

Water Supply and Sanitation

Danida Sector Policies

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List of abbreviations

| | |
|--------|--|
| BOT | Build-Operate-Transfer |
| CAP | Catchment Area Protection |
| CSD | Commission on Sustainable Development |
| Danida | Danish International Development Assistance |
| EIA | Environmental Impact Assessment |
| ESA | External Support Agencies |
| lpcd | Litres per capita per day |
| NGO | Non-governmental Organisation |
| O&M | Operation and Maintenance |
| SPS | Sector Programme Support |
| UNCED | United Nations Conference on Environment & Development |
| UNDP | United Nations Development Programme |
| UNICEF | United Nations Children’s Fund |
| USD | United States Dollars |
| VLOM | Village Level Operation and Maintenance |
| WB | World Bank |
| WHO | World Health Organisation |
| WS&S | Water Supply & Sanitation |

Preface

“Partnership 2000”, the overall strategy document for Danish Development Policy emphasises poverty alleviation as the basic and overriding principle for Danish development assistance 1). In order to substantiate and operationalise this principle at sector level, policy papers are prepared for all the key sectors. Danish bilateral assistance is mainly provided as sector programme support (SPS) to 20 programme countries, which all fall within the category of “low-income countries”. Two thirds of them are in sub-Saharan Africa. Danida provides substantial assistance to water supply and sanitation, and is presently engaged in this sector in nine programme countries. Water resources management complements, in most cases, the engagement in water supply and sanitation (or vice versa). Although a separate policy paper deals with water resources management, it should be emphasised that the policies are closely linked 2).

This policy paper is addressed to a number of user groups. It is meant for staff at the Ministry of Foreign Affairs (Danida) and at the Danish embassies in programme countries. It is also meant for advisors, consultants, contractors, NGOs, and

higher learning institutions with an engagement in development assistance – as well as for other organisations engaged in a wide variety of development activities 3).

In the programme countries, the policy paper is intended for staff of relevant government institutions, – at national, regional and local levels – staff in charge of specific programme implementation, NGOs, private sector agents (consultants and contractors) and other stakeholders. The policy paper should also be of interest to donors, multilateral as well as bilateral, and all others who co-operate with Danida in programme implementation.

The policy paper is structured as follows: Chapter 1 summarises the objective and the scope of Danida's involvement in the sector. It also provides a brief, though broad, factual introduction to the sector. Chapter 2 gives a brief description of developments, lessons learned and experiences gained in the last two decades. From this follows an analysis of the present constraints and barriers that need to be addressed. This section is the basis for Danida's strategic considerations and scope of operation (Chapter 3) and the detailed outline of specific policies and strategies in Chapter 4. Chapter 5 discusses issues specific to sector programme support (SPS) and other means and modalities of technical and financial assistance.

- 1) "Partnership 2000" replaces "Strategy 2000" (A Developing World) as the overall strategy paper for Danish development assistance, which was published in 1994.
- 2) "Water Resources Management, Danida Sector Policies", 2000 (forthcoming).
- 3) The present sector policy paper replaces "Water and Sanitation. Sector Policy Paper". (1992).

1. Introduction

1.1 Objectives and Scope

Within the framework of Danish development policy, the objectives for assistance to water supply and sanitation are:

- Improved health and living conditions for the poor, through access to safe water supply and sanitary facilities – and by improved hygiene;
- Sustained user ownership, through demand-driven and technically viable investments that users can afford and maintain;
- Sustained functioning of public and private sector, and community based organizations and institutions. This includes co-ordination of their respective functions.

In order to reach these objectives, water supply, hygiene promotion and sanitation, are seen as mutually important. They will be integrated in Danish assistance programmes in accordance with expressed demands.

The sector policy includes assistance to both rural and urban areas, with a focus on meeting basic demands of the un-served and under-served poor people living in rural communities, small towns and slum areas. The approach in the policy paper is on demand and not on supply driven solutions. The challenge is to strike a balance between meeting demand and meeting the basic needs of as many persons as possible. Basic needs is understood as the lowest acceptable level of service and includes access, within a reasonable distance, to a safe and reliable supply of water for domestic purposes. The definition of access (distance to source, available quantity per capita, and social access) and safe (water quality) is subject to variations between countries and between regions. There are a number of definitions of sanitation but, in relation to Danish policy, it is understood as the safe disposal of human excreta – and it is related to hygiene promotion. In urban areas sanitation will, in some situations, include solid waste management. (Annex 1 presents a Glossary of Terms used.)

Water supply is provided within the public domain. Sanitation is promoted to households (private domain), and to communities, schools, health centres and other institutions (public domain) – and in accordance with demands expressed.

1.2 Background

There are considerable differences between the levels of access to water supply and sanitation in developing countries. This is also the case in Danida's programme countries where the programme countries in Asia have higher levels of access than the programme countries in Africa.

In general, it is the vulnerable poor communities who are most seriously affected by diseases originating from inadequate access to water supply and sanitation. For example, more than three million people – the majority of whom are children – die each year as a result of diarrhoea. The high mortality is alarming, and even more so is the higher level of morbidity. This situation has a negative impact on the livelihoods of the individual families and communities, and it has wider social and economic consequences for the affected societies.

Box 1 Potential Transmission Routes of Faecal-oral Diseases

Source: Boot M.T. and S. Cairncross

The process that leads to faecal-oral diseases starts with poor sanitary conditions (Box 1). Improved sanitation facilities and good hygiene practices, i.e. safe disposal means and practices, are a prerequisite for the prevention of disease transmission from faeces. The use of water for hand-washing, along with the use of sanitary facilities, prevents infection and the further spread of contamination to potential new hosts. (See Annex 2 for an elaboration on the effects of improved water supply and sanitation on water-related diseases.)

The improvement of the health situation is therefore one of the main reasons for investing in improved water supply, sanitation and hygienic behaviour. The global picture of access to adequate water and sanitation naturally shows significant differences between continents and between countries within continents. The challenge is huge especially with respect to sanitation, where the targets achieved during the 1980s could not keep pace with rising populations. Figures show that 82% of the rural population and 37% of the urban population are without access to adequate sanitation facilities 4). It should be noted that it is difficult to be exact about sanitation coverage, because the national definitions of coverage vary considerably.

Urban populations have grown significantly in the last decades compared to rural populations, and urban poverty is increasing.

Box 2 Growing Urbanisation – Urban Population % of Total

1970-95 Status and 2015 Projection figures UNDP Human Development Report 1998.

Although overall, urban water supply and sanitation coverage may look better than in rural areas, the reality of the situation is that the poor segments of the urban population live under worse conditions.

Increasingly, many societies experience shortages and competition for water. This has resulted in an international consensus to prioritise water issues at all levels of society and to work towards a consensus and a management that can safeguard water quality and availability for all – and for the future. This approach to water sector management was advocated at the Dublin and Rio Conferences in 1992, and it was restated with only slight modifications by the world community at a large number of international and national meetings since that time 5).

- 4) WHO/UNICEF Water Supply and Sanitation Monitoring Report, 1996.
- 4) See "Water Resources Management, Danida Sector Policies", 2000 (forthcoming).

Box 3 The Global Challenges

Despite safe water supply and sanitation being essential human needs:

- A fourth of the world's population still lack access to safe water supply
- Two thirds of people living in developing countries do not have adequate sanitation
- The people most severely affected are poor people, particularly women and children
- 10 million person-years of effort are put into the fetching of water each year
- 3.3 million deaths per year, mainly children under the age of 5, are caused by water-related diseases

2. Sector overview

2.1 The Water Supply and Sanitation Decade

– The Main Lessons Learned

Water supply and sanitation rose to the top of the development agenda more than 20 years ago. The 1977 UN Conference in Mar del Plata recommended that the 1980s should be proclaimed the 'International Drinking Water Supply and Sanitation Decade' (hereinafter called the Decade). The Decade was launched with the objective of focusing on the improvement of health through the expansion of water supply and sanitation coverage – or, as the slogan said, "Water and sanitation for all in 1990". Reaching this ambitious target would have meant doubling the rate at which new water supply services were then being provided, and more than quadrupling the provision of sanitation facilities.

Since the beginning of the Decade, substantial financial means have been allocated to the sector, and major achievements have been made. However, in the case of sanitation, the accomplishments could not keep pace with the rising population, and the number of people un-served continued to rise. During the Decade, close to USD 150 billion was spent, but it has been estimated that about USD 600 billion is still needed world-wide in order to reach an acceptable level of coverage.

The key lessons learned were:

- The development, promotion and general user acceptance of least-cost technologies.
- The construction of facilities was not in itself sufficient to diminish diseases related to water supply and sanitation; good hygiene practised around the facilities was equally important.
- Community participation in all steps of the programme cycle was found to be crucial for successful programme implementation and sustainability.
- The active involvement of women at all stage of the programme cycle accelerated the progress and enhanced the chances of sustainability.
- The success or failure of programmes was principally determined by meeting consumer needs and demands.

- NGOs were important partners in bringing the concept of community participation from theory into practice.
- Public health and water authorities remained, in most countries, as centralised, engineering-dominated entities, which were not adequately organised or staffed to work with communities.
- Training had typically concentrated on O&M staff. Nevertheless, such training programmes were insufficient when given in isolation.

2.1.1 Post-Decade Events

The New Delhi Consultation in 1990 was one of the first in a series of post-decade events in which a consensus was reached about a new order for the development of the sector. One of the New Delhi contributions was a new vision regarding the role of governments. The Consultation agreed that, governments should do less to provide services, and instead enable public and private institutions to implement and manage the facilities. Governments should establish enabling environments to ensure that facilities can be provided and operated. This includes national sector policy development, the provision of a planning and design basis (e.g. various technology options), regulation and tariff setting, monitoring, evaluation, and sector co-ordination.

The lessons learned from the Decade became essential inputs to the main sector developments of the 1990s, notably the Copenhagen Consultations on the Nordic Freshwater Initiative (1991), and in particular the International Conference on Water and the Environment, held in Dublin in January 1992 – leading to the Rio UN Conference on Environment and Development. Among the areas of action identified in Agenda 21 (endorsed at the Rio Conference) were the improvement of drinking water supply and sanitation, and the provision of sustainable water supplies for cities. Regarding the management of water resources, an integrated approach was recommended, in which food security, increased user payment, and the reduction of public subsidies, decentralisation of decision-making to the lowest appropriate levels, and user participation, all play an important role. These principles and action areas were subsequently endorsed at the post-Rio ministerial meeting on water supply and sanitation at Noordwijk in the Netherlands (1994).

Although there was a consensus on the key principles for development of the sector in the mid-1990s, the progress in coverage remained poor. The UN mechanism for monitoring the implementation of the Agenda 21 is the Commission on Sustainable Development (CSD), which holds annual sessions in New York. The Noordwijk recommendations were a basis for discussions at the CSD meeting in 1994, and the international meetings in Harare and Paris in 1998 were fundamental sources of inspiration for the latest CSD meeting held in New York, 1998. The outcome of these CSD meetings emphasises the need for urgent government actions to enable the un-served poor to gain access to basic water supply and sanitation facilities. The recommendations reinforce the need for participatory approaches, gender sensitivity, and the integration of water supply and sanitation programmes into national sector strategies. It further recommended the incorporation of health concerns into freshwater management, through the adoption of health objectives in strategy formulation.

2.2 Constraints to Access

Improvements in access to water supply and sanitation have been outstripped by the increase in population. The overriding constraint to access continues to be poverty. There is an acute scarcity of financial resources in the economies and this is the overriding barrier for poverty alleviation. Constraints vary between continents, from country to country, from one local setting to another and there are also differences between rural and urban areas. The following sections present some major constraints in general terms.

2.2.1 Political and Institutional Constraints

The political context: Democracy and democratic institutions are still weak in many low-income countries, and mechanisms to secure equity in resource distribution in society are therefore not particularly strong. Likewise, resource control is often closely associated with political power and wealth. Civil society may be characterised more by conflicts between different groups than by its potential for developing as a democratic counterbalance to autocratic and centralised governments. The result is that there are few participatory channels for the poor to access resources. Central governments are typically in control of resources and where local authorities have some powers, these are often weak because they are constrained by scarce resources.

At the international level, and in high-profile water and sanitation conferences, most governments support state-of-the-art water and sanitation policies. However, there is still some way to go in instituting progressive national sector policies and reforms. Since such policies and reforms have often been donor-driven and linked to structural adjustment programmes, some governments have not themselves spearheaded the development of sector strategies advocating water management

according to the “Dublin/Rio Principles”. For example, although many governments acknowledge women’s important role in water supply, there is still little driving force to implement and mainstream gender aspects as specified in national policies and often practised in donor programmes.

Public Sector: The responsibility for supplying water and sanitation has rested with public agencies in most developing countries. As an element of nation-building of these countries, water supply emerged as one of the services that political leaders told citizens that they could consider as a basic social right to be provided by the government.

But governments have not been able to carry out this ambitious task, and their responsibility for water supply and sanitation has often become an obstacle to the provision of sustainable services. Centralised responsibility has also proved inadequate in addressing people’s needs. The most visible result has been the poor performance and poor maintenance of facilities. By the end of the International Drinking Water Supply and Sanitation Decade, many governments had installed facilities according to high targets, but they were left with facilities neither maintained nor functioning. India is a case in point – with large numbers of hand pumps out of operation at any given time.

Many government administrations are specialised within their technical fields and therefore not able – and at times even reluctant – to view water supply, sanitation and hygiene as mutually supportive interventions. Donor ambitions of integrating these components in programmes, therefore, often run into co-ordination problems between institutions. Furthermore, the technically oriented government institutions have difficulties facilitating community involvement.

Decentralisation: Decentralisation has been part of institutional reform programmes, and is considered an enhancement of citizens’ participation in local development. However, many local governments and administrations are constrained by lack of financial resources, weak administrative and technical capacity, and local power structures which do not favour social equity in service provision. The poor financial resources of local authorities are due to limited local revenue and inadequate central government allocations. The reality is that decentralisation in the short run actually stifles development initiatives. Although decentralisation in principle must be considered a positive step towards ensuring user involvement, reforms are often based on over-optimistic plans ignoring that such reforms are lengthy and complicated. This leads to unrealistic development scenarios based on expected local authority capacities that do not exist.

Where there are limited resources and capacity in local administrations, central governments maintain the political power to decide on resource allocation to the local level – often in order to avoid a vacuum.

Urban slum populations, settlers without legal claims, indigenous peoples and other marginal groups, typically have limited influence on how resources for water infrastructure are allocated – because of their weak legal and political status.

Politically, local governments and municipalities view such populations primarily as “vote banks”, and there is no guarantee that the promises of public water taps or sewerage systems will actually be delivered after the elections.

Private sector: Although there has always been private involvement in the sector, the last decade has witnessed an increase in private sector participation, as structural reforms of government have taken place. It has also been clear that governments have had serious problems in providing services and maintaining facilities.

It has also been realised by governments that financial resources are insufficient to meet the financing requirements of the sector. It is understood that private sector funding, and increased user payment is necessary. But even with the mobilisation of resources from several sources, the financing gap can still be considerable.

Increasingly, policy statements emphasise the public sector’s regulatory role and monitoring role and the private sector’s role as the provider of services. Many countries undertake civil service reform, privatise state enterprises, and introduce various types of partnership, between the government and the private sector (See also Annex 3). The public sector loses resources and the regulatory

In terms of total investments the top five developing countries are Argentina, Malaysia, Mexico, Brazil and China with close to 50% of all investments. There is a growing private sector involvement in countries like the Philippines and Thailand.

The Private sector in Water, Completion and regulation, WB March 1999.

NB. South Asia is not included in the charts of the Box.

functions of government are difficult to implement because new types of expertise must be employed, new regulations and procedures etc need to be established. This includes the preparation and the monitoring of contracts with the private sector. This proves to be a major and difficult task for many government institutions. The private sector is often weak outside main cities, and the capital market on which the private sector depends is underdeveloped.

There are basic differences between Africa and Asia/Latin America with respect to the presence and strength of the private sector. Most African countries have weak economies with a small private sector. Most private investments have been

channelled to urban projects in South America and the Far East and Pacific regions, whereas private sector investments in Sub-Saharan Africa are almost negligible (See Box 4).

There has mainly been private sector involvement and investment in larger cities. Investments are supplementing the traditional public sector services such as construction, supply of materials and equipment, and consultancy. Small and medium size towns have just as much need for improved services, but they face financial, institutional and technical constraints.

Technical skills and know-how, improved efficiency of service delivery, and finance for new investments are some of the benefits that governments expect from increased collaboration with the private sector. Overly ambitious expectations have, in certain cases, been raised regarding the benefits of private sector involvement. The privatisation of public utilities tends to include water and sanitation systems that are profitable, usually in urban areas. Less profitable schemes in small towns and rural areas are left for users and governments to run.

The private sector also includes informal service providers. These are often more dominant in peri-urban areas or other settings with a population density that allows the provider to make a profit. It is important to recognise the existence of informal private sector actors and include these as stakeholders in the sector, and determine their potential positive role in sector development rather than see these as an obstacle to public or community based service delivery.

NGOs are recognised as stakeholders in water and sanitation development, but there is still some way to go in developing partnerships between NGOs and local community groups – and, by so doing, make use of their comparative strengths. But NGOs are seen as “watchdogs”. They do have an important and recognised role in lobbying for the inclusion of all population groups in service delivery (including minorities) and in monitoring the transparency of service delivery. NGOs also have an important role to play in terms of capacity development within communities and in developing approaches to community management.

2.2.2 Capacity Constraints

The many countries that undergo reforms have major capacity constraints. The capacity to undertake the multitude of the new functions is limited both in terms of institutional and organisational capacity as well as with regard to managerial skills. The private sector faces organisational and other capacity constraints in many countries. This is particularly true at decentralised levels. Augmentation of private sector capacity is hindered by limited access to credit facilities, difficulties in attracting skilled personnel outside capitals and major cities, poorly functioning legal systems, etc.

The increased role of the private sector has the effect that the public sector “loses” many professionals to the private sector. Higher salaries and other benefits, better career prospects and further training possibilities, are some of the attractions of private sector employment. Public sector characteristics are: salaries below a living wage, logistic and financial resource constraints, bureaucratic procedures, and hierarchical and cumbersome structures. On the other hand, the public sector in many countries is still seen as “safe” employment.

Research in, and development of, new technologies (within both water and sanitation), as well as relevant socio-economic research, is mostly absent because of capacity constraints. Research activities and results mostly develop capacity within the donor communities or international institutions. This is a major hindrance in the attempt to build national research and development capacities.

2.2.3 Social and Cultural Constraints

Some traditional beliefs and practices work against changing water handling and sanitary practices. The experience from programmes in many countries has been that awareness raising, in whatever form, can only influence traditional practices to a limited extent. In other cases, however, programmes can successfully build on traditional beliefs and practices. Real improvements in water and sanitation hygiene practices must be associated with poverty alleviation and it is only with increased welfare that major advances in hygienic practices can be expected.

Women are responsible for water handling, household hygiene and sanitation, but they are less involved than men in decision-making and in the management of water and sanitation facilities. This has hampered women’s acceptance of facilities, both in terms of technology and location. It may ultimately affect the hygiene situation of the entire family if, for example, water is fetched from traditional contaminated sources because the hand pump is located in a space unacceptable to women in a community. With regard to sanitation, women often have different privacy requirements than men, and in densely populated areas without adequate sanitation facilities, women have to use public spaces, or they have to walk far away from the household in the early morning and late evening for sanitary purposes.

People belonging to particular ethnic or marginal groups often face problems in accessing services. Social hierarchies also complicate the issue. The problem is often exacerbated by facilities being located far away from the settlements. In urban areas, the two other constraints of poverty and minority status add further burdens for slum dwellers.

Insufficient consideration of cultural and social factors in programme planning and implementation impedes people's participation. Minority groups are often marginalized in decision processes, because they are not considered important in a national or local political context; other groups are marginalized simply because they are poor. It is the experience that few programmes have captured the complexity of the social and cultural constraints and often the outreach to the most vulnerable groups has been difficult to achieve.

2.2.4 Technical Constraints

The infrastructure in towns is generally in a poor state. Population growth has by far exceeded capacity. It is a paradox that many poor urban people live quite close to existing service facilities (for example, pipe lines), but the nature of informal settlements most often precludes their access to services. Furthermore, in densely populated urban areas with piped water supplies there is often an urgent need for upgrading sewerage collection and disposal systems, and for improving solid waste management.

Water supply and sanitation services are also inadequate or even non-existing in areas of smaller towns 6). Technically, their water supply and sanitation facilities have both urban and rural supply characteristics and the technical and managerial requirements often exceed the capacity of most small community organisations. Furthermore, this type of urban area is often under the control of local government authorities (district or provincial agencies), which generally lack the institutional and/or financial capacity to respond to the sector needs and requirements.

Generally, there has been a rigid approach to the determination of service norms and standards, and selection of technology has often not been responsive to users' demand.

Finally, the depletion and deterioration of the groundwater sources due to the rapid development of irrigation-based agriculture is, in some countries, considered a serious threat. And it is a barrier to applying least-cost and locally-based drinking water supply facilities, especially in rural communities and small towns 7). Deterioration of the groundwater quality is also an increasing threat

- 6) Small towns are perhaps best defined as being too large for community management to emerge and work as simply as in a rural village, and yet too small to simply justify the fixed costs of a formal utility organisation
- 7) For instance, a survey in India in 1994 revealed that a permanent fall in the groundwater table was evident in one third of all villages covered by the survey. This, of course, has serious social, financial, and institutional implications, especially where alternative water supplies require much more complex and expensive technology (e.g. deep tubewells and piped systems as an alternative to public and private shallow wells).

to the drinking water supply in some countries, since the technology required for treating the water to an acceptable standard has proved to be inappropriate in a rural context. Excessive content of, for example fluoride or arsenic, is presently constituting a severe problem in some countries in East Africa (fluoride) and South Asia (fluoride and arsenic), and the presently known technologies to solve these problems are considered too complex and too expensive to serve small rural communities. This particular issue is discussed in the policy paper on Integrated Water Resources Management, Danida 2000.

2.2.5 Environmental Constraints

The priority of governments to reach high coverage targets has often been at the expense of examining and minimising the environmental effects of excessive water consumption and harmful disposal of wastewater.

Water resources have to be managed in order to protect them from over-exploitation in the agricultural sector, and from pollution and other forms of environmental degradation 8). The emphasis on the conservation of water resources is the result of an increasing awareness of the scarcity of freshwater resources. Increasing demands from agriculture, industry and the domestic sector, place an increasing burden on the natural freshwater bodies. Areas near water intakes are in some countries, such as Denmark, being bought by the local authorities and declared conservation areas in order to secure drinking water supplies.

Negative environmental and health impacts are most pronounced in the urban areas. For generations, rivers and open water bodies have been used as disposal sites for wastewater and solid waste products. The increasing water pollution requires more advanced and expensive treatment of water for drinking water purposes. In many towns the existing sewerage works are inadequate and a major polluting source and the absence of adequate environmental sanitation facilities and practices seriously affects people's health. It underlines the need for a co-ordinated sector approach.

Water pollution is especially a threat for the poorest segments of the urban population, living on marginal land prone to flooding from polluted surface water. They are generally affected by contaminated water and/or waste, due to overcrowded living conditions and a lack of basic facilities such as adequate water supply, sanitation and refuse collection. Inadequate sector policies, unplanned urban development, a weak institutional and legal framework, insufficient financial resources, and a general lack of political awareness and will – these are the most important barriers to solving environmental problems in the sector, and problems of water pollution in particular.

8) Reference is made to Integrated Water Resources Management. Danida Sector Policies. 2000.

2.2.6 Economic and Financial Constraints

Financial gap: One of the most important constraints against establishing sustainable facilities is the reliance on scarce public funds. In countries where water supply has been regarded as a “free good”, the costs of providing and maintaining facilities have become a heavy burden on public budgets, not only regarding capital investments but also operation and maintenance costs and reinvestments. Where tariffs are charged to consumers, they are normally far below actual costs, and water in rural areas is often provided virtually free-of-charge by the government. In urban areas, there is rarely a realistic relationship between the prices charged, the revenue collected, and the actual costs. Inadequate cost recovery has reduced operation and maintenance allocations, and this has resulted in unreliable and inadequate supplies. Poor maintenance leads to a steady deterioration of facilities, and this again de-motivates users in making proper use of the facilities. The reduction in service levels leads to an increased reluctance among users to pay for the services they get – or ought to get.

Box 5 Financial Gap – Experiences from India

Experience from urban water supply projects financed by World Bank loans indicates that, on average, the price of water charged to the consumers amounts to less than 50% of the costs (Water Resources Management Policy, WB 1993). A similar situation has been experienced in the rural water supply sector. In 1996 it was estimated by the responsible central government agency (Rajiv Gandhi National Drinking Water Mission) that Rs.10 billion (US\$ 286 million) per annum would be required to adequately maintain all rural water supply schemes. This was almost four times the 1996 allocation of Rs 2.5 billion (or 25% of the estimated requirement). In addition, this amount only covered repairs and materials, since staff costs as well as recurrent expenditures (electricity, chemicals, etc.) were allocated from other budget lines. In total, these costs represented about 60-70% of the total costs for O&M. The overall conclusion was that the 1996 allocation only covered approximately 10% of the appropriate level of O&M. Since 1996, the Government of India has attempted to address this problem through provision of ad hoc funding. However, sufficient O&M will only be possible when ownership is transferred, so that local communities are responsible and accountable and have an adequate level of financial resources. Full cost recovery is the essential concomitant to this target.

Source: World Bank and GOI – Rural Water Supply and Sanitation Sector Review, Jan. 1998.

A poor cost recovery level puts a limit on the financial capacity of governments. The consequence is increasing malfunction and break-down of facilities, and sub-standard services.

Need for reforms: Financial viability problems are not unique to this sector. Users of other infrastructure services in developing countries also pay less than the actual cost of services. This is an important issue in ongoing structural reforms, which place government subsidies to public utilities and service providers under pressure. This issue cannot be solved at the specific sector level; it needs to be addressed by policy setting at government level.

Without an effective policy to recover costs, the objective of providing equal and universal access to affordable facilities cannot be achieved. At the same time, reforms in the sector must also recognise that the use of public subsidies may be necessary if an adequate service to the poor is to be achieved. Governments can only offer such subsidies if cost recovery from users is feasible and can be implemented.

Consequently, it will be a challenge to make the agreed principle “water as a social and economic good” not just an idea but also an instrument of application. There will also be a need to apply an agreed and adequate cost recovery and tariff policy

that meets both the financial requirements and the poverty objectives – by applying necessary cross-subsidisation in tariff setting, taxes, etc.

3. Objectives and strategic considerations

3.1 Overall Objectives of Danish Development Policy

The overall objective of the Danish development assistance is to support developing countries in their efforts to achieve sustainable development. The development policy is based on a strategy for poverty alleviation, which:

- a) With equal participation of men and women promotes broad based, poverty oriented economic growth and sustainable development.
- b) Develops the social sectors, including health and education, as a prerequisite for the development of human resources.
- c) Promotes democracy and popular participation in the development process and the establishment of a society based on the rule of law and good governance as a prerequisite for stability and economic, political and social progress.

Sustainable poverty alleviation as the overriding objective is linked to the crosscutting themes of gender equality, environmental sustainability and respect for human rights and democracy 9).

3.2 Objectives for the Water and Sanitation Sector

Assistance to water supply and sanitation contributes to the achievement of the above overall objective and principles for Danish development policy within the framework of the programme country's own sector strategy. The assistance has the specific purpose to contribute towards:

- Improved health and living conditions for the poor, through access to safe water supply and sanitary facilities – and by improved hygiene;
- Sustained user ownership, through demand-driven and technically viable investments that users can afford and maintain;
- Sustained functioning of public and private sector, and community based institutions and organisations. This includes co-ordination of their respective functions.

In this respect, the Danish assistance should aim to:

- Improve poor people's health;
- Reduce the time-consuming and energy-sapping burden of fetching water that, in particular, affects women and children;
- Involve also the poorer and disadvantaged groups in society in the identification, planning, management and maintenance of water and sanitation facilities;
- Support co-ordination between water, sanitation and health institutions in order to maximise health benefits in an environmentally sustainable manner;
- Increase the capacity of local communities, national and local level governments, and private sector stakeholders, to take an active part in – and a responsibility for – all stages of the programme cycle;
- Strive for financial viability of programmes through the adoption of realistic user cost recovery mechanisms and subsidies aimed at securing equity in access to facilities.

For any given rural and urban programme, Danida pays great attention to ensuring the long-term sustainability of the economic benefits. Within both contexts, the main benefits to the users from improved services are:

- Time savings: users, particularly women and children, spending less time on collecting water;
- Financial savings (especially in urban areas): households spending less money than when buying water from private vendors, etc;
- Health benefits: increased quality, and especially quantity, of water used – combining better water access with improved sanitation and hygiene practices.

3.3 Strategic Considerations for Assistance

Options for intervention: Danida's bilateral assistance is extended as sector programme support, which is a longer-term framework for a broader Danish assistance to a national endeavour, including various and flexible modalities of support at different levels within agreed objectives and management procedures. The options for support must, in each particular case, be analysed in depth – and the strategic choices must be considered realistically. The programme countries are very different, and each country has its particular potentials and problems, and the specific country situation is the starting point for Danish support.

In a given sector programme context the options for intervention will, in many cases, cover a broad range of potential alternatives, which call for a well defined strategic framework within which priorities for assistance can be set.

It is increasingly relevant in infrastructure sectors, including water supply and sanitation, to analyse options for support within a range of financing modalities, because private sector involvement is becoming more and more important, especially in urban areas. So, although sector programme support is the main framework for assistance to water supply and sanitation, it is important to acknowledge and use other financing and implementation modalities when relevant. These are mixed credits, the private sector programme, the multilateral channels, and co-operation with NGOs. (See also Chapter 5)

Grant financing – windows of opportunity: Danida is an important donor in many programme countries. The grant financing gives Danish assistance an opportunity to work in the “soft” areas for which governments tend to use grants instead of loans. Such assistance takes the form of technical assistance to building up institutional capacity at national and lower levels of government – strengthening local administrations and public utilities – as well as at the community and user levels. These sector interventions are considered of prime importance in the development of the sector, be it urban or rural, and they provide good opportunities for a broad-based impact.

Co-ordination with other donors: Danida provides sector programme support, and Danish support is closely co-ordinated with that of other donors active in the sector. Donors co-ordinate their efforts under government leadership, and Danida's options for intervention are dependent on a number of factors, such as other donors' involvement, Danida's leverage in a particular context, and the dialogue and working relationship with government institutions. So Danida actively strives for donor co-ordination led by the host government.

Rural/urban priorities: Poverty is widespread in both rural and urban areas, but with the high urban migration rate, the characteristics of poverty are changing and urban poverty is an escalating problem. Danida will continue to assign high priority to rural water supply and sanitation. In addition, attention will increasingly be paid to peri-urban and urban slum areas, as well as to small towns.

In rural areas, Danida's scope of support is: Improving access to safe water supply, household latrines, and institutional sanitation facilities; promotion of hygienic behaviour and practices although environmental sanitation is limited to drainage of point sources (handpumps, public taps, etc.); support to policy development, institutional and organisational development and capacity development.

In small towns, peri-urban and poor slum areas, Danida's scope of support is:

To give the same priority as in rural areas to improving access to safe water supply, household sanitation (preferably on-site sanitation), and institutional sanitation facilities; the same priority as in rural areas should be given to promoting good hygiene behaviour and practices; to promoting increased importance and focus on environmental sanitation (e.g. drainage systems and solid waste management) compared with rural areas; to supporting policy development, and institutional and organisational development.

Service levels and technology options: When assessing various service levels and technology options, it is important to compare the expected benefits. Cost-benefit considerations should always be part of the strategic choices related to service levels and technology options, and it is relevant to compare the following different types of expenditure/investment:

- Maintenance and repairs;
- Rehabilitation and extension; and
- New construction.

Since it is a policy concern of Danida to secure the sustainability of investments, priority is given to least-cost options, such as investment in proper maintenance systems and in repair, rehabilitation and extension of existing facilities and schemes.

4. Challenges and policies for sustainability

4.1 Political Challenges

The political challenge for Danish assistance is how to contribute effectively towards the involvement of the poor and underprivileged in decisions on the allocation of resources and the choice of water supply and sanitation facilities. The other related challenges include the continued focus on national sector policies and reforms, capacity development, and participation. Danida will work on these issues through policy dialogue, donor co-ordination – and through specific programme assistance.

It is important in the co-operation between Danida and the programme countries that there is a political will at national level to develop sector policies and reforms. Policy reform is not an immediate priority on the political agenda in some countries. However, the SPS approach involves long term co-operation, and it is set within the framework of donor co-ordination and close dialogue with national stakeholders, and, within such a context, a national demand for policy reform will often mature.

Danida will:

Support development and implementation of sector policies and place emphasis on the following aspects:

- Within sector policies, placing emphasis rural areas, but also on small rural towns, peri-urban areas, and slum areas that are often overlooked in a policy context;
- Promoting policies for community involvement, private sector involvement and development, and clear definitions of the roles and responsibilities of the public sector agencies;
- Promoting policies and legislation on cost recovery and financial viability at all administrative levels, and in rural and urban areas;
- Supporting decentralisation policies;
- Supporting poverty alleviation and gender aspects in sector policies and specific action plans, through the involvement of especially poor groups in decision making processes – and by applying cross-subsidisation in tariff structures;
- Assisting programme country governments in co-ordinating policy dialogue and policy formulation with other donors.

4.2 Institutional Challenges

4.2.1 Institutional Reform

Institutional reform of the sector aims at transforming the roles and functions of central and local government from being service providers and owners of facilities to policy makers, facilitators and regulators. This also includes management of tender procedures and subsequently it includes contract management in a transparent manner. Simultaneously, the private

sector should be enabled to function and develop through the establishment of a conducive legal and bureaucratic environment. With an increased role for the private sector in service provision, a well-functioning and suitably qualified public sector becomes of paramount importance.

Institutional reform, involving decentralisation and devolution of sector responsibilities to local governments and lower administrative levels, will be a comprehensive challenge over the years to come. Considerable assistance will be needed in most countries, because of the complex processes and the scarcity of resources at all levels but in particular, at the local government level.

Danida's involvement in sector reform will be assessed in each case, based on the magnitude of a potential assistance programme and the comparative advantages of Danida's resources and experiences. Danida will co-ordinate its assistance with other donors.

Danida supports institutional reforms, including:

- Restructuring of sector institutions to facilitate the reform of government from service provider to regulator and facilitator;
- Transferring financial and organisational responsibility to organisations and institutions at the lowest appropriate level, and supporting efforts to define appropriate levels in an administrative, financial, technical and institutional context;
- Co-ordinating water supply, sanitation and hygiene promotion tasks between public and private stakeholders;
- Encouraging participatory approaches to planning, implementation and operations management, based on the active involvement of the local communities and users;
- Reorientation of sector institutions so that they include and respond to women's needs and priorities.

4.2.2 Public and Private Sector Roles

Private sector participation on its own is no guarantee that problems will be solved and sector challenges will be met. It requires that roles and responsibilities for both the private and public sectors are clearly defined.

There are various options for private sector participation, ranging from basic maintenance services in rural areas to complex concession contracts, where the management of an urban township's water supply and sanitation is leased to a private operator for a period of 25-30 years (see Annex 3). It is still a key question in many developing countries which modes and types of public-private partnership contract are most appropriate. While there is evidence that the commercial approach is improving efficiency, a concern remains about how public-private participation contracts, especially the long-term concession types, will ensure adequate and affordable services for very poor communities.

Danida can assist in:

- Strengthening the collaboration between the public and the private sectors, with a focus on support to the public agencies in building up their regulatory role and capacity to carry out their mandates;
- Channelling funds for investments through public-private sector partnerships, ranging from autonomous public enterprises to fully privatised structures with guarantees for social equity and services to the poor;
- Capacity development of both public and private sector stakeholders.

4.2.3 Capacity Development

Capacity development (CD) cuts across all Danish supported interventions in water supply and sanitation. It is integrated in all programme analysis and throughout the programme cycle. Capacity development is essentially about increasing the ability of the different actors to act and interact. CD includes institutional strengthening, organisational development and human resources development. The capacity in the sector depends on the availability of policies and a regulatory framework and a political will to act; management systems; financial and human resources and finally access to relevant information and data. It is a particular challenge to develop capacity at local levels of government and within community institutions and organisations as well as within intermediary organisations such as NGOs.

Human resources development is an essential element of capacity development, but it is not sufficient. The general shift away from traditional line agency, supply-driven sector approaches requires that personnel in all agencies and user-level organisations acquaint themselves with, and are trained to fulfil, their new roles and functions. This covers formal as well as informal institutions, ranging from government line sector agencies to small local entrepreneurs, NGOs and user organisations. This also includes leadership skills, management and coordination abilities, etc.

Box 6 Lessons from water lease arrangement in Guinea

Until the late 1980s, Guinea had one of the least developed urban water supply sectors in West Africa. Less than 40% of the urban population had access to piped water supplies, and, where connections existed, the service was often interrupted and the water quality inadequate. Especially the poorer areas of the urban areas were suffering from insufficient water supply services. To improve this situation, the Government of Guinea in 1989 entered into a lease arrangement for private sector operation of water services in the capital city, Conakry, and sixteen other cities and towns of which some were implemented under Danida grants. The facilities were still owned by the government, and the lease arrangement implied that the water management company – jointly owned by the government (49%) and a foreign private consortium (51%) – was responsible for the operation and maintenance, billing and collection for a ten- year lease period. New investments were the responsibility of the Government.

By 1996, the achievements were in many respects impressive, especially regarding the improvement of the financial performance of the schemes and the increase in the level of coverage. The Guinea lease arrangement represents an innovative, partly successful attempt to draw on a public-private sector partnership to improve water services. However, there are still important tasks to carry out, especially regarding: i) improvement of the service in low income areas, ii) reduction of the very high level of unaccounted-for water (it has remained close to 50%), and iii) definition of clear performance indicators and targets as part of the lease contract in order to avoid unclear responsibilities regarding areas of operation and commercial risks shared between the two partners.

The Guinean approach has not worked out exactly as planned. The risk sharing of investments and O&M expenditures have proved difficult and a potential area of conflict. One of the lessons learned from the Guinea lease arrangement is that a gradual move to private sector participation should be based on an assessment of realistic and enforceable allocation of the functions and risks between both sides of the potential partner arrangement. For example, if the private partner is unwilling to take any substantial commercial risk, a lease or a concession arrangement should be avoided in favour of a simpler management contract with few, largely indisputable, performance targets.

The Private Sector in Water, Competition and Regulation, IBRD March 1999.

Furthermore, there is a need for assistance in most countries in developing the skills of the increasing number of members of newly formed rural and urban-based user organisations, so that they can participate effectively in planning and implementation activities, and ultimately take over the operation, maintenance and financial management of schemes. Research capacity will also be built, in order to systematize experience and lessons learned, and in order to enhance methodology and technology development.

The existing capacity varies between countries and even between different areas in a country and this calls for thorough assessment of capacity development needs.

Danida will support capacity development with the following emphasis:

- Assessment of capacity development needs in all institutional and organisational contexts (including civil society organisations), at relevant levels and address these in programmes with a realistic perspective;
- Inclusion of flexibility into programme implementation, both in relation to the direction and timing of the support in order to allow for capacity development activities;
- Working towards transfer of control of funds to implementing institutions in order to enhance ownership and management capacity;

- Training in leadership and management skills to improve management and co-ordination between public, private and consumer stakeholders;
- Development of adequate and relevant curricula at technical training institutions (engineering colleges, polytechnics and other relevant institutions of technical education);
- Developing capacity in the private sector with a focus on developing the skills of local small-scale entrepreneurs and craftsmen;
- Supporting local communities (rural and urban user groups, rural and small town administrations) in developing their capability in planning, implementation, O&M and management of their schemes;
- Enhancing relevant research capacity, this includes ensuring co-ordination and synergy between SPS and Danida's research and development programmes.

4.3 Challenges for Social and Cultural Sustainability

4.3.1 Hygienic Practices

The challenges for health and hygiene promotion are:

- To change hygienic practices in order to minimise associated health risks;
- To help recognise environmental and health problems caused by poor sanitation and inadequate water supply;
- To help communities become more active in seeking appropriate solutions to these problems.

However, it must also be recognised that a general increase in incomes and welfare is the most powerful change agent for improved hygiene.

Given the implementation problems, and the often relatively modest results of some programmes, it is important to set realistic targets, to test and work with different implementation methodologies, and to learn from experiences in order to achieve results. Social and gender assessments, participatory approaches, and communication strategies, are all important elements in the design of appropriate programmes.

Sanitation and hygiene promotion targeted at households is a challenge because families have to finance a relatively expensive installation, which they will only be interested in acquiring if they understand the associated health benefits. Nevertheless, targeting households has the largest potential effect. Within the public domain, schools, health centres, market places and bus stations, are the usual target areas. School sanitation and hygiene promotion have the potential for a considerable outreach – such investments also recognise the role of children and youth as agents for behavioural change.

Danida supports:

- Private and public sanitation and hygiene promotion;
- Institutional and organisational structures supportive of sanitation and hygiene promotion in programmes, particularly school education programmes;
- Innovative approaches to hygiene promotion in order to increase the outreach and the impact;
- Hygiene promotion activities to be co-ordinated with, rather than subjected to, the implementation speed of water supply installations in programmes.

4.3.2 Gender Issues

Given existing social and cultural structures within families, local communities and nations, a targeted effort is needed to enable the involvement of women in a meaningful way. It is not only a question of making women more influential by increasing their workload through their involvement in planning, construction, O&M and management. Attention needs to

be paid, during programme planning and design, to balancing and tailoring the involvement of women, in accordance with realistic assessments of available time and capability. One way of doing this is to mobilise and include women directly in decision-making processes right from the outset. It is the decision-making role of women that needs to be put more in focus and to be brought into play at all possible levels, and not just at the local user group level.

Gender tends to be overlooked, or to receive more words on paper than in practice. Specific tools for planners and implementers can enhance the attempts to mainstream gender in Danida programmes (See Annex 4.). One way of putting an implementation focus on gender aspects is the preparation of an action plan within each programme as well as to strengthen the national institutions to include gender at policy level. This can be a valuable aid in the mainstreaming of gender in many supported programmes.

Danida supports:

- National institutions to include gender policies;
- Analysis of gender issues at the identification and planning stage of programmes;
- Mainstreaming of gender in implementation;
- Formulation and implementation of specific action plans on gender where relevant.

4.3.3 Disadvantaged Groups and Settlements

Remote living communities, severely impoverished communities and other vulnerable groups (ethnic minorities, indigenous peoples etc.) face physical, social and cultural barriers which often hinder their participation in programmes. A sector approach is likely to be too narrow as it cannot accommodate addressing the difficult, multiple and interlinked problems of such communities.

Danida supports:

- Empowerment of disadvantaged groups, for example through NGOs or other civil society organisations.

4.3.4 Participation

Ownership is closely linked to participation, and it is known that rural programmes in particular are more sustainable when beneficiaries are involved from the outset and in the different stages of the programme cycle. This has a historical dimension, as water supply installations in the first two decades of national independence from colonial rule were perceived by rural populations as a “social good”, provided for them by their government – and managed for them by their government. Reversing this perception has been a difficult challenge. Establishing user demand and user participation, involving continuous dialogue with the users in the programme cycle, is a necessary process in inducing ownership by the recipients of water supply systems.

The exact extent of participation in the management of schemes will naturally vary, depending on the magnitude and complexity of individual schemes. Simple handpump or piped water supply schemes in rural areas have the potential of complete management by the local community, whereas more technically advanced urban water and/or sanitation schemes will often require professional expertise for their operation and management. In such cases, the users can take the position of consumer stakeholders in the organisational setting. Both the potentials and the limitations of participation need to be recognised. However, the long-term sustainability of facilities can only be ensured if there are concerted efforts to involve the communities – leading to an ultimate transfer of responsibility and ownership to these communities.

Sanitation and hygiene promotion present a different set of problems, as the programmes often target individual households. The promotion of sanitation and hygiene is also targeted at institutions such as schools, health clinics – or provided at market places under the responsibility of a local government authority. It is generally more difficult to get users to express their demand for sanitation and improved hygiene than for improved water supply.

There are some important characteristics that can influence user participation: the degree of democratic rule in a society, gender, income, education, knowledge and skills, social cohesion and organization.

Danida integrates user participation in all programmes in order to:

- Promote ownership and sustainability; and

- Enhance effectiveness, efficiency, empowerment and equity.

Box 7 User Participation

User participation is understood as a voluntary process by which people, including the disadvantaged (in income, gender, ethnicity, or education), influence or control the decisions that affect them. The essence in participation is exercising voice and choice. Evidence has confirmed that, particularly in rural programmes, user participation is crucial for the achievement of effectiveness, efficiency, empowerment, and equity.

User participation facilitates effectiveness through contributing to a redefinition of objectives, better project design and redesign, site selection, resource mobilization, construction, implementation, and maintenance of facilities. User participation contributes to efficiency

– meaning the relationship between a given output and its costs and input. Participatory decision-making allows more timely beneficiary inputs, as well as synchronisation.

Empowerment is essentially a political concept that means more equitable sharing – or redistribution – of power and resources with those who previously lacked power. User participation is therefore essential for empowerment, in as far as user participation includes activities that lead to increased access and control of resources and to the acquisition of new skills, so that people are enabled to initiate action on their own behalf and acquire leadership. In this respect, user participation is also important in relation to the strengthening of democratic structures.

Source: Deepa Narayan: The Contribution of Peoples Participation, 1995.

4.4 Demand and Technology Options

The choice of technology is largely based on user preferences and demand. Technology options also depend on the availability of water resources. The technology option for both rural and urban schemes should also match the locally available resources in terms of manpower (local communities, craftsmen, contractors and sector agencies), management capability and financial ability. In cases where it is the intention that a scheme or facility is transferred to users and to local communities with only limited technical, managerial and financial capability, the level of technology chosen must take this into account.

4.4.1 Service Level and Technology

The sustainability of the service level depends on the users' demand expressed as well as their ability and willingness to contribute to the cost recovery of the given service. It is important that, in cases where a range of technology options is feasible, people are properly informed about the various options and conditions of choosing the level of service before decisions are taken.

Technologies should be planned and designed with simplicity and durability as key principles. Besides the user demand criteria some of the important sustainability criteria in the choice of technology are:

- To ensure financial sustainability, the technology must meet the cost recovery criteria – affordability and willingness to pay – as defined as part of the informed choices of service levels and associated technologies;
- Respect should be paid to national norms and standards in technical planning and design, and, only if these are not adequate or feasible in the given programme context, should they be modified to meet the relevant local or regional requirements;
- Technologies should be operational and maintainable at the community/ township level (following the “management at the lowest appropriate level” principle). This requires that the technologies applied must be understandable and within the capability of the people responsible for operation and maintenance;

- Construction materials, equipment and spare parts, should be easily obtainable, preferably locally. Standardisation of designs, equipment and spare parts, should be encouraged in order to facilitate local construction and manufacturing and increase the probability of local craftsmen being trained and involved in the execution of the work;
- The technology must be socially and culturally acceptable to the users. As women and children are often the primary users of water facilities, their opinion on preferred kinds of service, technology and location is crucial. Regarding the location and superstructure of sanitary facilities (latrines), designs need to be acceptable to women, men and children;
- In setting standards for water quality, WHO's Guidelines for Drinking-Water Quality will act as a guiding tool. The primary aim of these guidelines is the protection of public health, and they are intended to be used as a basis for the development of national standards. It must be emphasised that the guideline values recommended by WHO are not mandatory limits – in particular, for rural areas served by point sources. The definition of such limits should carefully consider social, technical, financial and cultural conditions.

Box 8 Typical service levels providing safe access to WS&S in rural and urban areas

Level of service
Classification

Deficient

Minimum

Intermediate

HighWater supply

Water source unsafe or inadequate or collection time more than 30 minutes.

Communal water point (e.g. public tap, handpump, open well) with safe and adequate water supply, appropriate drainage and collection time less than 30 minutes.

Point source (water tap) on household plot with safe and adequate water supply (preferably metered) and proper drainage.

Individual, piped connection (preferably metered) with adequate and reliable water supply. Sanitation

Open defecation or un-hygienic public toilet.

Simple pit latrine on household plot.

Improved pit latrine or pour-flush toilet on household plot.

Flush toilet with septic tank or connection to sewerage system (provided water supply is sufficient). Drainage/sullage disposal

Proper drainage of public point sources. In urban areas gutter, open or covered drainage/sullage channel.

Soakaway on plot, open or covered drain, from plot to receiving drainage system.

Open drain leading to adequate disposal or pipe connected to septic tank or sewerage system.

4.4.2 Operation and Maintenance

The ease of operation and maintenance of a scheme or facility is essential to its long-term sustainability, and it must be adequately considered at the planning and design stage. Some O&M issues are location-specific, but urban and rural schemes differ fundamentally in the complexity of the technologies involved. In rural areas, the concept of Village Level Operation and Maintenance Management (VLOM) of the water supply has proved its worth, especially for handpump design and manufacture. However, it is rare that the VLOM principle can be fully implemented. In most situations there will be a certain point in time when external inputs (materials or skills) are required, and these should be properly planned for.

4.4.3 Least-cost Solutions

Programmes and interventions should aim at least-cost solutions so that they are affordable by the users. This is particularly important in order to reach also the poorest users with the best possible service. However, when identifying the most appropriate and least-cost options to match the preferences of a rural or urban community, it is important to assess the options based on their total system costs (capital investments, operation and maintenance costs).

It is necessary to consider changes that are expected to occur during the design life of the facilities; new demands may arise due to increased consumption from users. In unstable societies, it is likely to be an expensive solution to design facilities to last a long time. In selecting technologies, an obvious criterion to be considered is the benefits achieved from technologies or system equipment with a long operating lifetime but low operation and/or maintenance costs – though at a higher initial capital investment (e.g. gravity-based water supply systems, solar and wind-driven pumps). There is always a compromise

between cost and durability. Equipment and facilities with long design and operational lifetimes tend to be more expensive than equipment designed and manufactured to last a shorter period. On the other hand, cheaper equipment may fail more often, but be easily and quickly repaired – and may be based on locally available materials and skills.

In Danida-supported programmes:

- A demand-responsive approach is applied for water supply and for sanitation facilities, aiming at meeting people's desired service levels based on the cost recovery principles adopted;
- The water supply service level should meet at least basic needs and health criteria regarding quantity as well as quality. The following minimum criteria should be considered as a guideline only, and should be further verified and justified in actual programme planning: 20 litres per capita per day of a quality not constituting a health risk and acceptable to the users (e.g. taste, colour, odour) within a reasonable walking distance (approx. 1/2 hour or 500 metres walking distance);
- Urban piped water supply systems should operate 24 hours per day in order to avoid contamination of the pipe network, and the supply should be adequately metered in order to facilitate improved cost recovery and minimise consumer wastage;
- Preference is given to low-cost (on-site) sanitation solutions in rural areas, small towns and poor urban areas. Piped-borne sewerage options will only be considered for areas where on-site sanitation is no longer a feasible option;
- Adequate drainage systems for the collection and disposal of spillages and wastewater at public point sources will be applied. In densely populated urban areas, open and/or closed drainage systems might be the only feasible option for adequate collection and disposal of sullage and excess water from public standposts. In this case, the maintenance aspects need to be carefully examined, especially the impact of solid waste disposal.

4.4.4 Environmental Sustainability

Denmark has signed the Rio Declaration of 1992 and adheres to the attached principles of Agenda 21 for action on the Declaration 11).

At the operational level within water supply and sanitation, it is important to establish incentives for adopting technologies and management approaches or tools to make the distribution and use of water more efficient and cost-effective. Water supply and wastewater schemes, especially those serving urban areas, are often characterised by high leakage and wastage – all leading to an urgent need for more efficient management of the demand, supply and disposal. Attention should be shifted away from trying to expand the supply to meet the ever-increasing demands. Instead, management of the demand should be the priority. In other words, attempts should be made to improve the operational and maintenance efficiency, reduce leaks, create awareness of the need to reduce, where possible, the use of water, and thereby ease the pressure on the present systems as well as reduce the danger of groundwater depletion.

Besides price-based incentives to reduce the unit consumption and conserve water, demand management includes technical means, information/education/ communication, and administrative interventions.

In order to support the benefits achieved through improved water supply and sanitation, and reduce the health and environmental risks from uncontrolled sullage and wastewater, a minimum provision must be made for the removal of the latter. In rural areas the problem is most significant at the water supply point (handpump or public standpost), whereas in urban areas the problem is more complex not only is there a larger quantity of wastewater, but there is less space and fewer options for its disposal. In relation to sewerage systems an EIA must be undertaken and another issue to be addressed is the recycling of water and nutrients from urban systems back into rural areas. Normally, urban drainage systems need considerable regular maintenance to keep them operating properly. They tend to get blocked frequently with silt and refuse, and a structured maintenance programme, with close linkages to solid waste management, is therefore required 12).

11) Reference is made to Water Resources Management. Danida Sector Policies. 2000.

- 12) See also Ministry of Foreign Affairs, Danida: Environmental Assessment for Sustainable Development. December 1999.

Danida will:

- Assess environmental and health impacts of specific programme components at the identification and planning stage of the programmes;
- Give water demand management the highest priority in water-scarce areas rather than expanding services and supplies;
- Identify and assess demand management measures and options, such as water tariffs, pollution charges, leakage control, restrictions, re-use, etc;
- Pay particular attention to the protection of groundwater aquifers from pollution, as the polluting effects on water quality are not visible and likely to be neglected (through protected areas).

4.5 Financial Viability and Cost Recovery

The financial viability of the organisation responsible for WS&S systems, whether this is a village-based consumer group, a public or private urban utility, is critical for achieving the long-term sustainability of facilities.

Experience shows that when users contribute to financing the costs of capital investments, more ownership and sustainability of facilities is achieved than in situations when investments are made in full by governments or donors. This is also the case even when costs are afterwards recovered (partially) through user tariffs.

Capital cost sharing of initial and future investments, between users and a public administration (rural government agency or municipality), should be encouraged, and the actual level of cost sharing should be based on an analysis of the users' willingness to pay in accordance with the preferred level of service. A capital cost contribution from users encourages more affordable investments, more realistic user expectations, and acts as an important vehicle in the demand-responsive approach regarding the choice of service level and technology options. Furthermore, capital cost sharing supports the development of community or local administration ownership and it promotes transfer of management and financial responsibility of the facilities.

The principle of cost sharing of initial capital investments is, therefore, a paramount policy objective with regard to cost recovery. The actual amount to be contributed varies in accordance with the varying levels of user income. The cost sharing policy will differ between continents and countries, and even within regions.

Cost recovery is a complex issue in urban areas, where users are a more differentiated group than in rural communities. Often, many existing customers are households above the low-income level, industrial, commercial and institutional users, who will be interested and willing to pay for a higher service level. Typically, the financial status of the utility is weak, with only a small proportion of the actual costs being recovered – maybe, not even the operation and maintenance costs. In this situation, poor people in low-income areas are unlikely to benefit from system expansion, unless active steps are taken to improve the overall financial and operational position of the utility, for example, through the adoption of realistic tariff systems, improved billing and collection, metering of consumption, etc.

Danida's policy on cost recovery and public subsidies needs to be flexible in order to make room for the differences between countries. Furthermore, any case should be based on a demand-responsive approach, reflecting the inter-linkages between the users' preferred service level, the associated costs, the technology and the users' capacity to pay.

Cost recovery of operation and maintenance costs (recurrent costs) is an established policy in Danish assistance to sector investments.

Ideally, a cost recovery policy should aim at full cost recovery. This means recovery of operation and maintenance costs, initial construction costs, and future capital investments for equipment replacement and scheme extensions. However, this situation is not achievable in most low-income countries where both the rural and urban sectors receive substantial assistance from donors and/or subsidies from government funds. Any cost recovery policy must therefore be realistic in taking the needs and limitations of the poor into account. With regard to domestic consumption, for example, a certain basic service level can be provided at an affordable price for the poor, with higher levels of service being subject to higher tariffs. Public subsidies have been extensively applied to meet, not only the capital investments, but also operation and maintenance costs. Public subsidies may still be legitimate in achieving certain benefits for underprivileged and poor people. However the considerable administrative burden for the responsible central and local administrations should be considered, as should

the efficiency. Also, the real cost of subsidies should be critically assessed in each situation. “Real costs” include the costs of an oversized government bureaucracy responsible for the administration of water supply. Such “overhead” costs need to be compared with possibly less costly private sector financing/investment arrangements. Since the public financial resources in developing countries are scarce, in relation to the need, any subsidy policy needs to be transparent so that there is clarity about objectives, targets, criteria and procedures for the use of sector subsidies. There are, in most cases, cross-subsidy policies that aim to safeguard social objectives in service provision.

Danida will, in its support, apply the following principles:

Rural Water Supply

Water supply, including drainage of point source facilities:

- Cost sharing of initial capital investments;
- Cost recovery from the users of O&M costs and a proportion of future investments;
- In cases where users select a higher level of water supply service and technology than the basic minimum service level defined, then the users have to cover the full incremental capital costs.

Rural Household Sanitation (Latrines)

- Household latrines are private property and, in general, subsidisation of private latrines should be avoided – and in no case exceed the level applied by the respective governments;
- Private latrine production should be promoted.

Urban Water Supply and Sanitation

- The aim is to meet all O&M and capital investment costs, especially in water supply;
- Cross-subsidisation should be applied, thereby ensuring that low-income households are provided with at least the defined minimum service level;
- Progressive water rates should be promoted for consumptions above basic requirements in order to discourage wastage and excessive consumption;
- Investments to improve access of the poor to safe and sustainable facilities must be considered in the light of making the entire utility financially self-sustaining;
- The tariff structure (for water supply, sanitation and drainage), and the regulation mechanism to increase tariffs, should ensure the financial viability of the utility within a period agreed in advance of the start-up of the programme or project.

The above basic principles apply to piped systems with house or yard connections. In low-income areas without this kind of facility (e.g. small towns, urban slums and urban fringe), alternative financing and tariff systems are relevant. In cases where “rural technology” types of facility are planned, the cost recovery principles of the community managed rural schemes should be applied.

5. Programming and implementation

5.1 Sector Programme Support – Main Features

Danish support to water supply and sanitation will generally be provided as sector programme support. Other kinds of intervention – such as assistance through the Private Sector Programme and Mixed Credits – may be planned and designed outside the sector programme support.

The Guidelines for Sector Programme Support (SPS) are the basis for the planning and implementation of Danish support to all sectors, and all main requirements for the programme cycle are covered by the Guidelines 13).

Within the framework of a defined Water Supply and Sanitation Sector Programme, Danida may provide technical assistance, equipment and supplies – and financial support to specified programme components. It is anticipated that the Danish support will be planned and implemented in close collaboration with the recipient government and relevant sector authorities of the respective programme countries. Planning of a Water Supply and Sanitation Programme should be closely associated with planning of Water Resources Management interventions 14).

The SPS approach will normally have a long time horizon, and the Danish financial commitment will cover a period of several years. Water supply and sanitation projects assisted outside the SPS will primarily be projects of a pilot nature, which may be considered instrumental in a subsequent revision of an SPS programme, or covered by the Danish mixed credit facility. The present chapter recognises the fact that sector policies are only valid if they are being implemented in practice. Policies must be realistic with regard to implementation purposes and, vice versa, implementation procedures should support policies.

13) Ministry of Foreign Affairs, Danida: Guidelines for Sector Programme Support, May 1998.

13) Please refer to the sector policy paper on Water Resources Management (Danida 2000).

5.2 Approach to Policy Dialogue

In each of the Danish programme countries, Danida has an ongoing dialogue and a formulated strategy for co-operation. In this process, the potential role of Danida in relation to supporting the national WSS sector framework is discussed regularly and agreed upon.

Within the overall framework of SPS, the policy dialogue is an important ongoing process between the respective Danish embassy and the national government. It is important to Danida that national policies and strategies emphasise the basic Danish development assistance policies. Should national sector policies be changed in a manner that does not reflect these goals, Danida may have to reconsider its support to the SPS.

The ongoing policy dialogue also enables Danida and the specific programme country to ensure that the assistance provided is of high national priority, and Danida puts emphasis on maintaining an ongoing dialogue regarding sector policy priorities – at both national and local government levels. Such a dialogue enhances national ownership.

5.3 Identification, Planning and Co-ordination

Experience shows that identification of needs and component designs that are based on limited knowledge lead to the formulation of sector programmes that are based on an “ideal picture”, rather than on an accurate picture of the situation – and they tend to set objectives that are too ambitious.

The WS&S sector framework forms the basis for all identification and planning of interventions towards supporting the sector. The national sector policy formulation and reform processes may, in certain countries, be in their very early stages, and in such cases Danida may also assist and take up the challenge of supporting the establishment of a national policy framework.

Rather than entering into a co-operation based on a detailed long-term plan, Danida prefers to consider planning as an integrated part of implementation and as a continuous process, which facilitates flexibility and feedback in relation to key issues – and, in consequence, changes made in accordance with the lessons learned during implementation. At the programme level, this means that the SPS and its Process Action Plans should be considered dynamic documents subject to regular reviews.

One of the purposes of the sector programme approach is to increase national ownership and control, avoid duplication of effort and to ensure that interdependent activities are planned and implemented in a co-ordinated manner. Such co-ordination is the responsibility of the respective government, although at times facilitated by the donor community. Consequently, co-ordination with other donors is given high priority in sector programming. In some cases, however, co-ordination can be complicated, as it might well include involvement in more than one sector. This means, nevertheless, that co-ordination is even more important, as the risk of duplication is quite considerable and efforts might be contradictory.

Internal co-ordination in Danida is also important, since the support must create synergy between different sector support programmes – in a country as well as between other programmes. (Support to the decentralisation process is an example.) Technical assistance should be provided with clear terms of reference, and milestones should be set in order to “measure” the effect. Exit strategies for technical assistance should also be elaborated and followed.

5.4 Implementation

Implementation will generally follow the Guidelines stipulated for Danida Sector Programme Support.

Regarding accounting and financial reporting, these are, in principle, the responsibility of the respective governments, although in the initial stages Danida may share this responsibility for Danida’s own support. Danida will report to the government on the value of Danida’s support and the disbursements that are not channelled through the government. To promote transparency and accountability, Danida emphasises that its support should be included in the national budgets and reporting.

5.5 Monitoring and Evaluation

The responsibility for monitoring the process, outcome and impact of a Sector Programme rests with the programme country government. However, Danida may assist with the development of such a capacity as this is considered important both as a management and as an impact assessment tool. The responsibility for the evaluation of Danish assistance rests with Danida. Such evaluation will be done jointly with the government and at times with other donors involved in the same sector.

The SPS Guidelines specify the requirements for monitoring and evaluation, and for the use of indicators.

5.6 Funding Modalities

The Danish assistance is mainly given as bilateral assistance to the sector programme countries. It has, therefore, a national and a government-to-government focus. Besides bilateral grant financing, Danida may also enter into parallel co-financing of programmes in programme countries where Danida has selected rural and/or urban WS&S as a priority sector. Another possibility is to use bilateral grant financing and mixed credits within the same programme. Danida may also enter into “basket funding” arrangements with other donors, under the management of the programme country government.

The mixed credit facility is an appropriate financing modality in those countries where Danida has this facility. The Private Sector Programme is also relevant in relation to WS&S sector programme support in those countries where this facility is operational 15).

Multilateral funding is appropriate for regional assistance and for channelling through multilateral organisations.

NGOs are important partners, as these may target particular groups that are difficult to reach and support through an SPS.

5.7 The Danish Resource Base

The Danish resource base has a broad range of expertise and experience, and it includes private consulting companies (with technical and non-technical expertise), public institutions, universities and research institutes, NGOs, contractors and suppliers. It is significant that the range of expertise found in Denmark has a long tradition of working internationally and in developing countries. Danida utilises Danish know-how and expertise with the aim of transferring skills to national partners. Priority is given to capacity building in the programme country, and local expertise is used whenever possible and appropriate.

- 14) Danida's private sector programme aims at supporting private sector development in selected programme countries through the establishment of long-term and mutually obligatory co-operation between Danish enterprises and enterprises in the selected programme countries.

Appropriate technology: The key concept is that technology should be “appropriate” in all senses – managerially, economically, socially, and environmentally. In addition, there have been a number of technical advances and introductions of cost-cutting materials in low-level technology in recent years (e.g. handpumps, tubewell casing and latrine parts).

Awareness raising: Awareness raising is the objective of information, education and communication activity, usually directed at the intended beneficiaries of services, but also at other stakeholders, including politicians, government officials and private companies. Awareness of the relevant issues (e.g. cost of service, hygiene promotion and hygienic use of water, etc.) is necessary for effective participation and community ownership of schemes, for developing support for service charges and systems of tariff collection, and for introducing mechanisms for environmental protection.

Basic needs/basic services: The concept of “basic services” was developed by the World Bank in the seventies as the strategy for meeting “basic needs”, initially in health care and water supplies. Critical components of the “basic needs/basic services strategy” included low-cost, appropriate technology approaches.

Capacity development: A complex process involving policies, institutions and people. At the policy level, capacity building means the creation of an “enabling environment” within which positive sector development can occur. Sector development efforts are not sustainable unless the overall environment enables institutions, communities and individuals to learn and adapt to changing circumstances.

Demand management: The demand management (DM) of water supply is the alternative to supply augmentation, the prevailing policy in many countries until recently. DM has various themes: losses and waste reduction, economy in use, the development of water-efficient methods and appliances, creation of incentives for more careful use of the resource, improved cost recovery, reallocation from low-value to high-value uses, devolving responsibility from central government, greater use of economic instruments (prices and markets). DM entails treating water more like an economic resource, as opposed to an automatic public service.

Demand-responsive approach: Essential to promote efficient capital investment and sustain existing investment. The institutional interface is the lowest appropriate administrative level, on one side, to ensure legal grounding, and, on the other, a users’ (water supply and sanitation) organisation to ensure users’ full participation in decision-making. Demand for services is expressed through the users’ willingness to organise for WS&S, and their willingness to share in the capital cost and pay the full cost of operation, maintenance and replacement of the selected service level and technology.

Environmental assessment: Various forms of environmental assessment can be used to identify the potential environmental impacts of a project. In cases where the environmental impact is likely to be significant, due to the size and type of the project, a full Environmental Impact Assessment can be undertaken.

Environmental sanitation: This aims to achieve safe, non-polluting human waste disposal in rural and urban areas, recognising that the nature of sanitation systems has important implications for the quality and safety of the environment as a whole. The thrust of environmental sanitation is that on-site disposal via latrines is the preferred system for low-income areas. Many latrine systems also have the advantage that their stored waste contents can, over time, be used as nutrients for food production; in rural areas they can be used directly by householders, and in urban areas, sold as a fertiliser product for income-generation purposes.

Hygiene promotion: Public health benefits are unlikely to be gained from basic water supply and sanitation service schemes in low-income communities, unless installations are accompanied by hygiene promotion. This is one of the critical items of social intervention in WS&S now given emphasis alongside appropriate “physical installations”. Hygiene education is needed to correct unsanitary practices for the collection, storage and handling of water and for the promotion of latrines.

Least-cost solution: A solution that matches the needs and desires of the users/community and which is identified as the most economically advantageous based on life-cycle cost analysis (LCCA). LCCA of a given service level and technology includes all capital cost elements of the WS&S scheme (e.g. handpump, pipe system, latrine, etc.), interest and depreciation of investments, the operation and real maintenance costs. The LCCA considers the entire design lifetime of the facilities/schemes.

Monitoring and indicators: Monitoring is the systematic and continuous observation of actual events, and their comparison with the planned situation or outcome. Monitoring is necessary both to check the actual project performance on an ongoing basis, and to measure whether it has achieved the objectives it was designed for. In order for monitoring to be undertaken, indicators are needed of which data can be collected on a regular basis. The selection of useful indicators is critical to the quality of the data collected.

“Polluter pays” principle: The “polluter pays” principle is based on an economic approach to pollution control designed to ensure that the polluter (e.g. an industry) bears the cost of the pollution damage and/or the costs incurred in controlling the pollution – otherwise known as the abatement costs. The OECD describes it as “the principle to be used for allocating costs of pollution prevention and control measures to encourage rational use of scarce environmental resources and to avoid distortions in international trade and investment”.

Private sector participation: The participation of the private sector in the delivery of water supplies and wastewater services has attracted much attention as a solution to problems of service delivery. The level of development and the suitability of private sector institutions in different settings will strongly influence the form of public-private partnerships. Options are wide-ranging, from minimum private sector involvement, which could consist of contracting out the management of certain major installations – to full divestiture to autonomous water companies of responsibility for capital investment, operations, and commercial risk.

Re-use and recycling of water: The re-use or recycling of drainage water, wastewater, brackish water, or polluted groundwater, can be economically and environmentally beneficial and practicable in many settings. However, these water sources require careful management. The two main re-use techniques are: blending (normally for drainage water), which involves the mixing of marginal quality water with good quality water to reduce the concentration of pollutants; and treatment, which involves either high-cost treatment works or low-cost systems such as constructed wetlands, soil aquifer systems or stabilisation ponds to remove pathogens and undesirable trace elements.

Stakeholders: May include project beneficiaries, NGOs, community-based organisations, government departments and agencies, private producers and entrepreneurs, local artisans, industry, donors, consultants, councillors and other political representatives. It is important to include minority groups, low status groups, and the poorer groups in society. Stakeholder analysis is used to assess the relationships between the project and all the actors.

Tariffs: Or charges raise revenues for water services and are necessary for the operation and development of water supply and wastewater services. They also help to underline to users that water is a valuable resource. The most common kind of water charge is a flat-rate charge based on property values. The alternative to flat rate charges is volumetric charges, which vary according to the amount of water consumed.

Water-borne diseases: The term “water-borne disease” is often used, loosely, to describe all diseases carried by water. Strictly speaking, water-borne diseases are those in which the infectious agent is itself carried by water: diarrhoeal diseases, including typhoid, cholera and dysentery – and infectious hepatitis. Other diseases are water-washed: skin diseases such as yaws, scabies, leprosy; eye diseases such as trachoma; or water-related, in which case the disease is spread via an organism living in water, such as schistosomiasis (via snails) and guinea-worm. They may be insect related, in which case they are spread by an insect that breeds in water or bites near it, such as sleeping sickness (tsetse fly), malaria and yellow fever (mosquito), river blindness (blackfly). Other diseases are spread by poor sanitation; pathogens in human excreta remain exposed or are washed into waterways. These include all diarrhoeal diseases and parasites such as hookworm and roundworm.

Water quality standards: Whether water quality is satisfactory will depend on its intended use (e.g. drinking, other domestic usage such as bathing, industrial use). Factors such as scarcity will also affect the quality standards applied. WHO has issued international guidelines.

Annex 2

Effects of Improved WSS on Water-related Diseases

From time to time, doubts about the health impact of water supply and sanitation projects are raised – and many projects have, in fact, produced little or no reduction in the prevalence of diseases because of poor design or implementation. But if the lessons learnt from the International Drinking Water and Sanitation Decade are incorporated into WS&S programme design and implementation, the programmes will contribute to better health.

This annex aims to show that properly planned and executed WSS are worthwhile. An overview of the most common diseases of relevance in this respect may be helpful to the reader. They can be divided into three categories:

1. Water-borne diseases: diarrhoeal diseases (typhoid, cholera, dysentery) and infectious hepatitis, which are caused by virus, bacteria, protozoa or worms carried by water; the transmission is most often transmission through the faecal-oral route.
2. Water-washed diseases: skin diseases (scabies), eye diseases (conjunctivitis, trachoma).
3. Water-related diseases: schistosomiasis (also known as bilharzia, a disease that spreads through snails in freshwater and is transmitted via urine; dracunculiasis (guinea-worm, a disease that spreads via crustaceans ingested when drinking water from ponds); and malaria and yellow fever which are spread by vectors (mosquitoes) that breed in water.

Other diseases such as ancylostomiasis (hookworm, 8-10 mm. long worms that are spread when larvae living in excreta enter humans through the skin of feet and legs) and ascariasis (roundworm, intestinal worms of up to 30 cms. that are responsible for much malnutrition in children) spread through direct contact with faeces on the ground or in surface water.

The relative importance of these diseases appears from the table below:

| Disease | Estimated cases per year (excl. China) in millions | Estimated mortality (deaths per year) |
|---------------------|---|--|
| Roundworm | 900 | 20.000 |
| Diarrhoeal diseases | 875 | 4.6 million |
| Guinea worm | 4 | Debilitates rather than kills |
| Hookworm | 800 | Debilitates rather than kills |
| Schistosomiasis | 200 | Debilitates rather than kills |
| Trachoma | 500 | Debilitates rather than kills |

Source: S.A. Esrey et al. Effects of improved water supply and sanitation on ascariasis, Diarrhoea, dracunculiasis, hookworm infection, schistosomiasis, and trachoma. In Bulletin of the World Health Organization, 69 (5): 609-621 (1991).

The table shows that diarrhoeal diseases are by far the most dangerous of the diseases. Most of the victims are children.

There are four ways through which improved water and sanitation can promote health:

- Sanitation (human excreta disposal);
- Water quality;
- Personal hygiene (using water for cleaning the body, hands, face and eyes);
- Domestic hygiene (using water to clean utensils, floors, food).

The table below shows how each of these interventions impacts health:

| Disease | Improved | Water for | Water for | Human excreta |
|---------|----------|-----------|-----------|---------------|
|---------|----------|-----------|-----------|---------------|

| | drinking water | domestic hygiene | domestic hygiene | personal disposal | |
|---------------------|-------------------|---------------------|---------------------|-------------------|----|
| Roundworm | + | ++ | - | ++ | |
| Diarrhoeal diseases | | + | ++ | ++ | ++ |
| Guinea worm | ++ | - | - | - | |
| Hookworm | - | - | - | ++ | |
| Schistosomiasis | - | ++ | ++ | ++ | |
| Trachoma | - | + | ++ | - | |

Note: Interventions marked with one or two pluses have an impact on a particular disease; an intervention marked ‘++’ will have a stronger impact than one marked ‘+’. A ‘-’ means that the intervention has little or no impact on reducing disease rates. For a particular disease, a package of interventions with pluses is expected to produce a larger impact than any one intervention alone.

Source: S.A. Esrey et al. Effects of improved water supply and sanitation on ascariasis, Diarrhoea, dracunculiasis, hookworm infection, schistosomiasis and trachoma. In Bulletin of the World Health Organization, 69 (5): 609-621 (1991).

It will appear from the table that improved drinking water alone has only a limited health impact, while human excreta disposal and improved hygiene can have a major impact – especially on the all-important diarrhoeal diseases. Experience shows that the health impact from latrines is bigger if they are combined with water supply, and if latrines are widely used in a community. If only few inhabitants in a community use latrines, the children will get infected outside their living area.

A major review of 144 studies of WS&S projects undertaken by Esrey, Potash, Roberts and Shiff (full title in the table source indications above) concluded, inter alia, that:

“Improvements in one or more components of WS&S can substantially reduce the rates of morbidity and severity of the diseases mentioned in the tables above. The overwhelming evidence is in favour of positive impacts, with the exception of hookworm infection [...] The reduction in morbidity [...] ranged from 26% for diarrhoea, 27% for trachoma, and 29% for ascariasis to 77% for schistosomiasis and 78% for dracunculiasis [...] the median reduction in diarrhoea-specific mortality (deaths) was 65% and in overall child mortality, 55% – which suggests the important role that water and sanitation play in enhancing child survival.”

Annex 3

The Private Sector in Water and Sanitation

This Annex, based on World Bank toolkits compiled from experiences involving the private sector in water and sanitation, presents some of the various options of private sector participation. A key source of information is, “The Private Sector in Water – Competition and Regulation, the World Bank Group, March 1999”.

Private sector options

The benefits from private participation in water supply and sanitation depend on the risk and responsibility the respective governments/municipalities hand over to the private sector. Strong public sector commitment and careful preparation are required if the private sector is to take on significant risks and responsibilities.

Different countries have adopted different options for private sector participation. Trinidad and Tobago are using a management contract for water and sewerage services and they plan to replace it with a concession. Guinea has a lease arrangement for water treatment and supply in seventeen cities. Buenos Aires, and several other Argentine provinces, have concessions for water and sewerage, and England and Wales have divested their water and sanitation utilities.

The main options can be clearly distinguished by how they allocate responsibility for such functions as asset ownership and capital investment between the public and private sectors (table 1). The more risk and responsibility that are passed to the private sector, the more powerful are its incentives to improve services. Service contracts, which confer little risk and responsibility on the private sector, offer commensurately small gains – and are simply not designed to address managerial inefficiency or chronic under-investment. Concessions and divestitures are well suited to tackling these problems – but demand more from the government in question in terms of commitment and preparation.

Involvement of the private sector in the water and wastewater sector may take place in many different ways:

- A service contract with a private firm to carry out specific tasks such as leak detection, meter reading, and water quality measurements. Typical contract duration: 1-2 years. Such subcontracting is advantageous for activities that experience peaks, such as construction, or lack sufficient operational scale, such as water quality monitoring or vehicle fleet maintenance.
- A management contract. A service contract under which a private operator takes over management and operation of all systems. Compensation for the operator is a cost-plus-fee or a fixed fee, although risk-sharing may be built into the contract through performance bonuses or contingent fees. The asset owner retains commercial risk and investment responsibilities. A management services contract, close to a contract with a private company, to provide technical assistance may also be a possibility. Typical contract duration: 3-5 years.
- A lease contract. A private operator takes over the operation and maintenance of the system, collects user charges, and is compensated with an agreed proportion of the revenues. The regional or municipal government remains responsible for system expansion and replacement of major assets, and recovers part or all of its costs from its own share of user charges. The lease holder may also administer investment funds as agent to the local government without taking related financial risks. Typical contract duration: 8-15 years.
- A concession or build-operate-transfer (BOT) (and similar schemes). A private operator/investor finances, constructs and operates a complete water/sewerage system and may bill and retain user charges for the concession period. Typical contract duration: 20-30 years.
- Joint venture companies, in which the local government and a private company share ownership. The joint venture may either own the assets or be given a franchise by the local government, as in a lease or concession arrangement. Typical contract duration: 3-10 years or more, if successful.
- Divestiture or full or partly private ownership involves the sale of at least some state property to private investors. Duration: Indefinite (may be limited by license). On a limited scale, divestiture may take the form of privatising and spinning off functions not central to operations, such as construction activities and maintenance of equipment.

In practice, private sector arrangements are often hybrids of these models. For example, leases may pass some responsibility for small-scale investment to the private sector, and management contracts may, like leases, have revenue-sharing provisions that pass on some commercial risk. Options can also be used in combination – for example, a BOT contract for bulk water supply might be combined with a management or lease contract for operating the distribution system.

Table 1 Main options for private sector participation and their allocations of responsibilities

| Option | Asset Ownership | Operation and Maintenance | Capital | Commer- Investment | Duration | Examples |
|---------------------|-----------------|---------------------------|---------|--------------------|-------------|---------------------------------------|
| Service contract | Public | Public & private | Public | Public | 1-2 years | Chile (Santiago) India (Madras) |
| Management contract | Public | Private | Public | Public | 3-5 years | Gaza Trinidad and Tobago |
| Lease | Public | Private | Public | Shared | 8-15 years | Guinea (17 cities) Poland (Gdansk) |
| BOT | Private (bulk) | Private | Private | Private | 20-30 years | Australia (Sydney) |

| services) | | | | | Malaysia (Johor) | |
|-------------|---------|---------|---------|---------------|------------------|---|
| Concession | Public | Private | Private | Private years | 20-30 | Argentina (Buenos Aires) Côte d'Ivoire The Philippines (Manila) |
| Divestiture | Private | Private | Private | Private | Indefinite | England and Wales |

Source: "Toolkit for Private Participation in Water & Sanitation", The World Bank, 1997

Key factors in choosing an option

Governments seeking to involve the private sector in water and sanitation may have a range of objectives – introducing greater technical and managerial expertise and new technology, improving efficiency, constructing large-scale projects, cutting the cost of public subsidies or redirecting them to the poor, and making the sector more responsive to customers.

To determine which private sector options are feasible – or what must be done to make a preferred option possible – a government needs to undertake a range of analyses:

- i) An analysis of the state of the utility – looking at the current level and standard of service, the condition and serviceability of assets, the human resources and the financial performance;
- ii) An analysis of the existing regulatory framework – both general laws that might affect private participation in the sector and sector-specific laws and institutions focusing on pricing and quality standards;
- iii) An analysis of which stakeholders (employees, consumers, environmentalists, government agencies) support private participation and which oppose it; and
- iv) An analysis of the financial viability of alternative options.

Table 2 Prerequisites for the successful implementation of different private sector options

Option

Stakeholder Support and Political Commitment

Cost-Recovering Tariffs

Good
Information about the System

Developed Regulatory
Framework

Service Contract

Unimportant

Not necessary in the short term

Possible to proceed with only limited information

Only minimal monitoring capacity needed

Management Contract with Fixed Fee

Low to moderate levels needed

Preferred, but not necessary in the short term
Possible to proceed with only limited information

Only minimal monitoring capacity needed

Management Contract with Performance Incentives
Low to moderate levels needed

Preferred, but not necessary in the short term

Sufficient information required to set incentives

Moderate monitoring capacity needed

Lease
Moderate to high levels needed

Necessary

Good system information required

Strong capacity for regulation and co-ordination required
BOT
Moderate to high levels needed

Preferred
Good system information required
Strong capacity for regulation and co-ordination required

Concession
High levels needed
Necessary
Good system information required
Strong capacity for regulation and co-ordination required
Divestiture
High levels needed

Necessary

Good system information required

Strong capacity for regulation and co-ordination required

The shading signals the degree of importance:

Not significant Low Moderate High

nnex 4

Guiding Questions on Gender
Question/Issue

Has the analysis of the sector taken into consideration the problems, needs and priorities of women and men by social group? By age (girls, boys)?

Have both women's and men's views about technology options and design features (in water and sanitation) been sought?

Question/Issue

Have differences between women's and men's willingness and ability to contribute to labour, material and funds been determined?

Have obstacles been identified in the sexual division of labour that may keep women and men from participating?

Does the component increase women's/men's/girls'/boys' workload?

Do women, as the direct users of facilities, participate in the monitoring of system functionality?

Have gender barriers and constraints to women's equal participation in decision-making been identified and addressed?

Question/Issue

Have constraints been considered with regard to:
Equal participation of women and men in extension and training services?
Equal benefits to women and men from extension and training service?

Have constraints to women's execution of health and hygiene promotion and activities been identified and addressed?

Action

Support gender disaggregated data collection by social group and carry out specific gender-oriented studies to cover information gaps
(e.g. on women's and men's traditional roles in the sector).

Support research by national institutions or women's organisations on gender issues in water and sanitation.

Emphasise gender issues in Terms of Reference for reviews, evaluation, etc.

Incorporate gender considerations in indicators for sustainability

Ensure that design features allow all user groups to use the facilities, e.g. also children, pregnant women, and elderly people.

Action

Elicit both women's and men's views early in the component cycle to establish demand and willingness to pay

Link women's component activities to traditional work/tasks to facilitate participation. Gradually expand traditional tasks to include newer rules.

Consult women in the community concerning time, labour, or material contributions that women could and would make.

Train individual women, couples, and teams of women as caretakers

Build on women's own strategies for maintaining facilities

Promote women's participation in management and decision-making at the lowest appropriate level

If gender segregation is the norm, set up separate women's committees for management

Action

Ensure that programme planning and management emphasise gender issues in all extension and training activities

Include specific studies on knowledge, attitudes and practices (KAP) with regard to health, hygiene and sanitation

Examples

Data collection on:

The role of women, men and children in water management:

Collection, Handling, Financing, Decision-making.

Appoint gender specialists to systematically incorporate gender analysis in sector/ component planning, implementation and monitoring.

For water: Select types of facilities that can easily be used also by children, pregnant women, and elderly people (foot pumps, hand pumps, height of laundry block).

For sanitation: Women's and men's preferences about siting (latrines: location, privacy, distance from home, safety at night).

Examples

Safety: (particularly for children, consider special child-sized latrines where it is easy for mothers to clean and train children to use them.)

Households that cannot afford to pay financial contributions may be female-headed households.

In areas with high male out-migration women lack the time and skills to participate or contribute to component activities.

When women's workload increases girls may be given additional duties in the household.

The incentives for women to keep systems functioning are higher than for men; (avoid travelling far to fetch water; less health risk to family/ children).

Train teams where men are responsible for technical tasks, women for site hygiene and user education.

Promote affirmative action in election to committees.

Organise specific training/ awareness sessions on:
Leadership; meetings and facilitation; awareness-training of male leaders.

Examples

Train women and men in all subjects on an equal basis;
Train women in technical aspects;
Train men in hygiene.

Norms may preclude time-sharing of one facility and prescribe separate locations and facilities for women and men (age, sex, marital relations, father-daughter in law).

Annex 5

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