh; Bhutan; Cambodia; People's Republic of China; Cook Islands; Fiji; Hong Kong; India; Indonesia; Japan; Kiribati; Republic of Korea; People's Democratic Republic Lao; Malaysia; Maldives; Marshall Islands; Federated States of Micronesia; Mongolia; Myanmar; Nauru; Nepal; New Zealand; Pakistan; Papua New Guinea; Philippines; Singapore; Solomon Islands; Sri Lanka; Taipei China; Thailand; Tonga; Tuvalu; Vanuatu; Socialist Republic of Viet Nam; and Western Samoa. Non-regional members are: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States.

During 1992 the Bank strengthened its international relationships with other agencies, environmental NGOs and the UN organizations. The involvement of NGOs in ADB's activities reflects the general belief that such organizations have, for certain projects, a comparative advantage over government assistance agencies.

7. Countries where aid is concentrated

The Bank has two major lending categories; ordinary and special operations. Ordinary operations are those financed from the ordinary capital resources of the Bank and as a general rule these funds are lent to member countries with stronger economies. Special operations are those financed from Special Funds and as a general rule these are lent to lesser developed member countries. A developing member country's access to these Special Funds is determined partly on the GNP per capita and partly on debt repayment capacity.

Over the last 25 years the principal recipients of lending from ADB for the water sector have been Bangladesh; Indonesia; Republic of Korea; Malaysia, Pakistan and Philippines.

An example of a country currently being assisted with a water resources management project is Sri Lanka, where an Institutional Assessment for Comprehensive Water Resources Management is being developed.

8. Overview of promising approaches in water resources projects

Songkhla lake basin planning study in South-east Thailand

A regional development and environmental study was undertaken to prepare a strategic framework for the Basin's development (phase 1). The framework is based on: 1. optimum development of the Basin's water and other natural resources; 2. socio-economic development requirements of the Basin with the Haadyai/Songkhla corridor as its growth pole; and 3. pragmatic environmental planning and management. It also involved review and formulation to pre-feasibility level, of proposed and new development projects. During this stage, institutional support was provided to the Thailand office of the national environmental board to strengthen its role under the Programme. This study resulted in the formulation of a natural resource development framework and a socio-economic development strategy for a lake basin. Phase two of the project involved the preparation of feasibility studies of high priority projects selected with the approval of the Bank. Subprojects identified include: i. salinity barrier; ii. Klong Sadao Dam; and iii. an information systems network.

Regional project "managing water resources to meet megacity needs"

This regional technical assistance programme involved four principal activities: 1. a three-day workshop in Manila to refine the nature and scope of the work to be carried out; 2. preparation of case studies by local consultants in the megacities of Bangkok, Beijing, Dhaka, Delhi, Jakarta, Karachi, Manila and Seoul; 3. preparation of theme papers by international consultants. (The papers were on: i. service levels and the urban poor; ii. institutional arrangements; iii. wastewater, pollution, and recycling; and iv. comprehensive water resources management. An additional theme paper on pricing and demand management was prepared by World Bank staff and one on water utility issues by ADB staff); 4. a regional consultation was held at ADB in Manila to discuss the case studies and the theme papers and to prepare guidelines and actions for the future. The proceedings of the consultation are expected to be published about September 1994.

9. Coordination

The ADB emphasizes the importance of aid coordination among various agencies to maximize the use of scarce development resources. It participates in various country and sector-specific meetings of aid groups and has come to be recognized as a major partner of economic development in a number of developing member countries. An example of ADB's emphasis on coordination is the fact that the ADB-assisted countries are obliged to include coordinating activities in project development.

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EUROPEAN UNION ¹⁾

1. Administrative aid structure

Within the European Union (EU) the Directorate-General for Development (DG VIII) and the Directorate-General for External Affairs (DG I) are responsible for implementing aid programmes. DG VIII has responsibility for countries in Africa, the Caribbean and the Pacific (ACP). DG I is divided in five geographical sections, each responsible for a geographical region: 1. Latin America; 2. Asia; 3. the Mediterranean and Middle East; 4. Central and Eastern Europe; and 5. Common Independent States.

The European Commission has 83 delegations located in developing countries, of which 54 are in the ACP zone.

2. Staffing

The headquarters of the DG VIII has five technical divisions, dealing among other sectors, with water-related programmes/projects, with a distribution of work more on geographical than sectoral basis. Officials in charge of policies, evaluation, training, environment and health also have an input in the water sector. One member of the Infrastructure Division for Eastern and Southern Africa acts as a focal person for water resources activities, in close relation with the official in charge of environmental issues. In the field, each delegation has engineering and rural development advisors dealing with the whole range of development activities, including those related to water. Consultants and technical assistants are appointed for study or implementation of specific projects and programmes. The staff is responsible together with the national authorities, for identification, appraisal, implementation control, and evaluation. In their work they are supported by consultancy firms and technical advisors.

The staff of the Asian section of DG I are dealing with the following four water issues: water resources development studies, irrigation projects, drinking water supplies and sanitation.

3. Aid policies and strategies

On the basis of guidelines laid down by the Council of Ministers and the European Parliament, the Commission gives priority to rural development, food strategies, human rights and peace in the assisted countries. When the Maastricht Treaty has been ratified the objectives of the development cooperation's policies will be: 1. to encourage democracy in the developing world; 2. to strengthen human rights; 3. to create lasting economic and social development; 4. to ensure that the developing countries gradually and harmoniously fit into the international economy; and 5. to combat poverty of the population in these countries.

1) This profile is not complete, since only partial information has been obtained.

The strategies of the union and its member states are to meet these objectives, including improved coordination in development cooperation policies, enhanced consultation on the individual aid programmes; support to revise political structures through for example, decentralizing decision-making; family planning and education for lasting development; and provision of assistance to make exports more competitive.

Water, sanitation, irrigation and environment

The general policies for the drinking water supply sector of the DG VIII date from 1979 and include aspects of: integration of drinking water supply sector into economical and social development; water policy and general design of water supply projects; priority guidelines and general design of urban and of rural projects; technical design and management of urban and of rural projects; and participation of the population.

Water resources development and management in relation to Dublin and Rio

1992 marked a turning point in the Commission's attitude to environment-linked development issues. The UNCED conference paved the way for a major change in current environment/development bodies and policies. The Commission played an active part in the process and will over the next few years try to develop the instruments, structures and policies for implementing the principles laid down in Rio.

At the Lisbon European Council in June 1992, an eight-point programme was approved. Included was a commitment to give developing countries financial assistance in implementing Agenda 21 through Official Development Aid and to help refinance the Global Environmental Facility (GEF).

Within the DG VIII the influence of the Dublin and Rio conferences can be noticed in relation to national policies, which have a renewed emphasis on water resources management, as well as other recommendations such as user participation, capacity building, involvement of women, environmental protection and adequate maintenance of the infrastructures.

The EU position is to insist on proper management of water resources, during the preparation and implementation of new projects, which is in line with the "Integrated Approach for Project Management". Water resources management must be seen as a component - and a condition - of most of projects comprising water resources development.

4. Intervention tools in the water sector

The following sections describe some "tools" EU's development cooperation uses to orient policies and programmes in the assisted countries.

Policy level

It is up to the beneficiary state to draw up a dossier on the programme proposed for assistance and to submit it to the Commission. The request is then examined by the service departments of the Commission and by the local delegation. Should the investigation result in the Union granting

financial assistance, the DG VIII will propose that the Commission adopt a decision to finance the project. This will be done following consultation with the Committee, made up of experts from the member states. The delegations in the assisted countries facilitate all forms of economic, financial and technical cooperation. As a general rule, all contracts financed by Union aid are subject to tender. Tender participation is open to all member states of the EU. In ACP countries all ACP members are also eligible to tender.

The DG VIII states in its basic principles for the drinking water supply sector (1979), that national water policies should be framed in compliance with the overall economic and social development policy of the country concerned. This should be done to guarantee that the best projects will be chosen and that those selected are of suitable design. The national water policy should encompass all urban, village and rural water supplies and sewage disposal. Objectives for water use should also be set. The means required to carry out the policy should be determined and principles should be adopted on how to administer it.

The sections for Central Eastern Europe (PHARE) and for the Common Independent States (TACIS) each have a support programme, which also includes improvement of environmental aspects. PHARE support is being provided either in the form of yearly National or Regional Environmental Sector programmes or through environmental components in the General Technical Assistance Facilities. Within TACIS environment is not a sector in its own right; environmental concerns have, however, played a major role in all TACIS activities. Suggestions have been made in the Council and in the European Parliament to also include the environment as a priority sector in the TACIS programme.

Project level

Within DG VIII project/programme preparation, implementation and evaluation is carried out in accordance with the terms of the respective Lomé Convention. The framework of the "integrated approach for project/programme cycle management" is applicable. All projects being developed are screened using Logical Framework as a tool. Some guidelines are being established, within DG VIII, to adapt the existing basic principles for the water and sanitation sector (1979) to the integrated approach, taking account of further project experience and of the recommendations of Dublin, Rio, Delft and other meetings and studies in the sector. Guidelines for associated issues like environmental impact and women in development are also referred to. The national authorities and EU headquarters and field staff are jointly responsible for project preparation and implementation.

The Asian section of DG I has appraisal manuals (for internal use only) that cover approaches that are to be applied for all projects. In addition, there are documents setting out the basic principles to be used in relation to the formulation of specific types of projects. "Water supply" was one of the first

to have a set of defined basic principles. Thirdly, there are recommendations from ex-post evaluations of projects, which are taken into account while appraising a project. The beneficiary countries are responsible for defining requirements for water projects. The Commission examines proposals with the assistance of private sector experts.

The PHARE programme in Poland, Hungary and the Czech Republic, the Slovak Republic and Bulgaria are managed by PHARE project implementation units located in the Ministries of Environment in these states.

Technical assistance

All forms of technical assistance related to project/programme preparation, implementation and evaluation and provided under EU funding must originate in member states of the EU, or in CEECs countries (PHARE), or in the case of ACP aid, within any ACP country. Staff providing technical assistance come under the competent national administrative body.

Training, research, and information support

Within DG VIII these components are usually included in the projects/programmes, to be carried out in collaboration with specialized institutions.

5. Volume and share of aid resources

At least 10% of Community-sponsored operations have to do mainly with the environment. The environmental impact of all other projects are assessed as part of the general evaluation process.

During 1980 to 1985 DG VIII spent US\$ 242.6 million in water engineering. In the period 1985-90 US\$ 165.6 million (2.5% of the total aid to the ACP countries) and from 1990 to 92 US\$ 60.9 million (2.4%) were spent in the sector, but these figures do not include the money spent on water-related activities in integrated programmes, like rural and urban development, health, etc.

For Asia and Latin America at least 10% of the money for technical and financial assistance go to environmental projects. During 1992 about US\$ 142 million was spent on environmental projects. Water management, forestry conservation and eco-education were amongst the main areas receiving support. Over the past ten years the Asian section has supported mainly the following areas: urban water supplies (0.4%), rural water supplies (12%), irrigation (58.7%), water resources management (27%), and hydropower (2%).

For the Mediterranean countries about US\$ 142 million was spent on environmental projects. The target areas for aid in this region were the management of water and management of toxic waste. The region also receives help from the environment budget for water and eco-education schemes, and from the LIFE programme, which lends technical assistance and administrative support for setting up environmental bodies.

The PHARE programme has in the years 1990, 1991 and 1992 made US\$ 227.3 million available for support of environmental improvements in Bulgaria, the Czech and Slovak Republics, Hungary, Poland, Rumania and the Baltic States.

6. Countries where aid is concentrated

Sixty-nine countries have signed the Lomé Convention. During the course of a convention, all ACP countries are likely to have water-related projects within their indicative programme. The countries having signed the Lomé Convention are all beneficiaries, none have priority over the other. The Asian section of DG I has assisted the following countries with regard to water-related projects during the past ten years: Afghanistan, Bangladesh, Bhutan, China, India, Indonesia, Laos, Maldives, Nepal, Pakistan, Philippines, Sri Lanka and Thailand.

7. Partners in project planning and implementation

In line with the Lomé Convention, project and programme management is carried out jointly by the ACP governments and the European Commission through delegations or agencies in the beneficiary countries. In order to achieve maximum efficiency, the Commission's stated priority is to coordinate with the other member States (bilateral aid) as well as with other multilateral development agencies. EU also finances NGOs that are concerned with environmental issues.

The Lomé IV Convention introduced an innovation in that it allowed decentralized cooperation. This new form of cooperation encourages twinning between cities and regions.

8. Overview of promising approaches in water resources projects

Sub-Saharan Africa hydrological assessment

This project is supported by DG VIII and the objective is to develop a Hydrological Monitoring System for countries in Sub-Saharan Africa.

Black Sea environmental programme

After a request from the Georgian, Ukrainian and Russian Governments, US\$ 895,000 was allocated, through PHARE, for a project which will complement the Global Environmental Facility Black Sea International Management Programme. The aim is to provide the riparian countries with policy, legal, institutional, technical and financial support for the establishment of an operational framework to reverse the process of environmental degradation, to protect the environment and to contribute to the sustainable use of natural resources. The project has strong political support from the assisted countries.

Central Asian water resources management programme

This programme will provide assistance at institutional level to provide a framework for effective water management and use and the definition of agricultural and industrial strategies that will ensure the sustainable availability of water resources. The programme will help the agricultural transformation of the Central Asian republics which largely depend on the

successful restructuring of the cotton industry (the main currency earner in Uzbekistan, Tajikistan and Turkmenistan). The project had strong political support from the assisted countries.

9. Coordination

In each ACP country, a National Authorizing Officer represents the government for matters related to EU, which is represented by the delegate.

With the Treaty of Maastricht, Article 130X provides for the Member states of the Community to coordinate their development cooperation policies and consult each other on their aid programmes. The Council of Ministers has also committed itself to intensify its cooperation with developing countries.

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FOOD AND AGRICULTURE ORGANIZATION

1. Administrative aid structure

The Food and Agriculture Organization (FAO) of the United Nations is the United Nation's largest specialized agency. In 1969 an Interdepartmental Working Group (IDWG) on Natural Resources and the Human Environment was established. In 1990, the Director-General formed a Steering Committee for Environment and Sustainable Development, headed by a special advisor with the rank of Assistant Director-General (ADG). This Committee is responsible for advising the Director-General in guiding and supervising FAO activities related to environment and sustainable development. The Water Resources, Development and Management Service is in charge of water and water resources management. This Service is divided into three Groups: Water Resources Group; Water Development Group; and the Water Management Group. The Service collaborates also with several other technical units such as the Development Law Service, Soil Resources Management and Conservation Service, Environment and Sustainable Development Centre, etc. on water issues. In addition FAO has an Inland Water Resources and Aquaculture Service concerned with the use of water resources for fisheries development.

2. Staffing

There are 15 staff members (one female) working within the Water Resources, Development and Management Service. A Chief and a Senior Officer are coordinating the work of 13 Senior and Technical officers working in the three sub-sections. Moreover, there are four Water Development Officers in the regional offices. Furthermore, there is a large number of field staff and consultants who work on specific projects at country level.

3. Aid policies and strategies

FAO's mandate are to (a) raise the levels of nutrition and standards of living of the peoples; (b) improve the production and distribution of all food and agricultural products; and (c) improve the condition of rural people. The organization has four main tasks, namely:

- it carries out a major programme of technical advice and assistance for the agricultural community on behalf of governments and development funding agencies;
- it collects, analyses and disseminates information;
- it advises governments on policy planning;
- it provides opportunities for governments to meet and discuss food and agricultural problems.

At national level FAO stimulates the development of a policy framework including issues relating to the creation of an overall equal economic environment, human settlement and population policy. At international level FAO emphasizes the need to reduce the debt burden in order to strengthen the economic environment. Moreover, it assists the developing countries in gaining access to improved technologies that permit more economic and environmentally-acceptable use of natural resources.

*Water, sanitation,
irrigation and
environment*

The policy concerning water for sustainable agriculture includes the following priority areas: efficient water use, water logging, salinity and drainage; water quality management; small-scale water programmes; and scarce water resources management. The supportive actions of FAO's International Action Programme on Water and Sustainable Agricultural Development are basically national capacity building, like development of databases; adaptive research; institutional building; human resource development; better socio-economic analysis; protection of the environment; transfer of technology; and strengthening of infrastructure.

The strategies to support these actions are among others; development of methodologies, guidelines, and computer-supported programmes which are distributed to the member nations.

*Water resources
management in
relation to Dublin
and Rio*

FAO is concerned with the majority of programmes included in the Plan of Action adopted by UNCED in Agenda 21. FAO's approach to planning, execution and monitoring needs to be adjusted to new requirements and changing perceptions of technical assistance, as articulated by ESAs and assisted countries at, for example, UNCED in Rio in 1992. The focus of field operations will take into account the results of UNCED.

In accordance with the recommendations of the Dublin conference and Agenda 21 of UNCED, the scope of the FAO-supported International Action Programme on Water and Sustainable Agricultural Development will be broadened to cover the total water needs of the communities. This will be done in two ways: by promoting inter-agency cooperation under the framework of the ACC Inter-Secretariat Group on Water Resources and as a "Special Action Programme on Management of Rural Water Resources".

Under "Water Resources Inventories and Evaluation" a world-wide geo-referenced database on water resources and water use for rural development has been initiated and will be related to soils and climate information. At the national level it should assist member nations in defining policies for the development and the management of water resources. At the global level, it should facilitate the study of the evolution of water resources potential, with special emphasis on agricultural use, water scarcity risks and water quality aspects (pollution, vector-borne diseases). This database should also support forecasts, projections, formulations of strategies and eventually be a key input to international agreements related to shared water resources.

4. Intervention tools in the water sector

The following sections describe some "tools" FAO uses to orient policies and programmes in the member nations.

Policy level

FAO provides advice and technical assistance to its member nations as much as possible, for them to formulate their own water policies. In this regard,

a dual approach is pursued. FAO is developing guidelines for water policy formulation specially geared for developing nations. This document, which is expected to be released soon, will enable developing nations to play a prominent role in formulating their own water policies. At the country level, assistance in formulating a national water sector policy is one of the top priorities of water activities of FAO. Currently water policy activities are pursued in Turkey, Indonesia, Yemen, Nigeria, countries of the Nile River Basin and Belize.

Project level

FAO has general guidelines for formulating projects which are funded under the Technical Cooperation Programme of FAO and UNDP and bilateral trust funds. Specific aspects of water resources are guided by the policies expressed in FAO's Programme Work and Budget.

Formulation and review of water projects are normally carried out by a multidisciplinary team of experts, normally headed by an FAO staff member. As a matter of principle, participation of national consultants is encouraged.

Technical assistance

FAO provides various kinds of technical assistance, for example to NGOs, on small-scale irrigation, irrigation development planning, and advice to governments on health aspects of water development and water quality management.

Training, research, and information support

FAO and WMO provide training courses in the use of meteorological data for irrigation management. Another training activity which is under implementation is a course on re-use of wastewater, which will be carried out together with UNEP and WHO. FAO has created databases and information systems on agriculture, fisheries and forestry which form a basis for international and national institutions when they make decisions related to planning of environmental subjects. FAO also provides information on soil and water management through the FAO irrigation and drainage paper 'Soil Bulletin'. Moreover, two recent publications have been prepared to provide criteria and guidelines for the safe use of saline water and wastewater for irrigation. FAO also provides technical guidelines about determination of crop water requirements. Environmental education is sometimes provided by FAO through agricultural extension projects, and they are also developing environmental education material.

5. Volume and share of aid resources

The total budget in 1992/93 was US\$ 747 million. The budget for technical assistance (92/93) was divided in three items: technical and economical programmes (US\$ 314 million), development support programmes (US\$ 101.6 million) and technical cooperation programmes (US\$ 77.4 million). The budget for water projects was estimated to be US\$ 74 million for 1992/93.

6. Countries where aid is concentrated

FAO supports 59 countries with water-related projects out of these 23 are in Africa, 11 in Asia and the Pacific, 14 in Latin America and 11 in the Middle East.

7. Partners in project planning and implementation FAO collaborates with many NGOs in the field of environment, especially with the International Union for the Conservation of Nature and Natural Resources (IUCN). FAO is also working closely with UNEP and they have formal links which cover three main areas of mutual interest: environmental monitoring and assessment of food and agriculture; ecological management of natural resources for food and agriculture; and conservation and management of ecosystems. FAO also cooperates with a range of other international and national organizations. For example, FAO has a joint programme with UNESCO called Man and Biosphere (MAB), with WMO on climate changes and with WHO, UNEP and UNCHS on vector control. FAO also collaborates with regional organizations, particularly with umbrella organizations like the Environment Liaison Centre International (ELCI).

8. Overview of promising approaches in water resources projects

Database on water resources A data base on water resources and water use for rural development was initiated in January 1994 and will be related to soils and climate information (Global Water Information System). FAO limited the scope of its action to water-related information systems. In the UN system, the mandates of the different UN Agencies have been clearly defined to avoid duplication of efforts. Other agencies like WMO, UNESCO, WHO and HABITAT have their own water-related information systems, each one covering its field of competence. At national level it should assist Member Nations in defining policies for the development and the management of water resources. When the database is used at country level, it will be the task of the countries to maintain it. At the global level it should facilitate the study of the evolution of water resources potential with special emphasis on agricultural use, water scarcity risks and water quality aspects. This database should also support forecasts, projections, formulation of strategies, and eventually be a key input to international agreements related to shared water resources.

Water action programme in Indonesia This project emphasizes national capacity building of river basin management and development of a water resources and water use information system, and stimulates coordination of existing regional and local authorities at provincial and local government level. Coordination of water allocation and development is achieved through Basin Boards with participation from legislative authorities in the basin with management based on river basin plans. Establishment of river basin management plans, which are closely coordinated with the spatial plans for the legislative authorities, are established at the level above the legislative authorities sharing a river basin. The capacity of river basin planning is therefore to be strengthened at the central and provincial government level. The Indonesian counterparts are PAPENAS (the national planning board), the Ministry of Agriculture, the Ministry of Public Works and the Ministry of Forestry.

On-farm water management development in Indonesia

This project is concerned with development of a methodology and approach to effectively introduce on-farm water management improvements for better crop production. The immediate target group are the small farmers of the Water Users Associations who, through a range of practical field training sessions, identify and initiate irrigation improvement works and intensify agricultural production. Self-reliance and cooperation and participation of all farmers, including women, are main conditions emphasized in the participatory approaches. The counterpart is the Ministry of Agriculture.

Irrigation development, rehabilitation and improvement

This programme is concerned with providing advisory activities to decision makers and ESAs, on the water-saving potential of improved and adapted irrigation technologies. This has been introduced in Cyprus, Jordan, Brazil and Morocco and is in the process of being introduced in China, Pakistan and Yemen. Reports based on case studies will disseminate the experience from these projects to the member countries.

Irrigation management and performance

This project will assist countries in their efforts at improving irrigated agriculture through a better management of irrigation systems. It will include the dissemination of the software SIMIS (Scheme Irrigation Management Information System). This is a set of programmes which address water distribution, control and maintenance, reduction of operational and administrative costs, and permits a holistic view of the production potential of the irrigation system. This software package will mainly be disseminated through national training courses. Another aspect which will receive attention is the transfer of state-managed irrigation systems to water users' associations.

9. Coordination

FAO is involved in a network called "Water for Agriculture Technology Transfer System", which is an institutionalized network of governments and technical institutions. Through this set-up policy and technology transfer in water resources development is promoted.

FAO is developing a number of projects within a framework called Government Cooperative Programmes. The donors are funding and participating in project implementation together with FAO.

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INTER-AMERICAN DEVELOPMENT BANK

1. Administrative aid structure

Inter-American Development Bank (IDB) is an international financial institution established in 1959. IDB's headquarters is in Washington, DC, and it has field offices in every capital city of Latin America. In 1993 the IDB had a membership of 44 countries, 26 regional members and 18 non-regional members. It is the principal source of external public financing for most of the countries of the Latin American Region.

The basic authority of the Bank is vested in the Board of Governors, composed of one Governor and an Alternate Governor appointed by each member country. The Board holds annual meetings to review the Bank's operations and to make policy decisions. The Board of Executive Directors, whose members are elected for 3-4 years by the Board of Governors, is responsible for the conduct of the operations of the Bank. The President of the Bank, who is elected by the Board of Governors for a five-year term of office, conducts the ordinary business of the institution and is its legal representative and chief of staff.

The Sanitation and Urban Development Division (SUD) is responsible for implementing Bank strategy in water supply and sanitation. At the same time, it continues to pursue the Bank's traditional role of supporting improved access to these services throughout the region. SUD concentrates on rehabilitating and improving efficiency of existing water supply and sanitation systems; actively supporting institutional strengthening and reform of water companies, particularly in light of decentralization and privatization trends; and expanding the coverage of liquid and solid waste collection systems and treatment facilities. The Environment Protection Division (ENV) is responsible for assisting country and project teams directly, to ensure that IDB operations are environmentally sound. The division is also responsible for identifying and preparing renewable natural resources and environmental projects. The division is divided in three working areas: environmental analysis, environmental development, and environmental policy.

2. Staffing

There are five men and one woman working specifically with water projects/programmes within the Environment Protection Division. Water issues are, however, also dealt with in related fields within the following divisions: Sanitation and Urban Development, Irrigation, and Energy.

3. Aid policies and strategies

The objective of IDB from its initiation has been to help accelerate economic and social development of member countries in Latin America. For the 1990s the Bank is focusing on three key areas of development: social reform, creation of a new productive climate, and the modernization of the state. In 1992, the Bank started to emphasize women's participation in its projects by viewing them as economic decision-makers. The Bank's project support for women focusses on five areas: micro enterprise; vocational and

technical training; health, agriculture and rural development; and natural resources management.

Water, sanitation, irrigation and environment

In 1987 the Inter-American Development Bank aimed at supporting projects related to: the making of national policies for the water sector; capacity building in the countries to execute projects through training; support of institutions; operation and maintenance; appropriate technology; and inter-sectoral projects.

Water resources management in relation to Dublin and Rio

The Bank intends to play a major role in the implementation of Agenda 21 in the region. For instance, it aims to ensure that its operations include a component on national environmental legislation consistent with the principles embodied in the Rio declaration. The Bank's programmes for 1993 and 1994 show that the objectives of Agenda 21 and the goals and the strategies of the Bank coincide to some extent.

The Bank and UNDP are reviewing Agenda 21 jointly to adapt its proposals to the characteristics and priorities of the Latin American countries and the Caribbean. In addition, the Bank is assisting the Organization of American States in the preparation of a programme of interagency coordination and cooperation to increase the efficiency of regional efforts to implement Agenda 21.

An example of an innovative water resources management project is the massive river clean-up project in Brazil, in which the Bank is involved.

4. Intervention tools in the water sector

The following sections describe "tools" the Inter-American Development Bank uses to orient policies and programmes in the assisted countries.

Policy level

IDB staff specialists are sent regularly on programme missions to the member countries. The experts, together with relevant government officials and specialists, review the development plans and priorities, analyze social and economic trends, help to identify priority projects and programmes which may be appropriate for Bank financing, and report back to the Bank management. At the request of potential borrowers, the Bank may also provide technical cooperation for the preparation of loan projects and loan applications. The Bank analyzes the various aspects (economical, environmental, etc) of each loan application that has been considered for approval. For example, the Bank has an Environmental Protection Division which monitors project's environmental impact.

The Bank has guidelines aiming at minimizing any adverse affects from IDB-financed projects. The Bank also helps planners to design environmental protection features into new projects at an early stage of preparation by providing its borrowers with detailed environmental checklists. At the IDB headquarters a committee on Environment

Management keeps track of new developments and monitors the impact of ongoing Bank-financed projects on the environment. Moreover the Bank has published guides for presentation of applications for loans for water supply and sewage disposal systems. After a loan application is approved by the Board of Executive Directors, a detailed contract is prepared and signed by the borrower and the Bank.

Project level

Bank field offices in the regional member countries supervise project execution and verify disbursement requests. Under the contract the Bank does not disburse the loan in a lump sum, but over a period as actual expenditure is incurred.

The Bank closely monitors each of the projects for which it has approved a loan. Staff specialists go on programme missions to the various Latin American member countries. Together with local officials and experts, they review the country's development plans and investment programmes, help identify projects and report back to Bank management. Individual loan applications flow from this process of consultation and analysis. Following detailed negotiations between all parties involved, the loan document is presented to the Board of Executive Directors. Once the loan is approved, implementation and supervision begin. Evaluations aimed at improving future efforts complete the project. In addition the Bank provides technical feasibility studies and preparation of loan applications and projects.

The Bank has provided three procedural documents which are vital for IDB operations: "Procedures for Classifying and Evaluating Environmental Impacts of the Bank's Operations", "Strategies and Procedures for the Interaction Between the Inter-American Development Bank and Non-Governmental Organizations"; and "Strategies and Procedures on Socio-Cultural Issues Related to the Environment".

Technical assistance

Technical cooperation is provided to assist borrowing countries and institutions to acquire the necessary skills and experience in preparation, financing and implementation of plans and projects. The beneficiaries of the technical cooperation normally secure the services of specialized institutions, consulting firms or experts. At the beneficiary's request, services may be contracted by the Bank or on its behalf.

Training, research, and information support

IDB offers training and seminars for the development of human resources in the projects it supports. CEPIS (Centro Panamericano de Ingenieria Sanitaria) is a training centre related to PAHO (Pan American Health Organization), and CEPIS has received financial help from IDB. CEPIS provides training in water-related issues and has also done research on appropriate technology in water supply and sewerage systems for the IDB. Another research institute which the Bank supports is CGIAR (Consultative Groups for International Agricultural Research).

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- 5. Volume and share of aid resources** In 1992, total Bank loans surpassed US\$ 6 billion and the actual expenditures were US\$ 3.2 billion. Technical cooperation was approved for a total of US\$ 65 million in 1992.
- 6. Countries where aid is concentrated** The IDB supports all the Latin American member countries with an emphasis on the least developed countries. Major urban sanitation projects were financed in Brazil, Mexico, Nicaragua, Guatemala, El Salvador, Barbados and Paraguay in 1992.
- 7. Partners in project planning and implementation** The Bank is working together with regional and international agencies, for example UNDP. The Bank makes agreements with CEPIS and PAHO to support the projects in the field and among the international agencies, with the World Bank.

8. Overview of promising approaches in water resource projects

- Watershed management and land rehabilitation** The Bank plays a leading role in developing new programmes/projects for watershed management and land rehabilitation in which the issue is approached in an integrated and participatory fashion. The programmes encourage soil conservation and restore quality and flow of water through a scheme for managing agricultural and forestry resources. This is accomplished through a combination of agricultural and forest management measures such as agroforestry, reforestation, extension, training and environmental education. There are programmes being developed in Bolivia, Brazil, Chile, Cost Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Jamaica, Paraguay, Uruguay and Venezuela.
- Sewage treatment project for Barbados** This project is planned to improve sanitary and environmental conditions in Bridgetown by constructing a system of wastewater collection, treatment and disposal; improve the operation and maintenance of the existing sewerage system; and enhance the financial and commercial operating efficiency of the Barbados Water Authority. Better environmental conditions should benefit the tourist industry, which is a crucial source of income to the island. The new sewerage system would also improve public health conditions of the inhabitants.
- Designing economic tools for the management of water resources in Brazil** The Bank has assisted the Government of São Paulo in instituting legislation on state water resources policy to introduce the "user pays" principle. The consultants made presentations on water-charging schemes at a formal seminar attended by representatives of business, government, academics and the general public. Together with two Bank economists they advised the local agencies to design terms of reference for an international consultant to investigate financial and environmental impacts of instituting a system of water extraction and effluent charges.

9. Coordination

The Bank promotes regional cooperation and is, for example, collaborating with the Latin American and Caribbean Commission on Development and Environment (LACCDE) and the Amazon Commission on Development and Environment (ACDE). The IDB provided financial support to broaden LACCDE's activities to include advising UNDP and the Bank on the implementation of Agenda 21 in the region. The Bank is also a founding member to the Committee of International Development Institutions on the Environment (CIDIE).

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UNITED NATIONS CHILDREN'S FUND

1. Administrative aid structure

UNICEF began in 1946 as the United Nations International Children's Emergency Fund, to help the children of war-devastated Europe. In the early 1950's, the General Assembly enlarged the organization's mandate to include children in the developing world. Today, UNICEF is a network of country and regional offices serving 137 countries in the developing world, supported by partner National Committees and other voluntary organizations in the industrialized world.

UNICEF is an integral part of the United Nations system, with its own Executive Board which meets once a year to establish policy, review programmes and approve budgets. Through its country offices, UNICEF cooperates with governments in their efforts to meet the needs of children. The structure of UNICEF is decentralized to a high degree and the organization has developed several low-cost programmes, managed by local beneficiaries, governments or community groups.

2. Staffing

In December 1993, UNICEF had a total staff of 6,962 people serving in 228 locations (at headquarters and regional, country and sub-offices) around the world.

Approximately 140 professional staff work in the water and environmental sanitation (WES) sector. Of these, only four WES professionals are stationed at New York headquarters and the remaining 136 or so, work directly at country level in over 95 countries. Female WES professionals made up approximately 10% in 1993 as compared to only 2% in 1991. By 1997 UNICEF aims to reduce this gender disparity by having approximately 25% female professionals employed in the sector.

At headquarters, UNICEF WES staff are responsible for developing corporate policies and strategies for the attainment of WES Mid-Decade goals, the World Summit for Children (WSC) goals, and for liaison with strategic partners.

In the 1980s UNICEF focused primarily on construction and employed mostly engineers and technicians as field staff. As a result of the lessons of the 1980s in particular, WES programme staff gradually included more social science specialists.

3. Aid policies and strategies

UNICEF's concern for children extends over the totality of the child's environment including the child's psychological development. Considering the critical point of women, both as mothers and educators and as productive members of society, the UNICEF sphere of action also includes the environment surrounding women. UNICEF believes that environmental action toward sustainable management of resources must be complemented by development action at the local level that empowers millions of

individual people to meet basic necessities of life for themselves and their children.

Water, sanitation, irrigation and environment

All UNICEF Water supply and environmental sanitation programmes work with the ultimate objective of securing child health and well-being through improvement in the physical, biological and social environment of children and their communities. This is to be achieved through UNICEF's collaboration with governments and communities to design and install appropriate wells, handpumps, protected springs and latrines, etc. It also helps teach people about hygiene and land and water management. UNICEF bases its water supply and sanitation activities on the following main objectives: tailoring of assistance to the country needs; revitalizing sanitation; emphasizing personnel and institutional development; linking water and sanitation with health; accelerating coverage rate; improving cooperation and collaboration between governments and ESAs; and monitoring of coverage.

Involving communities in the protection and enhancement of the environment

To fulfil both the "Promise to Children" and the "Promise to Earth", a Primary Environmental Care (PEC) approach is being promoted by UNICEF to ensure that communities are involved in the protection and enhancement of their environment, and in supporting their overall development. The elements of PEC are: meeting basic needs, protecting and optimally using natural resources, and empowering communities and people (especially women and the young) in order to promote environmentally sustainable livelihoods. The three problems poverty, population growth and environmental deterioration (termed PPE) form a downward spiral in which population growth fuels poverty and environmental deterioration, poverty stimulates population growth and more environmental damage, and poor environment reinforces poverty and population growth. All sectors will need to be made aware of and mobilized to reverse PPE problems, particularly through investments in health, education and family planning.

Water resources management in relation to Dublin and Rio

Agenda 21, the global blueprint for action on environment and development into the next century, contains forty chapters detailing how we must act to safeguard life on earth. Eight of these chapters are of direct importance for the WES sector. UNICEF's response to Agenda 21 is contained in the Executive Board decision 1993/14. It stressed the need for integrating PEC into UNICEF's programmes (including WES), promoting environmental education for sustainable livelihood of families (with specific focus on children and women) and building partnership with NGOs, government agencies and donors for strengthening community-based activities.

4. Intervention tools in the water sector

The following sections describe some "tools" UNICEF uses to orient policies and programmes in the assisted countries.

Policy level

The programming of UNICEF cooperation in a given country starts with the preparation of a situation analysis of children and women. Problems of children and women are analyzed, along with the structural and underlying causes, within the context of demographic, economical, socio-cultural and political setting of the country. The study also involves examination of the current status of the environment. Following the situation analysis, UNICEF undertakes a country programming exercise that entails identification of the areas of collaboration based on the convergence of government priorities and UNICEF policies, the actions of other partners, and culminates in the goals and objectives and a detailed plan of action. In addition to budgetary costs, etc., long-term environmental costs and risks and benefits of a given programme are stated.

Project level

UNICEF field staff are provided a complete package of guidelines on WES programme policies and procedures. These guidelines will be updated in late 1994 in line with the new strategy paper developed at headquarters which aims to maximize health and socio-economic benefits from WES programmes, while at the same time supporting interventions for the attainment of the Mid-Decade and WSC goals in the context of Agenda 21 and poverty alleviation. In this process as a first step a Global UNICEF WES professional meeting was held at Bangalore, India from 25-30 March 1994, with full participation from other partners in multilateral and, bilateral agencies and professional institutions, along with NGOs.

Field staff working in countries where emergencies exist are provided a special manual for appropriate interventions under such circumstances. In addition to this, over 75 percent of WES professional staff have received special training for enhanced programme planning, management, advocacy, hygiene education, monitoring and evaluation through a series of regional workshops in 1992 and 1993.

Although UNICEF country programmes are primarily responsible for the preparation of sector situation analysis and reviews, headquarters staff provide support especially at the planning and evaluation stages.

Technical assistance

UNICEF supplies low-cost technology to water supply and sanitation-related projects in the assisted countries. Such technologies cost much less per capita than the conventional water and sanitation, and the programmes can therefore provide service to much more people.

Training, research and information support

UNICEF gives support to a range of activities in the water/sanitation projects: survey and programming, including provision of advisory service and consultation with communities; training of national staff, etc. In general UNICEF tends to intervene more in human resource development activities than in technical activities. The bulk of UNICEF support in the education sector is directed to primary education and the development of action plans, curriculum reform and review, textbook and teaching aid production and

improved school management. UNICEF provides basic education for children as well as for adults. It promotes health, hygiene and nutrition in schools. Moreover, UNICEF and WHO have initiated a joint monitoring programme (JMP) to help governments strengthen the water and sanitation sector monitoring at the country level, and thereby improve data quality, make better use of such data for advocacy, and also enhance data analysis and reporting at regional and global levels. UNICEF has also developed a training package consisting of eight modules comprising: capacity building; integration of water, sanitation and hygiene education; technical options; community management; improved inter-sectoral linkages; hygiene education; sanitation; and mobilizing support. The training is conducted via regional workshops. Training of UNICEF staff also has high priority and comprises general subjects such as negotiating skills as well as specific training for UNICEF representatives in how to deal with inter-agency issues.

5. Volume and share of aid resources

In 1992 the total expenditure of UNICEF was US\$ 922 million. The water supply and sanitation sector received US\$ 84 million in 1992 and was the fourth largest recipient of aid after child health, emergency relief and planning and project support. Of this amount approximately 20% was spent on hygiene education and environmental sanitation promotion and the remainder went to water supplies and capacity building both at national and community level for enhanced sector planning, management and the operation and maintenance services.

Although between 1988 and 1992 allocation to WES dropped from 17 to 11 percent, actual expenditures rose from US\$ 69 million to US\$ 84 million. More importantly, in recent years UNICEF's assistance to children and their families in emergencies (armed conflict and natural disasters) has risen dramatically. In 1992, emergency expenditures reached 22 percent of UNICEF's annual budget, of which the water and sanitation component was an important part. In 1994 the WES component already comprises a total 21% of appeals for emergency countries.

6. Countries where aid is concentrated

UNICEF WES assistance is provided almost entirely to areas that are unserved and low-income populations. In 1992 UNICEF cooperated in 127 countries: 44 in Sub-Saharan Africa; 34 in Asia; 35 in Latin America; and 14 in the Middle East and North Africa.

Key countries supported for water-related projects include: Angola, Benin, Bolivia, Brazil, Burkina Faso, Cambodia, Central African Republic, China, Egypt, Ethiopia, Ghana, Guatemala, Honduras, India, Indonesia, Iraq, Kenya, Laos, Madagascar, Mexico, Mozambique, Myanmar, Nepal, Nigeria, Niger, Pakistan, Sudan, Tanzania, Uganda, Viet Nam and Yemen.

- 7. Partners in project planning and implementation** UNICEF WES cooperates with a broad range of partners. For example, UNICEF cooperates closely with governments and counterparts that are concerned with the broader interrelationships between drinking water, sanitation, education, health, nutrition and irrigation water. UNICEF also participates in the cooperative action for universal coverage of drinking water supply and sanitation together with WHO, the World Bank, UNDP, UNCTD, and other organizations. UNICEF strongly urges cooperation between other UN agencies, multi- and bilateral organizations as well as NGOs.

3. Overview of promising approaches in water resource projects

Integrated water resources management in India (Jbabua District) The strategies used in the integrated water resources management and guinea worm eradication programme are a model for addressing environmental rehabilitation jointly with health improvement. It includes poverty reduction, eco-restoration, women's participation and inter-sectoral coordination in a programme strongly devoted to community participation in planning, a deliberate emphasis on the involvement of women, health education, and the provision of protected water sources. This has led to a recharge of the natural aquifer, increased irrigation, productivity and income as well as the complete eradication of guinea worm in the District.

Community managed low-cost water supply system in Sudan (Kordofan State) Environmentally sustainable, low-cost systems of water supply, operated and maintained by communities themselves, are being combined with sanitation activities, hygiene education and in some cases with community sensitization to environmental issues and the establishment of vegetable and shade or fruit tree nurseries. Communities deciding to participate commit to sharing costs, committees and electing men and women to be trained in programmatic technical and social skills. Community ownership, control and sustainability brings much needed hope to Sudan as one of the countries in the Middle East and North Africa requiring large-scale special attention to meet and move beyond Mid-Decade Goals.

Demand-driven water supply in Honduras (Tegucigalpa) With guidance from UNICEF, community management has become the winning strategy in the joint government/barrios organization's system to supply the urban poor with an affordable, safe, sufficient and sustainable water supply. Although the innovative variety of low-cost technologies combined with cost-sharing, cost-recovery and re-investment methods are essential, it is the prerequisite of community demand, involvement in hygiene and water conservation education, planning, construction, operation, administration, maintenance and monitoring that has led to the empowerment of the people to provide and manage their own water service.

Operation and maintenance through awareness raising in Bangladesh The UNICEF-promoted integrated approach to water, sanitation and hygiene is being adopted at village level, where a prerequisite for the installation of government tubewells depends on applicants contributing financially to the well and to building sanitary latrines. Technology used is socially acceptable, affordable and sound, and demand for latrine

construction, use and maintenance are advanced through awareness and mobilization by various community member advocates, increasingly women, and in a new phase, school children. Despite poverty, high population and low literacy, the strategy of partnerships with key donors, the private sector, NGOs and intergovernmentally has proven effective in meeting the Mid-Decade Goals for sanitation and in dramatically accelerating water supply coverage for the health of both the people and the environment.

*Integrated
interagency project
fighting
desertification in
Mauritania*

A low-cost, ecologically sustainable method of sand dune fixation, reforestation and maintenance of the greenbelt was undertaken with financial and supervisory support from UNICEF in order to save the water supply and village of Lewreia. Integrated within the Bamako Initiative framework, the Greenbelt Project relies on interagency, NGO and government coordination, appropriate village-level operable and maintainable technical assistance, community mobilization and training to fight desertification and save the wells, liveliness and promote the self-esteem of the people. This cost-effective alternative to digging new water wells has inspired similar projects in the area.

*Integrated water
management
project in
Madagascar*

Beginning in the classroom with nutrition education, the UNICEF-supported Fenerive-Est Project has spread to sensitized children, their parents and communities on a broad range of environmental issues. The inter-connectedness of nutrition, hygiene and health, food production and preparation, and soil conservation and water management has led to the construction of latrines, improved stoves, the promotion of market gardens, tree nurseries, seed and plant diversity, agroforestry and reforestation along with the promotion of vaccination and child spacing.

9. Coordination

A newly formed Water Supply and Sanitation Collaborative Council had its first meeting in Norway in 1992. The council comprises active sector professionals from developing countries and external support agencies including UNICEF. Its role is to provide global coordination and a forum for discussion of sector issues. UNICEF is supporting the activities of Collaborative Council in the areas of communication, information, coordination at country level, information management, sanitation and advocacy. UNICEF will organize regional meetings in Sanitation in Eastern and Southern Africa region, Western Africa region and South East Asia in Beijing during 1994 and early 1995. Similar initiatives will follow in Latin America and South Asia, also in 1995.

Countries where UNICEF jointly plans and helps develop appropriate policies and strategies with government, other donors and NGOs include Benin, China, Egypt, Ethiopia, Ghana, India, Indonesia, Myanmar, Namibia, Tanzania and Uganda.

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UNITED NATIONS DEVELOPMENT PROGRAM

1. Administrative aid structure

UNDP is represented in more than 140 countries by a Resident Representative, who in most instances coordinates all UN technical and other cooperation programmes in the country. The UNDP field offices assist the respective governments to establish the country programmes. The country programmes reflect the needs and priorities of the governments. They are the primary guides to the allocation of the indicative planning figures (IPF), i.e. the resources allocated by UNDP for the developing countries. The five regional bureaus at headquarters work in support of the field offices and coordinate the planning and major activities.

The Division for Global and Interregional Programmes (DGIP) is the venture capital arm of UNDP. It is responsible for programmes with target areas which extend beyond the countries and regions. For example, DGIP is the co-sponsor and co-financier of the UNDP/World Bank Water and Sanitation Program, active in over forty countries.

The United Nations Capital Development Fund (UNCDF) provides small grant investments primarily for the poor in the least developed countries. Water supply and sanitation and irrigation projects are a significant segment of their programme.

The Bureau for Programme Policy and Evaluation (BPPE) provides technical support to all the regional bureaus and other UNDP units. There are two specific groups within BPPE which provide technical advice in the field of water sector development. One is the Environment and Natural Resources Group; the other is the Urban Development Unit within the Public Sector Management Group.

2. Staffing

The total UNDP staff on a world-wide basis is 8000, including 1700 professionals. There are 450 professionals at headquarters. 30 % of the professional staff are women. BPPE has a full-time senior advisor dealing with water and the environment. DGIP, CDF, the regional bureau and other units have senior officers who are responsible for the water sector among other duties. Each UNDP field office has a programme officer dealing with the water sector, among other matters.

3. Aid policies and strategies

UNDP's goal is human development. Activities therefore emphasize, among other things, creation of opportunities in which people's abilities, talents and creativity can find full expression. UNDP invests in people and therefore helps countries to develop the capacity to manage their economies, fight against poverty, conserve the environment and enhance the contribution of women to society, to mention a few issues. UNDP also builds partnerships to foster development as well as forges alliances with people and governments of developing countries, with donor communities, with specialized agencies, with non-governmental organizations and private

institutions. In general UNDP is currently sharpening its focus to concentrate more on sustainable human development including governance, poverty and equity, environment and natural resource management.

*Water, sanitation,
irrigation and
environment*

UNDP-supported projects in the water sector fall in the following categories:

- water sector planning;
- groundwater exploration;
- water supply and sanitation;
- irrigation and drainage;
- international waters, including lakes, institution building for coastal zone management or lake restoration;
- rivers and watersheds: watershed management, pollution control, environmental impact analyses in connection with major new construction, and the reversal of adverse land use practices.

Most projects have a component dealing with institution building and training. UNDP has adopted the following approach to "upstream" water sector development, translated into the following four inter-related global programmes supported by UNDP's Interregional Programme and partner agencies:

- the UNDP/World Bank Water and Sanitation Program, supported by ten bilateral agencies. The programme was initiated in 1978 and developed into a global effort in the 1980s. Its activities are concentrated on capacity building and supporting sustainable investments in low-cost community-based water and sanitation. The programme is extensively involved in 12 to 15 countries and involved to a lesser extent in about 25 countries.
- the International Programme for Training and Research on Irrigation and Drainage, supported by UNDP, the World Bank and bilateral partners;
- the Utility Partnership, which concentrates on Capacity Building for Urban Water and Sanitation Utilities and was initiated by UNDP and the World Bank. The focus is upon improvement of efficiency of utilities and water conservation/demand management; and
- the Capacity Building Programme for Water Sector Development (see further Section 8).

These four programmes are prime factors in shaping "downstream" programmes supported by UNDP and other external support agencies at the country level. Under the umbrella of capacity building, UNDP will devote increased attention to the following approaches. First, in terms of financing, greater efficiency should be combined with mobilization of additional resources. Second, new public-private partnerships are vital for sustaining water sector programmes. Third, there is a need for concrete coordination

among all participants in this effort both nationally and internationally. Indeed, much money can be saved by avoiding duplicate efforts and applying proven solutions. Fourth, innovation is essential: fresh ideas, imaginative approaches, appropriate technologies and new attitudes. In this connection, a wide array of technologies and methodologies are available for testing, adaptation and adoption. And finally, strengthening and adaptation of institutions is required at all levels, as well as human resources development, within developing countries and the external support agencies.

Water resources management in relation to Dublin and Rio

Water resources management is part of "environmental and natural resource management" which is one of the six themes selected by the UNDP Governing Council (decision 90/34) in support of building national capacity for human development.

In terms of allocation of human and financial resources UNDP supports technical cooperation programmes at the country, regional, interregional and global levels. Over the past years UNDP has supported and is still supporting many projects related to water resources management, e.g. water master plans, sector strategies for water supply and sanitation, sector strategies for irrigation, water exploration projects, pilot and demonstration projects, and training projects. These projects reflect national priorities as set by the governments. At the regional level (e.g. Latin America, Africa, Asia) similar types of projects have been supported and are still being supported in the same areas except that the emphasis is on strengthening regional cooperation and institution building. Cross-boundary river and lake basin projects are also being supported.

At the interregional level UNDP is supporting "upstream" water sector development programmes. The programmes mentioned in Section 3 are examples of innovative approaches in the field of water and sanitation, irrigation and drainage, urban water and sewage and water sector capacity building. These programmes were already under way before Dublin and Rio and their direction clearly reflects the recommendations of these two conferences.

4. Intervention tools in the water sector

The following sections describe some "tools" UNDP uses to orient policies and programmes in the assisted countries.

Policy level

UNDP-supported programmes and projects reflect national and international priorities, as determined by national governments and the UNDP Governing Council (since 1994 the Executive Board). At the country level, the UNDP Resident Representative, jointly with the foreign aid coordinating government agency, technical ministries and other bodies, prepares a multi-year country programme outlining the technical cooperation projects supported by UNDP, the UN specialized agencies and,

in many cases, other ESAs. As a result of UNCED many countries have prepared or are preparing action plans dealing with environment and development. The UNDP-managed Capacity 21 programme supports an increasing number of countries in this planning process.

Project level

The Office of the Resident Representative actively participates in the identification, formulation, appraisal, monitoring and evaluation of projects. In this process the Office uses generic guidelines on the project cycle, technical notes, and, increasingly the principles and recommendations emanating from the New Delhi, Dublin, Delft and Rio conferences. The outcome of these conferences have all been communicated to the UNDP Resident Representatives to serve as guidance for technical cooperation projects.

Technical assistance

UNDP resources are primarily used to support technical cooperation programmes.

Training, research and information support

The four global programmes mentioned in Section 8 focus on applied research, capacity building, large-scale demonstration projects and technical support to government projects funded by the World Bank, UNDP and other ESAs. A field office training programme which uses tools developed at UNDP headquarters for handling the environmental issues in the projects (ref. "Handbook and Guidelines for Environmental Management and Sustainable Management" Environment and Natural Resources Group, UNDP, 1992) is currently under way. The guidelines are generic and not specific to water. Training courses have so far been given for 80 field offices as well as for headquarters. Virtually, all UNDP-supported projects have a training component. Generally speaking, information support could stand improvement.

5. Volume and share of aid resources

In 1991 UNDP financed more than 630 environment-related projects at a cost of US\$ 700 million. In 1991 UNDP financed projects concerned with protection of international water for about US\$ 36 million: Africa US\$ 16 million, Arab States and Europe US\$ 9 million, Asia and the Pacific US\$ 8 million and Interregional US\$ 3 million.

An estimate of UNDP cost-sharing resources allocated to currently operational water sector programmes and projects according to the four areas mentioned below is as follows:

<i>Sector</i>	<i>UNDP IPF</i>	<i>Cost-Sharing from ESAs</i>	<i>Total</i>
Water Supply and Sanitation	104.603,483	45.062,715	149.666,178
Water Resources Planning and Development	119.058,710	13.856,495	132.915,205
Irrigation and Drainage	311.327,174	52.942,129	364.269,303
Hydro-Electric Power	24.888,985	4.841,962	29.728,947
Total	559.878,332	116.703,301	676.579,633

6. Countries where aid is concentrated

Although the largest share of UNDP resources go to the least developed countries (currently 52), UNDP is active in all developing countries. Water sector projects are concentrated in 95 countries.

7. Partners in project planning and implementation

The principal partners of UNDP are the government coordinating and technical ministries, institutes, universities, municipalities and other state and parastatal agencies. Increasingly UNDP is working with national non-governmental organizations (NGOs) which are active at grassroots and intermediary levels in rural and urban areas.

At the international level UNDP's principal partners are WHO, UNICEF, FAO, UNESCO, UNDDSMS (UN Water Branch), the World Bank, regional development banks, bilateral and non-governmental organizations including the IRC International Water and Sanitation Centre and foundations. At the interregional level UNDP is co-sponsor of multi-donor partnerships such as the UNDP/World Bank Water and Sanitation Program and others.

8. Examples of promising approaches in water resources projects

The capacity-building programme for water sector development

This programme emerged from the Delft Symposium (June, 1991) and is currently being initiated by UNDP, UNDDSMS (UN Water Branch) and the World Bank. It places capacity building squarely among the financial, technical, social and economic elements of water sector programmes. To enhance the capacity-building process in developing countries, water sector assessments are undertaken as a necessary first step. Among the subjects to be covered are:

- context: social, economic and environmental development objectives;
- water resources in the area, including the impacts of pollution;
- needs for water for agriculture, industry and water supply and sanitation as well as needs for sewerage and wastewater treatment in urban areas;

-
- facilities available for providing WSS and agricultural irrigation as well as other water-related activities;
 - policy climate;
 - institutional resources at national, regional and community levels;
 - the need for human resources and facilities available for their development;
 - legal and regulatory tools and constraints;
 - the financial situation with regard to capital and operations and maintenance requirements for water supply and irrigation, including the potential for pricing and cost-recovery; and
 - identification and solicitation of ESAs that are likely sources of technical and financial assistance.

The initiative for capacity building in the water sector in countries must come from within the countries, as investments in the sector are not likely to be sustained if the countries themselves are not fully committed to capacity building at all appropriate levels, from the government ministries to the urban and rural communities. The expected outputs of the project are 1. a process of capacity building initiated by water sector assessments in 20 countries located in Asia, Africa and Latin America; and 2. a nucleus in each country of officials and specialists trained and committed to sustainable water sector development.

*Sustainable
Development
Network (SDN)*

UNDP launched this programme in 1991 to provide an access to information systems via computer communication networks which are being installed in over 12 developing countries where UNDP has offices. The SDN builds country capacities to access and manage information on sustainable development. The SDN focuses on issues such as natural resources management, urban and industrial programmes, environmental education and development policies.

*A regional network
centre*

This centre is hosted by the African Medical Research Foundation (AMREF) in Nairobi. The centre works with local trainers from Kenya, Ethiopia, Somalia, Sudan, Tanzania and Uganda in promoting low-cost water supply and sanitation services. The programme is jointly supported by the Swiss Development Cooperation and GTZ. Training workshops on environmental health, water resources management, women and VIP latrines are among the issues included.

*Regional Water
and Sanitation
Groups*

These groups have been set up in Abidjan (Ivory Coast), Nairobi, (Kenya), New Delhi (India), Jakarta (Indonesia), and Guatemala to work with governments and ESAs to develop sound sector policy frameworks, support applied research and demonstration projects, and identify and prepare investment projects for funding by external support agencies. Over forty governments are being assisted by the Regional Water and Sanitation Groups.

9. Coordination

At the country level, the UNDP Resident Representative is - in most cases - also the Resident Coordinator of the operational development activities of the UN system. Although, as a matter of principle, governments are responsible for coordination of development cooperation programmes and projects, in many cases the UNDP office plays an active role in this process. UNDP supported water-sector development programmes and projects are tailor-made through discussions with the government ministries concerned such as - depending on the case - ministries/authorities/agencies responsible for planning, finance, water resources, environment, public works, irrigation/drainage, health, water supply and sanitation, social affairs, community participation, local government. In many countries, UNDP participates in informal ESA meetings. During the UN International Drinking Water Supply and Sanitation Decade (1980-90) UNDP chaired the UN Inter-Agency Steering Committee for Cooperative Action and coordinated water and sanitation activities at the country level. In the absence of a "Water Decade" for the nineties, coordination at the country level depends on the interest and dynamism of the UNDP office, government and the ESAs.

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WORLD BANK

1. Administrative aid structure

The World Bank Group consists of the International Bank of Reconstruction and Development (IBRD), the International Finance Corporation (IFC), the International Development Association (IDA), the Multilateral Investment Guarantee Agency (MIGA), and the International Center for Settlement of Investment Disputes (ICSID). They are inter-governmental organizations. The Board of Governors of the Bank consists of a Governor and Alternate Governor appointed by each member country. Each Governor and Alternate Governor of the Bank serves *ex officio* as Governor and Alternate in IDA and IFC. The Council of Governors of MIGA consists of a Governor and Alternate appointed by each member country. ICSID is administered by an Administrative Council made up of one representative for each member country and chaired by the President of the Bank, and its Secretary General.

All of the powers of the Bank, IDA and IFC are vested in their Board of Governors and in MIGA, in its Council of Governors. With the exception of certain powers, which are reserved for the Board (and Council) of Governor, the Governors have delegated all their powers to the Board of Executive Directors. This Board is responsible for overall policy direction of the Bank, and the conduct of its general operations. The Board also approves all loans, credits and investment proposals.

There are six regions dedicated to helping the Bank's borrowing member countries achieve sustainable development. The regions are: Africa, East Asia and Pacific, South Asia, Europe and Central Asia, Middle East and North Africa, and Latin America and the Caribbean. Within the regions, the Regional Vice President (RVP) ensures consistency with the Bank's objectives, sectoral and operational policies and procedures and agreed country lending strategies. Reporting to the RVP is a front office staff, between two and six Country Department (CD) Directors and a Technical Department (TD) Director (in four regions the Technical Department is a shared resource).

Regional managements maintain an ongoing dialogue with the Vice Presidencies for Environmentally Sustainable Development (ESD), Finance and Private Sector Development (FPD), Human Resources Development and Operations Policy (HRO), and Development Economics (DEC) to promote the Bank's mission. The ESD Vice Presidency supports regionally managed operations in agriculture and natural resources, the environment, and transportation, water and sanitation, and urban development. In addition to operational support and advice, ESD develops, disseminates, and monitors the effectiveness of policies in these areas, and identifies and disseminates best practices within and beyond the Bank.

To increase the Bank's ability to provide assistance, the Bank has established resident missions in several developing countries. Resident missions report to the regional offices responsible for their geographical area of operation.

2. Staffing

In 1993 the World Bank had a staff of 6,197 members, of whom 4,005 were higher-level staff. Women employed as higher-level staff totalled 28.4%. The Bank staff are involved in all types of water resources projects, e.g. irrigation and drainage, hydropower, water supply and sewerage.

At the operational level, the Bank has the following water-related staff functions: environmental engineer, environmental specialist, irrigation engineer, municipal engineer, natural resources specialist, sanitation engineer, water resources specialist, water resources management specialist, and water resources institution specialist. These technical specialists are involved in missions and technical analysis; design of technical assistance interventions, including training programmes; loan negotiations; act as a technical advisor to borrowers and Bank staff; play a lead role in new operations and sectoral reforms; and help to develop and implement sector strategy and in-country specific policy work.

The Bank continues to strengthen its capacity to help borrower countries in carrying out sound water resources policies. Recently, the Bank has reviewed its skill-mix, and has identified the skills needed in each subsector. In the water and sanitation subsector, for example, there is a consensus that the critical skills are less in engineering and accounting, but rather for forming regulatory frameworks and developing policies based upon sound environmental and economic practices.

3. Aid policies and strategies

General objective

The objective of the World Bank is to facilitate the transfer of capital and technical assistance from developed countries to developing countries in order to promote economic and social progress. Its interrelated functions are: (i) to lend funds; (ii) to provide advice and technical assistance; and (iii) to serve as catalyst to stimulate investment in developing countries.

General policy

The Bank's policy is as follows: (i) Bank-financed projects should assist governments to move specific economic sectors towards more efficient and relevant national development goals; (ii) loan decisions are based on economic rather than political criteria; and (iii) loans should be linked with long-term growth and improvement.

Water resources management policy

During 1993, the Bank prepared a policy paper on water resources management that was subsequently endorsed by the institution's Executive Directors. The paper addresses both water conservation and water quality issues and builds on the lessons of past Bank experience.

The policy paper calls for the adoption of a comprehensive analytical framework for water resources management that treats water as an economic good; decentralized management and delivery structure; reforms to institutional and regulatory systems; greater reliance on incentives for efficiency and financial discipline; and fuller participation by stakeholders in influencing policy formulation, design alternatives, investment choices, and management decisions affecting communities. The approach is consistent with the "Dublin Statement" from the International Conference on Water and the Environment in 1992 and the "Agenda 21" of the United Nations Conference on Environment and Development.

4. Intervention tools in the water sector

The following sections describe some "tools" The World Bank uses to orient policies and programmes in the assisted countries.

Policy level

As stated before, the Water Policy Paper on Water Resources Management concerned the Bank's role in the water sector. The Operational Policy No. 4.07 on Water Resources Management released last July provides general guidelines on the areas in which the Bank can assist borrower countries. These areas are: (i) developing a comprehensive framework for designing water resources investments, policies and institutions to ensure that cross-sectoral impacts are being considered; (ii) adopting pricing and incentive policies that achieve cost recovery, water conservation and better allocation of water resources; (iii) decentralizing water service delivery, involving users in planning and managing water projects, and encouraging stakeholders to contribute to policy formulation; (iv) restoring and preserving aquatic ecosystems and guarding against over-exploitation of groundwater resources; (v) avoiding water logging and salinity problems, associated with irrigation investment; and (vi) establishing strong legal and regulatory frameworks to ensure that social concerns are met, environmental resources are protected, and monopoly pricing is prevented.

The Bank gives priority to countries where water is scarce or where there are serious water allocation, service efficiency, or environmental problems. In these countries, through its economic and sector work, lending and participation in international initiatives, the Bank is seeking to promote policy reforms, institutional adoption and capacity building, environmental protection and restoration, and, when requested, cooperation in the management of international water courses. The Bank also incorporates water resources policy and management issues in its country policy dialogues and in the formulation of country assistance strategies where water issues are deemed to be of significance.

Since the Bank's country departments are not water-sector specific, some of them have developed mechanisms to ensure consistency in water resources policies by forming informal country-based working groups as now exist for India, Indonesia and Peru. The essential aim is to create a

mechanism for reviewing all water resources initiatives, specially at the stage of conceptualization and project formulation, to ensure consistency and avoid subsequent conflicting demands and problems.

At the central level, the Water Resources Thematic Team within the Environmentally Sustainable Development Vice Presidency acts as a catalyst to implement the Bank's Water Resources Policy. This group supports the country departments efforts to this end at all stages of the project cycle, as well as in country and economic work. A close collaboration with managers and members of countries as well as sector teams is emerging in a policy dialogue with officials in the field of water resources management, and in the identification of pilot scale and/or investment possibilities as free-standing operations or integral components of other suitable projects, e.g., water and sanitation, pollution control, and environment.

Project level

The main Bank interventions within the water sector at the regional level include: (i) financing investment operations, which include individual mode or "routine" projects that follow up previous work; (ii) financing restructuring operations, which include projects where the main focus is sector restructuring and private sector development; (iii) sector work, which includes identification of sector issues and strategies to meet them; (iv) sector operations, which include multi-modal projects that meet sector development criteria normally following a sector study; and (v) project supervision, which includes follow-up actions on project execution according to agreed implementation criteria.

It is envisaged that the application of the Bank's Water Resources Policy would result in more effective industrial pollution control and groundwater protection from industrial effluents; more efficient and accessible water service delivery and sewage collection, treatment and disposal; modernization of irrigation practices, such as greater attention to cost recovery, drainage, salinity control, and investments in small-scale irrigation; and improvements to the environment and reduction of poverty.

A new approach being undertaken by the Bank as a whole, and in the water sector in particular, is the "structured learning" process, which allows a particular project to adjust its programme as experience with that project accumulates and feeds back the lessons of experience into the design of new projects. Staff from the Environmentally Sustainable Development Vice Presidency are working closely with staff from country departments on incorporating the "structured learning" approach into the design and execution of water-related projects.

Technical assistance

The Bank has long recognized that lending for investment is a necessary but not sufficient condition for development. Thus, it is the Bank's policy to finance complementary technical assistance to ensure that: (i) lending operations are properly designed, prepared and implemented; (ii) analytical work necessary to underpin reform or policy development is undertaken; and (iii) countries can develop their human resources and their institutional capacity for policy improvement and sustainable development.

Technical assistance is classified by types of outcome: (i) policy support, which facilitates one or more phases of the policy cycle for policy lending and Bank country economic and sector work; (ii) project preparation and implementation support, which facilitates one or more phases of the project cycle for investment projects or programmes; and (iii) institutional development or capacity building, which builds sustainable domestic capacity either within targeted institutions or on a national, regional, sectoral, multi-sectoral, or functional level.

The major share of the technical assistance financed by the Bank is either a component of a Bank-financed investment project or free-standing technical assistance. Technical assistance is financed with a Bank loan when other sources are unavailable, not suitable, or costly, and only when the borrower is fully supportive of loan financing, taking other options into account.

Training, research, and information support

The Economic Development Institute (EDI) is a department of the Bank dedicated to mobilize the knowledge and experience accumulated by the Bank, with the goal of strengthening decision-making within member countries. This purpose is fulfilled through: (i) training for people who make or influence development policy and decisions; (ii) institution building to help member countries firmly establish their own capacities in training people to make and manage policy; and (iii) publishing high quality material to support development training.

EDI has recently introduced in its activities a cross-sectoral theme on water resources management. The basic objective of the EDI's strategy in the water sector is to increase the capacity of people who make or influence policies, and to help them design and implement sustainable policies and programmes of action to manage the water sector in their countries.

EDI will pursue this objective through the implementation of a three-year programme that includes the following main activities: (i) designing and implementing national and regional programmes, including seminars covering the whole range of water sector issues, and assistance to national institutions to establish continuing training programmes; (ii) helping in the creation and operation of international networks among training and related institutions to stimulate contacts among members; and (iii) launching regional programmes to strengthen water training institutions.

5. Volume and share of aid resources

The Bank lending for water-related projects during fiscal year 1993 amounted to US\$ 2.8 billion, accounting for 12% of the total institution lending. During fiscal year 1993 the Bank lent a total of US\$ 0.9 billion for irrigation and drainage projects, US\$ 0.8 billion for hydropower and US\$ 1.2 billion for water and sanitation projects.

Lending prospects in the water sector show an ascending trend for fiscal years 1994 to 1997. The tentative lending programme for the cycle 94-98 consists of 166 projects and a total volume of US\$ 16.4 billion.

6. Countries where aid is concentrated

Any member country of IBRD or IDA is eligible for loans and credits, provided the average per capita income does not exceed the limits in effect at the time the loan or credit is made.

7. Partners in project planning and implementation

The Bank has been engaged in co-financing almost since its started activities. During fiscal years 1989 to 1993, co-financing in support of Bank operations in the water and sanitation sector, for example, was equivalent to approximately one and a half of the volume of IBRD/IDA lending. About half of the 56 operations were co-financing activities. The Bank seeks co-financing for two reasons: (i) to fill a financial gap in particular project or to increase the available financing in order to expand the project scope; and (ii) the desire to establish common policies and/or investment priorities among donors at the project and sector level and thus improve policy coordination.

Co-financing with external support agencies has provided a means for establishing collaborative arrangements among the donor community. This has led to joint activities at all levels, including economic and sector work, project identification and appraisal, technical assistance as well as policy dialogue.

8. Review of promising approaches in water resources projects

Water resources development in Algeria

The Bank will provide assistance to the Government of Algeria in implementing demand management of water in urban areas and support the development of integrated land and water management. While it is presumed that management integration is workable at the national level through planned dialogue between the Ministry of Equipment, the Ministry of Agriculture, and the Ministry of Interior and Local Government, at the local level this might be more difficult to accomplish under the present institutional arrangements. To remedy this situation, the proposed strategy includes the establishment of environmental management offices in the hydrographic regions of Algeria. These offices would be responsible for maintaining environmental quality in the country. The planned investment programme includes construction of a large number of waterworks. An action programme would have to be implemented to monitor the effects and mitigate the negative ones of these waterworks.

*Yangtze basin
water resources
project in China*

This project aims at strengthening water resources institutions and the capabilities of the Water Conservancy Bureau and the water resources sector. A comprehensive approach to water resources planning and development will be emphasized. Training, information systems development, improvement of operation and maintenance, research studies and technical assistance are activities planned for the project.

*Water resources
management
project in Chile*

This planned project will help making the government's new water resources management policies operational. The main objectives are to support the government's river basin management initiative, contributing to the more rational use of water resources and establishing a regulatory framework for resolving conflicts with respect to the use of the resources. Moreover investments will also be made in watershed protection and wastewater treatment to help reduce the level of water pollution and the prevalence of water-borne diseases.

*Water pollution
control in Brazil*

This project will coordinate private and public sector actors effecting pollution control in urbanized river basins. The organizations involved range from community organizations contributing to plans for slum upgrading to state agencies formulating pollution control policy in Brazil.

*National
Environmental
Action Plan (NEAP)*

NEAP provides a framework for integrating environmental issues in a country's economic and social development. NEAP is prepared by each country in coordination with the external support agency. A NEAP secretariat has been established in the African Development Bank in Abidjan with World Bank and other support. The secretariat draws on the skills of regional professional experienced in the NEAP process to provide training and technical assistance to the countries that are just starting the NEAP process.

9. Coordination

The Bank's relationship with key agencies and organizations, including non-government organizations, has expanded in depth and magnitude in recent years. This relation in the water sector is being manifested at the policy level and through Bank-supported lending operations. At the policy level, different donors and NGOs have participated in the Bank's efforts that led to the adoption of the water policy in water resources management. At the lending level, as stated above, co-financing has provided a means for establishing collaborative arrangement among external support agencies

At present the Bank is building partnerships with governments, NGOs, external support agencies and other organizations in a group of focus countries to stimulate large-scale sector development initiatives.

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WORLD METEOROLOGICAL ORGANIZATION

1. Administrative aid structure

The World Meteorological Organization (WMO) is an intergovernmental organization and specialized agency of the United Nations. While working closely with the UN, it is independent, with its own governing body which sets policy guidelines for its activities and with its own budget provided by its members.

The World Meteorological Congress is the supreme body of the Organization which brings together the delegates of members once every four years to, among other issues, determine general policies for the fulfilment of the purposes of the Organization and to approve long-term plans. The Executive Council is composed of 36 directors of national Meteorological or Hydrometeorological Services. It meets at least once a year to review the activities of the Organization and to implement the programmes approved by the Congress. The six Regional Associations (Africa, Asia, South-America, North and Central America, South-West Pacific and Europe) are composed of Member governments and are coordinating meteorological and related activities within their respective regions. Eight Technical Commissions, composed of experts designated by the members, act on matters within their specific areas of competence. The Secretariat is headed by the Secretary-General and serves as the administration, documentation and information centre of the Organization. It prepares, edits and produces publications of the Organization and carries out the duties specified in the WMO Convention. Operational systems and networks are composed of national facilities owned and operated by individual countries which are members of WMO. The WMO Hydrology and Water Resource Programme (HWRP) focusses on the interests of the Hydrological Services of the member countries and is guided by the Organization's Commission for Hydrology.

2. Staffing

In 1990 WMO had in total 296 staff members, of which 122 were professional staff. There are two main departments of WMO which deal with development cooperation issues in the water sector. The technical Cooperation Department (TCO) has 17 professional male staff who provide advice, develop projects and implement funded projects pertaining to strengthening of meteorological and hydrological services of Members. About two-fifths of the projects concern water resources assessment and hydrological forecasting. Most of the TCO staff have meteorological/hydrological backgrounds. In the water sector technical and scientific support to TCO is provided by the Hydrology and Water Resources Department, staffed by 9 professional water resources engineers or hydrologists (all male) with varying backgrounds such as civil engineering, geography, agricultural engineering, hydrogeology and remote sensing.

3. Aid policies and strategies

The purpose of WMO's activities is among others: to facilitate world-wide cooperation in the establishment of networks of stations for making meteorological and hydrological observations; promote establishment of systems for rapid exchange of information; application of meteorology and hydrology to socio-economic sectors; and encourage research and training.

Water, sanitation, irrigation and environment

WMO recognizes the challenge of the need of water supply in the growing megacities of the world and in agricultural regions and its interdisciplinary character. The fact that pollution is decreasing the availability of freshwater, makes it even more important for the world's population to have reliable and precise knowledge of water resources and to be able to call on hydrological services to acquire this knowledge.

Water resources management in relation to Dublin and Rio

The overall objective of WMO's Hydrology and Water Resources Programme for the Decade 1992-2001 is "To ensure the assessment and forecasting of the quantity and quality of water resources, in order to meet the needs of all sectors of society, to enable mitigation of water-related hazards, and to maintain or enhance the condition of the global environment". This Plan takes into account four major considerations which were foreshadowed in the Second Long-Term Plan, but which have become increasingly important to decision-makers: urbanization; climate change; protection of the environment; and disaster reduction.

4. Intervention tools in the water sector

The following sections describe some "tools" WMO uses to orient policies and programmes in the assisted countries.

Policy level

Policy guidelines for water projects, among others, are developed by the WMO Members in the Congress held every fourth year. The policies are put into action and reviewed by the Executive Council, which meets once a year. The Members of WMO have developed a Third Long-term Plan (1992-2001), which takes into account recent shifts in emphasis towards the study of surface and groundwater quality, and the operational hydrology of urban areas, lakes and reservoirs. It also includes the development of geographical information systems (GIS) and studies in response to the accidental release of hazardous pollutants.

Project level

Projects are implemented, reviewed and evaluated according to strict procedures, based on those of UNDP and other funding sources. The projects, however, are based on discussions between WMO, the country concerned and the funding agency where they exchange information on priorities and needs, in order to come to an agreement on how to proceed. These discussions are held at least once a year.

Technical assistance

WMO provides experts to work with developing country weather and water services to upgrade their technology and expertise, and develop their capabilities and self-reliance to the point where efficient hydrological and

meteorological services can contribute effectively to economic and social development. Presently there are three major sources of support: the United Nations Development Programme (UNDP); WMO's Voluntary Co-operation Programme (VCP) where individual countries request assistance of various types and individual donors agree to support the requests that they are willing to fund (the VCP includes support to hydrology and water resources activities); and the Trust Fund arrangements, by means of which assistance is provided by donor countries to specific projects.

Technical assistance at a lower level but no less important is channelled through the Hydrological Operational Multipurpose System (HOMS) which is a technology transfer system for operational hydrology, established in 1981. Its aim is to assist hydrologists, primarily in developing countries, by making technology available to them in order to solve their problems. This technology is provided largely but not exclusively by developed countries. The technology available is presented in over 400 "components" - computer software, technical and general guidance manuals, and instrument descriptions, covering much of operational hydrology and many aspects of water resources development. Between 1981 and mid-1994, over 3100 requests for the transfer of components were recorded by WMO, coming from 94 countries and 14 international organizations. HOMS is a cooperative effort of the Member countries. Secretariat support is provided by the HOMS Office. Countries that wish to participate in HOMS designate a HOMS National Reference Centre (HNRC) and 114 countries have done so to date. HNRCs in developing countries tend to coordinate requests for the transfer of technology while those in developed countries more usually make national technology available to users in countries which make requests for transfers.

*Training, research
and information
support*

The Technical Cooperation Programme provides assistance to developing countries through systematic transfer of meteorological and hydrological knowledge and information. The network of WMO regional Meteorological Training Centres (RMTCs) provides education and training in meteorology and operational hydrology. Through UNESCO's International Hydrological Programme various education programmes on water are offered. WMO supports the presentation of subjects on operational hydrology at UNESCO-sponsored courses and sees UNESCO, and other international organizations, as natural partners in any international training activities. WMO gives scholarships to students for participating in university meteorological and hydrological courses. Regional research centres have been established by WMO, such as the African Centre of Meteorological Application for Development (ACMAD) in Niger. The Operational Hydrology Programme (OHP) provides the basis and framework for the majority of the scientific and technical aspects of WMO activities in operational hydrology. The OHP - Basic Systems covers the collection, transmission and storage of data, HOMS and manpower development.

5. Volume and share of aid resources

In 1992 WMO spent approximately US\$ 37 million on its regular programmes. 4,7% of the total amount was accounted for by the HWRP. Technical assistance given in 1992 with funds from UNDP, VCP, Trust Fund arrangements and the WMO regular budget amounted to US\$ 24,8 million. Of this, about US\$ 10 million (40,3%) was spent on water resources assessment and management and on hydrological forecasting.

The objectives and activities which constitute the HWRP call for a commitment of resources at international level which are beyond those regularly funded by the WMO Congress. Experience has shown that the Programme depends for much of its success on extra-budgetary resources put at the disposal of the Organization by the individual Members, or by other international agencies.

6. Countries where aid is concentrated

Using its regional association working groups on Hydrology, WMO assists water resources projects and related activities mainly in Africa, Asia and Latin America. Recently, Eastern Europe and Central Asia have attracted considerable attention.

Countries that have been or are being supported recently with water resources activities are the following: Bangladesh, Papua New Guinea, Indonesia, Malawi, Niger basin countries, Kenya, Central African Republic, Morocco, Colombia, Brazil, Venezuela and Albania.

7. Partners in project planning and implementation

WMO is working closely with a number of UN organizations, such as UNEP on the Intergovernmental Panel on Climate Change and with UNESCO in the field of water resources assessment. UNDP is developing projects together with WMO in several countries. Bilateral organizations are other partners like FINNIDA's involvement in the Sudan Meteorological support programme.

8. Overview of promising approaches in water resource projects

The African Centre of Meteorological Applications for Development (ACMAD)

ACMAD is the result of an African initiative receiving support from WMO and several other partners. France, Belgium, United Kingdom and China are expected to contribute to the Centre and Canada, Finland, Norway, USA, Italy, Japan and the EU are considering participating. The Centre is involved in research, coordination, training and data base development. The Centre is based in Niamey, Niger, and will provide services, on meteorological applications for development, to projects in the region.

Data centre with information on estimations of water availability

WMO has established a Global Runoff Data Centre together with the Federal Institute of Hydrology at Koblenz, Germany. This Centre is supported by the German government and compiles selected runoff data from 1200 stations in some 67 countries to provide regional, continental and global estimates of water availability. It started fifteen years ago as a data collection project for a specific two years period, to confirm the validity

of runoff data estimations from global computer models. Because of the very good response, the programme was extended and now data are being collected continuously and made available for a broad range of global and regional studies. The Centre currently has a steering committee in which WMO, UNESCO, WHO and UNEP participate.

*Forecasting
information system
on water levels*

A real-time river forecasting system based on an automatic telemetry system and a hydrodynamic model was recently developed and made operational in Bangladesh. This system helps the Bangladesh Water Development Board to predict the behaviour of rivers and reduce loss of life and property damage caused by flooding. The risk of water pollution for water users and the natural environment is also reduced. The system covers a number of main rivers but the ultimate aim is also to include smaller rivers.

*National watershed
programme in
Brazil*

Currently the Brazilian Ministry of Environment is assisted by WMO to implement a nation-wide programme focussing particularly on pollution caused by mining activities in the Brazilian watersheds. The programme, funded by the Brazilian government, has initiated the monitoring of watersheds in the state of Rio de Janeiro which is facing considerable pollution problems resulting from mining activities. Monitoring stations are being established to collect data on water quantity and water quality through satellite linked stations. The long-term goal is to expand the programme also to other parts of the country.

*Strengthening of
water resources
assessment and
management*

In 1993 a three year UNDP-funded programme was completed to build up the overall capacity of Water Resources Bureau of Papua New Guinea. A large number of personnel were trained at various levels, a computerized data base was set up on water quantity and quality, watershed management studies were undertaken to evaluate the impact of land use and pollution from mining and a pilot satellite-based telemetry station was installed at a remote site.

9. Coordination

As a follow-up to the UN Conference on Environment and Development, WMO takes the lead, jointly with UNESCO, in international activities relating to water-resources assessment, as regards surface and groundwater resources and deals both with their quantity and quality. Much of WMO's efforts to develop new technologies are coordinated with the International Hydrological Programme (IHP) of UNESCO. WMO and UNESCO work closely together on the aspects of water resource assessment and have published a water resource assessment manual. Other UN institutions WMO is cooperating with are WHO, FAO and IAEA.

WMO with its Member countries provide standard procedures for regular sampling and field tests for monitoring of water quality and has encouraged the use of those methods by water agencies in cooperation with national health organizations. In this way governmental savings can be made as one water agency undertakes both field measurements of water quantity and sampling for water quality determinations.

WMO's long-term plan contains areas of coordinated activities where greater effort has been called for, such as contributions to the hydrological aspects of the UN International Decade of Natural Disaster Reduction (IDNDR) (1990-2000) and the follow up to the International Drinking Water Supply and Sanitation Decade (IDWSSD) (1981-1990).

Coordination of inter-agency activities in the water field is reviewed periodically by the Economic and Social Council (ECOSOC) of the UN and its Committee on Natural Resources. Collaboration with a number of non-governmental organizations, such as the International Association for Hydrological Sciences (IAHS) is also regarded as being very effective.

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Activities of the United Nations system in water resources

Twenty-one Organizations within the United Nations system, including the regional commissions, are active, to various degrees and through various means, in the field of water resources.

United Nations

United Nations Secretariat, Department of Economic and Social Development

United Nations Children's Funds (UNICEF)

United Nations Development Programme (UNDP)

United Nations Environment Programme (UNEP)

United Nations University (UNU), Programme on Natural Resources in Africa

Economic Commission for Africa (ECA)

Economic Commission for Europe (ECE)

Economic Commission for Latin America and the Caribbean (ECLAC)

Economic and Social Commission for Asia and the Pacific (ESCAP)

Economic and Social Commission for Western Asia (ESCWA)

United Nations Centre for Human Settlements (HABITAT)

Office of the United Nations Disaster Relief Coordinator (UNDr.O)

International Research and Training Institute for the Advancement of Women (INSTRAW)

World Food Programme (WFP)

Specialised agencies and related organizations

Food and Agriculture Organization of the United Nations (FAO)

United Nations Educational, Scientific and Cultural Organization (UNESCO)

World Health Organization (WHO)

World Bank

World Meteorological Organization (WMO)

United Nations Industrial Development Organization (UNIDO)

International Atomic Energy Agency (IAEA)

Involvement of the organizations of the United Nations system in the field of water resources

Organization	Agricultural water use	Drinking water supply	Industrial water use	Hydro	Naviga-tion	Flood control	Drought management	Multi purpose
Secretariat	X	X	X	X	X	X	X	X
UNICEF		X						
UNDP	X	X	X	X	X	X	X	X
UNEP	X	X	X			X	X	X
UNU	X	X	X	X	X	X	X	X
ECA	X	X	X	X	X	X	X	X
ECE	X	X	X	X	X	X		X
ECLAC	X	X	X	X	X	X	X	X
ESCAP	X	X	X	X	X	X	X	X
ESCWA		X				X		X
UNDRO						X		
INSTRAW	X	X		X				X
WFP	X	X				X	X	X
FAO	X					X	X	
UNESCO				X		X	X	X
WHO	X	X	X					X
WMO						X	X	X
World Bank	X	X	X	X	X	X	X	X
UNIDO			X	X				X
IAEA	X		X					X

IRC information products and services

IRC International Water and Sanitation Centre is an independent, international clearing house on solutions for water supply and sanitation problems in developing countries.

It has published the following selected information sources for easy reference of sector professionals:

Inventory of selected training materials for water supply and sanitation

Prepared on behalf of the UNDP/World Bank Water and Sanitation Programme

(RS 7) 104 pages 1988

List of basic publications on water supply and sanitation a selected bibliography

(RS 6) 94 pages 1991

IRC offers the following documentation services:

- question and answer service
- regular print-outs with references to new sources of information on subjects of your choice
- retrospective literature searches and reports from selected databases
- IRC publication packages on subjects such as technology integration, community participation, hygiene education, evaluation.

Related services are briefing and training programmes, which take place at IRC in the Hague, or with partner organizations in Cameroon and Burkina Faso.