Sida

WATER DIVISION
DIVISION FOR URBAN DEVELOPMENT AND ENVIRONMENT
JANUARY 2004

Strategy for Water Supply and Sanitation

Pure Water

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Foreword

The water supply and sanitation sector is facing an enormous challenge. The Millennium Development Goals agreed on at the UN-Millennium Assembly, and the Plan of Implementation agreed on at the World Summit on Sustainable Development in Johannesburg in September, 2002, bind countries to halve the proportion of people without access to drinking water and basic sanitation by 2015.

The responsibility for the fulfilment of these and other goals and targets rests with the national governments. Development partners can, however, in different ways assist various actors in their efforts to achieve these goals and targets and promote a conducive environment for development. This Strategy presents how Sida looks at its role and procedures for such assistance.

The Strategy includes water supply and sanitation for domestic purposes as well as industrial water use. The Strategy shall be applied in the context of integrated water resources management. Sida policy in this area is presented in a paper "Management and Use of Water Resources, Position Paper, May 1999" and is, as well as this Strategy, available at Sida's homepage (www.sida.se).

A core working group at Sida with representatives from the Department for Natural Resources and the Environment, Department for Infrastructure and Economic Development and the Department for Central and Eastern Europe has been responsible for the development of the Strategy. We are also grateful for contributions from external reference groups, consultants, other departments at Sida, Swedish embassies, other governmental agencies and individuals.

Finally, we hope that the Strategy will be a useful tool and provide strategic guidance to Sida staff at headquarter, field offices and embassies as well as provide information to interested actors in our partner countries, other bilateral and multilateral development organisations, non-governmental organisations, consultants and individuals.

Stockholm in January, 2004

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Executive Summary

This strategy document is intended primarily to meet a need within Sida for an instrument to assist in decision-making on support to water supply and sanitation.

The document establishes that the main objective for supporting activities in water supply and sanitation is to improve the livelihoods of poor people.

In order to meet this objective, the following sub-objectives are considered the most important:

- Improved health.
- Environmental sustainability through protection and more efficient use of water resources as well as treatment of human waste and wastewater.
- Enhanced incomes and economic development at household and macro levels.
- Improved democratic governance.

This strategy applies to all Swedish development cooperation in the water and sanitation sector, and covers water supply, sanitation and hygiene promotion for households as well as industrial water and wastewater management. Thus, it provides a framework for support in a broad span of areas including rural/urban and small-scale/large-scale water supply, sanitation and hygiene promotion interventions.

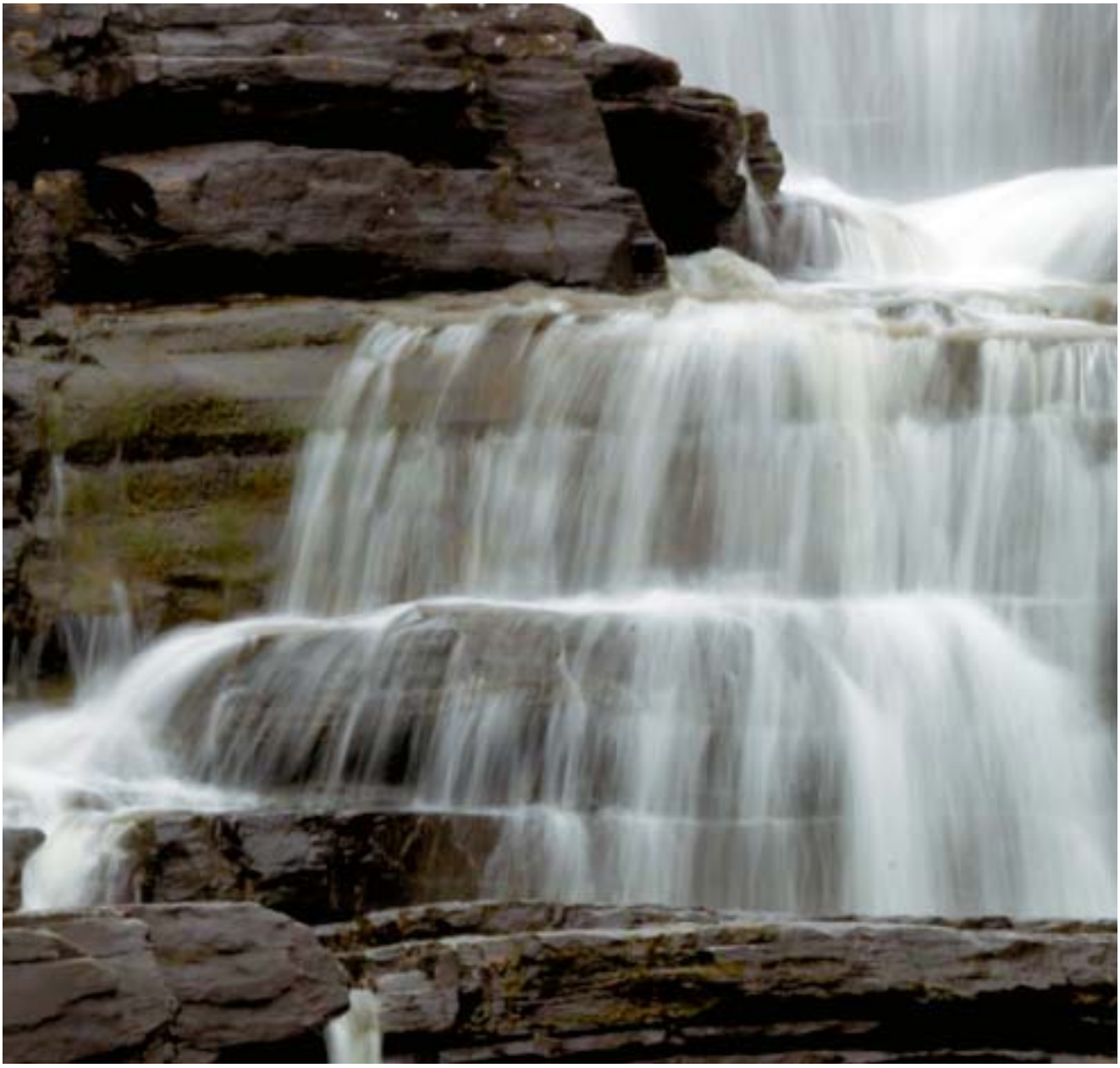
In order to address the objectives as strategically as possible, however, Sida will focus its support on the following areas:

- Water supply, sanitation and hygiene promotion in urban and peri-urban slums.
- Wastewater management in urban areas.
- Water supply, sanitation and hygiene promotion in rural areas.
- Capacity building for industrial water and wastewater management.
- Water supply, sanitation and hygiene promotion in emergency situations.

The strategy discusses and specifies a large number of principles and approaches that should be applied in order to make investments in water supply, sanitation and hygiene more sustainable from socio-economic, environmental, financial and institutional points of view.

The following principles and approaches, which are considered the most important, will guide Sida in its dialogue with cooperating partners and in analyses and decision making with regard to support to the sector:

- Integration of water, sanitation and hygiene promotion into a comprehensive approach.
- Integration of water, sanitation and hygiene promotion with related aspects of social, spatial and environmental planning in both rural and urban areas, and with national poverty reduction strategies.
- Creation and strengthening of an enabling institutional and policy environment to support an integrated water, sanitation and hygiene promotion sector.
- Extension of democratic participation of consumers in all relevant stages of water supply and sanitation service design, delivery, maintenance, management and monitoring in order to recognise the poor as active citizens and to counteract practices of social exclusion.
- Reform and refinement of water and sanitation utilities to address the diverse service needs of all citizens.
- Development and use of technologies that are socially, economically and environmentally appropriate and sustainable, including rainwa-



ter harvesting and ecological sanitation.
- Strengthening effective cost recovery for operation, repairs and maintenance, and adequate reservation for depreciation and future investments, while at the same time developing mechanisms for appropriate cross-subsidisation in favour of the poor.
- Development and strengthening of appropriate financing mechanisms that link the domestic capital market to poor people's own resources.
- Development of mixed public/private sector solutions for sector investment, service delivery and operations and maintenance.
- Development of user-friendly environmental management and monitoring techniques for all levels of water supply and sanitation service provision and wastewater management and recycling, including capacity building for improved industrial water management.
- In addition to the above, with special regard to humanitarian assistance in emergency situations, coordination of water supply and sanitation planning and inputs from all sources as well as integration of services into existing, local institutional frameworks.

1 Introduction

Supporting efforts to improve the management and protection of scarce and vulnerable water resources and extending safe drinking water and sanitation services to poor people, has been, and continues to be, a priority area for Swedish development cooperation. Safe drinking water and sanitation contribute not only to human survival, health, dignity and well-being, but also to the generation and sustainability of livelihoods. Most of those suffering from lack of appropriate water supply and sanitation are the rural and urban poor, for whom associated illnesses (such as cholera, diarrhoea, dysentery, infectious hepatitis, schistosomiasis and malaria) cause up to 3.4 million deaths annually.[1] Inadequate water supply and sanitation both causes and reinforces poverty, as well as deepening the disparity between rich and poor.

While access to sufficient, clean drinking water and sanitation facilities is taken for granted in the developed world and among urban elites in developing countries, it is estimated that 1.1 billion people in developing regions do not have access to safe drinking water and 2.3 billion people lack satisfactory sanitation facilities.[2] Projected population growth, especially in urban environments in Africa and Asia over the next twentyfive years, substantially increases the challenges to service delivery and sustainability. International goals set for the year 2015 in the UN Millennium Declaration and in the Plan of Implementation of the World Summit on Sustainable Development aim at reducing the proportion of people without adequate access to water and basic sanitation by one-half. Such figures remain daunting. To illustrate, the coverage in terms of water supply increased globally by 816 million people between 1990 and 2000, whereas for sanitation the corresponding figure was 747 million. In spite of ambitious sector programmes and accumulated sector knowledge and experience, however, the number of unserved people remained more or less the same throughout the 1990s.[3]

Sweden actively supports collective global effort to achieve the above mentioned internationally established goals. Being essentially quantitative in their nature, however, they need to be supported by means of a framework which also takes into account more qualitative aspects. This strategy may hopefully contribute to providing such a qualitative framework.

In addition to problems relating to service delivery and access, water resources themselves are limited and polluted in many parts of the world. With population increase, inefficient use and pollution from both habitation and industries, stress on water resources is likely to increase in the future. Pollution from industries not only poses a direct threat to poor people living close to effluent but also constitutes a serious challenge to sustainable delivery of water supply and sanitation services and to environmentally sustainability development in a general sense. The fundamental principles and priority areas encompassed by Sida's existing policy for management and use of water resources, which addresses basic issues relating to integrated water resources management, form the basis of the current

[1] WHO, 2002: Press Release, 27 November 2002. WHO Media Centre, Geneva.
[2] WHO/UNICEF/WSSCC, 2000: Global Water Supply and Sanitation Assessment 2000 Report
[3] Adapted from WHO, 2002, quoted above, and WHO/UNICEF/WSSCC, 2000, quoted above.

strategy on water supply and sanitation.

The strategy is primarily intended to meet a need within Sida for a sector-specific instrument to assist in decision-making related to support for development programmes. In this regard it should provide the necessary strategic tools for assessing the relevance and feasibility of proposed cooperation programmes in relation to Sida's own objectives, principles, approaches and priorities. It is also intended to serve as a reference document for Sida staff more generally, and to provide information for development partners in countries with which Sida cooperates, other donor organisations as well as organisations and individuals in Sweden involved or interested in Swedish development cooperation.

This strategy document is structured as follows. Section 1 briefly outlines the General Objectives of Swedish support to the water supply and sanitation sector and defines the overall scope of the sector strategy. The Basic Principles and Approaches underlying Sida's support in the sector are presented in Section 2, with the Strategic Areas and Key Approaches for development cooperation highlighted in Section 3. Finally, the roles and responsibilities of major actors and an account of the methods available to Sida are described in Sections 4 and 5. A number of boxes are included in the document which provide additional background information, field examples and presentations of lessons learnt. Annexed to the strategy is a glossary of key terms used in the strategy.

1.1 Objectives of Sida's Support

The millennium development goal[4] for water supply is to halve the proportion of people without sustainable access to safe drinking water by 2015. This goal was reaffirmed at the un Johannesburg Summit, 2002,[5] which

[4] UN, 2000: United Nations Millennium Declaration, Resolution adopted by the General Assembly.

[5] UN, 2002: World Summit on Sustainable Development, Johannesburg.


MIDDLE EAST HOTEL
SNACKS
DRINKS

also extended the goal to include access to basic sanitation.

Sida's support to water supply and sanitation must comply with the overriding goal of Sweden's development cooperation which is poverty reduction. It should also comply with the Sida policy for management and use of water resources[6] which states as an overall objective the promotion of sustainable management and equitable use of water resources to benefit people, especially resource-poor women, men and children, while safeguarding the environment.

The main objective for supporting activities in water supply, sanitation and hygiene behaviour is to improve the livelihoods of poor people.

The following sub-objectives are considered the most important in order to achieve the main objective:

- Improved health.
- Environmental sustainability through protection and more efficient use of water resources as well as treatment of human waste and wastewater.
- Enhanced incomes and economic development at household and macro levels.
- Improved democratic governance.

The importance of these subobjectives, and their linkages to poverty alleviation, is described in Section 2, Principles and Approaches.

1.2 The Scope of the Strategy

The strategy applies to all Sida development cooperation in the water and sanitation sector, and covers water supply, sanitation and hygiene promotion for households as well as industrial water and wastewater management[7]. Thus, it attempts to provide a framework for Swedish support within a broad span of areas, including rural – urban and small-scale – large-scale water and sanitation interventions.

This strategy focuses on the following areas:

- Water supply, sanitation and hygiene promotion in urban and peri-urban slums[8].
- Water supply, sanitation and hygiene promotion in rural areas.
- Capacity building for industrial water and wastewater management.
- Water supply, sanitation and hygiene promotion in emergency situations.
- Waste water in urban areas.

The strategy does not explicitly deal with management of solid waste other than sewage sludge, rain-fed agriculture, large-scale irrigation and water transfers and large dams.

The strategy will act as a guiding document for all departments at Sida, and will apply to all water supply and sanitation activities supported by Sida irrespective of support channels and modes of financing.

It is recognised that conditions vary widely between and within regions and over time. For this reason, the guidelines provided in the strategy should be regarded as a general framework within which adjustments to specific conditions must be made.

[6] Sida, 1999: Management and Use of Water Resources. Department for Natural Resources and the Environment.

[7] Sanitation is in this strategy meant to encompass on-site solutions, collection and treatment of wastewater, as well as sewage sludge management.

[8] In this document, peri-urban slums is defined as a densely populated informal and largely unplanned settlement that usually straddles municipal and rural administrative boundaries, but which may also penetrate well into urban areas along hilltops, waterfronts or river valleys.

2 Principles and Approaches

The following principles and approaches, together with Sida's overall development cooperation policies and principles, provide the guiding framework for assessment of, and support to, relevant water supply and sanitation programmes and projects. Sida's support to water supply and sanitation encompasses a large number of geographically, socially, culturally, economically and politically diverse countries and regions, and within each of these, an even greater diversity of local and time-specific contexts and conditions. While paying close attention to context-specific factors, Sida will not support development activities which stand in serious conflict to any of the stated principles.

A number of complex and interlinking social, economic, environmental, technical, financial and institutional factors – with implications for water supply and sanitation – are constantly at play in different combinations and with different effects on various social groups. Appreciating the significance of all these factors, and at the same time recognising which factors are most crucial in each specific case, is critical to making the most strategic choices to optimise opportunities for poverty reduction, health improvement, democratic governance and sustainable development.

2.1 Socio-Economic Sustainability

Despite sustained efforts and some successes in improving conditions among the world's rural and urban poor over the past decades, the debilitating effects of impoverishment and marginalisation continue to affect several billion people globally. Health problems related to inadequate water supply and sanitation and gender inequalities add to the burdens of poor people. The socio-economic sustainability of water supply and sanitation interventions will depend on how well these are integrated with the needs, demands and abilities of the users.

Poverty Orientation

Lack of access to adequate and safe drinking water and sanitation has long been identified as a critical contributing factor to poverty. In addition to the negative social, health and economic impacts of inefficient water supply and sanitation facilities, poor communities also suffer disproportionately from the negative environmental effects of over-exploitation and pollution of water resources. At the same time, the productive potential of water even amongst some of the poorest communities needs to be recognised.

While poor inhabitants of both rural and urban settings are each affected by problems related to inadequate water supply and sanitation, the respective contexts raise different challenges that need to be addressed specifically. This is reflected in the distinctions made in Sida's priority areas for sector support, specified in Section 3. It is also critical to be sensitive to the needs, demands, ambitions, strategies and actions of impoverished groups themselves, rather than relying too heavily on the views and suggestions of formally representative organisations.

Many countries with which Sida cooperates have developed Poverty Reduction Strategy Papers, which provide a basis for how governments intend to enhance the impact of pub-

lic action on poverty. The integration of water supply and sanitation sector programmes with poverty reduction strategies, which has so far in most cases been inadequate, has a high potential to increase the efficacy of the programmes with regard to reaching the poor and achieving a higher degree of socio-economic sustainability.

Sida emphasises and supports:

- Interventions oriented towards improving water supply and sanitation services for the poor, with additional emphasis on servicing the needs of the most vulnerable groups, such as people living with HIV/AIDS and households headed by children.
- Development of water supply and sanitation technology options that are appropriate, adaptable and affordable within a variety of changing spatial and socio-economic conditions.
- Cost recovery systems that ensure sustainable yet affordable services. Where necessary this may require forms of cross-subsidisation in favour of the poor (c.f. Section 2.3).
- Interventions that contribute, where possible, to the enhancement of livelihood opportunities especially for the most impoverished and marginalised users.
- Integration of water supply and sanitation sector programmes with national poverty reduction strategies.

Ownership and Participation

Ensuring adequate access to, and sustainability of, water supply and sanitation services requires the recognition of all consumers as active citizens, bearing a combination of rights and entitlements on the one hand, and obligations and responsibilities on the other. This applies to a wide spectrum of life spheres and activities, some of which may contradict or undermine one another, for example the fact that insecure tenure rights may jeopardise access to infrastructure and services.

In relation to water supply and sanitation, an active role by consumers in articulating their needs and defining possible solutions necessarily adheres to the principle of democratic governance, but is equally fundamental to ensuring relevant and affordable development interventions with which consumers identify and which they will be committed, willing and able to maintain. However, there are substantial differences in resource needs, interests, capacities and levels of access and exclusion, both between and within beneficiary communities, competition and conflict being a feature of almost all social contexts. People belonging to marginal and impoverished groups necessarily face the greatest problems in accessing services and participating in public decision-making processes, and therefore particular attention needs to be paid to mechanisms to empower and include them at all levels of planning, implementation, management and monitoring.

CONSUMER ROLES AND RESPONSABILITIES – LESSONS LEARNT FROM EARLIER SWEDISH SUPPORT TO RURAL WATER SUPPLY AND SANITATION

- Consumers need to be the principal driving force behind the projects from the start.
- The technical and organisational solutions need to be such that they are affordable and manageable by consumers.
- Consumers need to fully cover operation and maintenance costs and contribute tangibly to investment costs.
- Need for demand-driven approaches.
- The need to combine the provision of physical services with efforts to change hygiene behaviour.
- An active involvement of women alongside men in planning, decision-making, implementation and management improves performance and sustainability of programmes.

Sida emphasises and supports:

- Participatory planning, implementation, management and monitoring procedures that promote direct involvement of all groups of users, with particular attention to involving those most marginalised.
- The application of poverty-oriented and gender sensitive logical framework approaches and target group analysis.
- The use of technologies and administrative and management solutions that are adapted to the financial, technical and managerial capacities of the users and which build, where possible, on already existing local solutions and potential.

Improved Health Status

Experience and research have demonstrated that improved quality of, and access to, drinking water supply alone has a limited effect on health status. However this increases drastically when water supply is provided in combination, and simultaneously, with improved sanitation and hygiene practices[9]. Yet despite the evidence, investments in activities targeting improved sanitation and hygiene are frequently given lower priority than those dealing with water supply. The integration of water supply, sanitation and hygiene promotion is a prerequisite to achieving the desired health effects from investments in the sector.

Lack of safe, sufficient water supply leads to negative health impacts through three principal transmission routes:

- Waterborne diseases: transmission occurs through direct consumption of contaminated water, most commonly through faecal–oral transmission (including diarrhoea, typhoid, viral hepatitis A, cholera, dysentery) and guinea worm disease.
- Water-washed diseases: these occur when there are insufficient quantities of water for washing and personal hygiene, preventing people from keeping their hands, bodies and domestic environments clean and hygienic. Without enough water, skin and eye infections (including trachoma) are easily spread, as are the faecal–oral diseases.
- Water-based and water-related diseases: these can result from water supply projects that inadvertently provide habitats for mosquitoes and snails that are the intermediate hosts of the parasites that cause malaria, schistosomiasis, elephantiasis, river blindness and Japanese encephalitis.

Such diseases particularly affect the most vulnerable groups in society, such as children, malnourished individuals and people living with HIV/AIDS.

Both quality and quantity of water are thus important aspects of improved health. The quantity of water used depends upon both ease of access and user cost. If water is available through a house or yard connection, it will be used in large quantities for hygiene, but consumption drops significantly when water has to be carried for more than a few minutes from source to household. Equally, if the cost of safe water is too high, users may either use insufficient quantities or revert to unsafe sources. Finally, reducing the presence of open water bodies through improved drainage can limit the occurrence of water-based and water-related diseases.

Safe sanitation facilities interrupt the transmission of much faecal–oral disease at its most important source by preventing human faecal contamination of water and soil. Epidemiological evidence suggests that sanitation is at least as effective in preventing disease as improved water supply. It is particularly effective in controlling worm infections. Often such health improvements require major behavioural changes and significant household cost[10].

Hygiene promotion is an essential complement to the provision of

URINE DIVERSION TOILET

Urine and faeces are kept seperated – a solution as convenient as conventional waterborne systems. Urine is collected and stored for later use as fertiliser. Soil/wood ash is added after use and helps to dry faeces.

[9] For a discussion on the relative effects of water supply, sanitation and hygiene behaviour see for example World Bank, 2002: Water, Sanitation and Hygiene at a Glance and WSSCC, 2003: WASH – The Agenda has Changed.

[10] WHO/UNICEF/WSSCC, 2000: Global Water Supply and Sanitation Assessment 2000 Report

improved water and sanitation facilities. Hygiene promotion and health awareness programmes are critical for providing information about the links between water supply, sanitation and health status as well as for changing attitudes and behaviour. Such activities have proved most effective when focused on women and children through promotion in schools.

In addition to negative health effects of inadequate access to safe, sufficient water supplies and sanitation, there are environmental health risks associated with both natural and industrial water pollution. Impoverished and marginalised people are more often at risk, frequently living in areas especially vulnerable to pollution and having less political influence in terms of being able to demand changes in living conditions and/or compensation.

Although there are no causal linkages between water supply and sanitation and the HIV/AIDS pandemic, in countries or regions where HIV/AIDS prevalence is high, additional health and social concerns need to be integrated into the planning, implementation, management and monitoring of water supply and sanitation programmes. These may range from the likely decline in staffing of organisations providing water supply and sanitation services to consideration of the choice of technology among a target group in which fewer adults may be present in the operation and maintenance phase. In general, there is a need to continuously integrate HIV/AIDS information into related programme activities.

Sida emphasises and supports:

- Programmes and projects that integrate water supply, sanitation and hygiene promotion.
- Methodologies and technologies that emphasise protection and appropriate use of water supplies throughout the water chain, from source to consumption, and that also protect users from negative effects of water pollution.
- Particular attention must be given to HIV/AIDS-related issues in all interventions and in all stages of project cycles.
- The development of institutional and organisational structures supportive of sanitation and hygiene promotion.
- The development of policies and regulatory frameworks that ensure close integration of hygiene promotion, environmental protection and sanitation, with water supply interventions.
- Cooperation and coordination between central government ministries, local governments and civil society organisations in integrating water, sanitation and hygiene promotion.

Roles and target groups

Women traditionally perform the majority of domestic tasks including water fetching, cooking, caring for children and maintaining a clean home environment. While this divi-

CHALLENGING GENDER ROLES

In Zimbabwe's National Integrated Rural Water Supply and Sanitation Programme during the 1980s and 90s, emphasis was placed on the training of women latrine builders and deep-well blasters alongside men. This not only challenged stereotyped gender roles, but also ensured that women as well as men benefited economically from know-ledge transfer and technical skills training within the sector. This effect was enhanced by the fact that the men and women trained in many cases were able to continue their trade on a small-scale enterprise basis even after the end of the programme.

WASTEWATER TREATMENT AROUND THE BALTIC SEA

In the early 1990s, none of the cities on the Baltic Sea in Poland, Lithuania, Latvia or Estonia had functioning wastewater treatment. Through regional and bilateral cooperation between the Baltic Sea countries, and with financial support from international financing institutions and bilateral donors including Sida, the picture has changed drastically. Now most cities have functioning systems for wastewater treatment. As a result, the amount of untreated wastewater discharged into the Baltic Sea has been reduced by 30–70 percent, and the goal of reducing the discharge of phosphorus by one-half has been met.

This work has been part of the Baltic Sea Joint Comprehensive Environmental Action Programme, which is a long-term programme under the Helsinki Commission for improvement and protection of the fragile environment of the Baltic Sea. The programme originates from the interest and responsibility in improving the environment in and around the Baltic Sea shared by Sweden and its neighbours. In addition to investments aimed at reducing pollution from so-called "hot spots", the programme encompasses institutional development, policy and legal change and the protection of fragile coastal eco-systems.[11]

sion of labour continues to dominate most societies, it is paralleled by a concentration of men in public decision-making positions, including a domination of male staff in development resource and service organisations, not least those responsible for facilitating water supply and sanitation development.

Efficient and appropriate delivery of services requires recognition of women's traditional relationship to domestic water supply, sanitation and hygiene promotion, and in effect their much higher stake in improving and sustaining facilities. This demands the direct involvement of women in planning, decision-making and management of water supply and sanitation interventions.

On the other hand, there is the challenge of shifting the fixed gender roles attributed respectively to women and men, and encouraging new and complementary roles for both. This requires innovative approaches to all dimensions and phases of water supply and sanitation development, including aspects of participatory planning, technology development, skills training, operation and maintenance systems, financing mechanisms etc.

Besides considering the gender dimension, attention also needs to be paid to the challenges of generational differences with regard to both children and the aged. Both groups are relatively dependent on others, most often on adult women, to assist with fetching and use of water, although older children and healthier old people often assist with such tasks. Dependence of the very young and very old in relation to water, sanitation and hygiene, becomes an even more pressing issue given the epidemic proportions of HIV/AIDS, which is decimating generations of able-bodied adults and leaving orphaned children and old people even more vulnerable. Special consideration of the

[11] Sida, 2002: "Städer kring ett hav" and "Östersjön – ett renare hav".

needs of vulnerable children and the aged must be included in all aspects of water supply and sanitation planning and development, which might include, among other things, alternative approaches to technology development and a rethinking of subsidies for the most vulnerable.

Sida emphasises and supports:

- Innovative approaches to the appropriate inclusion of both women and men in all aspects of water supply and sanitation programmes, including planning, decision-making, implementation and management.
- Increased presence and influence of women at all institutional levels, including local water committees, community based organisations and non-governmental organisations, utility and service delivery organisations as well as relevant local and central government sector agencies.
- Enhanced methodologies and capacity of sector agencies and service delivery organisations in addressing gender issues, including competence for gender-sensitive user group analysis in project design.
- Focused attention on the specific needs of children and the aged in the planning, financing, implementation and sustainability of water supply and sanitation programmes.

2.2 Environmental Sustainability

Sida endorses a comprehensive and holistic view on water supply and sanitation interventions which takes into account the interrelated effects on:

- the environment in general and on water resources in particular,
- the competing interests of all water users, including potential future users, and
- all parts of the water supply and sanitation cycle, including the treatment and disposal of storm water and sewage sludge.

All activities funded by Sida must comply with Sida's guidelines concerning environmental impact assessments.

Integrated water resources management

Water and sanitation interventions should be seen in the context of integrated water resources management (IWRM). This concept involves equitable and coordinated development and management of water and related resources, through which economic and social benefits are optimised without compromising the sustainability of vital ecosystems. The application of iwrm principles are particularly useful at the level of catchments and river basins, since they define areas that are coherent and interdependent from a natural resources point of view.

Sida emphasises and supports:

- Water supply and sanitation interventions planned and implemented using an integrated catchment approach so that all actual and potential user interests are appropriately considered, investments optimised and protected, and water resources adequately conserved and fairly distributed.

Water Demand Management

Many water supply systems are characterised by high water wastage due to weak or deteriorating infrastructure – often with insufficient financial or human capital to ensure operation and maintenance – and/or to the lack of incentives among consumers to reduce the amount of water used. The conditions and causes of such inefficiencies, and the options and potential for improvement, vary from location to location depending on such factors as topographical and climatic conditions, rural or urban setting, population density relative to facilities, socio-economic status of user communities and institutional capacities of service planners and providers. Water scarcity alone need not necessarily be the primary concern as there are many ways to conserve and use water efficiently. However, in areas where water resources are scarce, it is important that water supply and sanitation interventions are designed and managed in such a way that available water is used optimally.

WATER SAVINGS IN AFRICA

Sida supports the Water Utility Partnership (WUP) in Africa. The WUP aims at increasing the efficiency of water utilities through capacity building in order to reduce water wastage and the introduction of incentives for improved operational efficiency.
Experience from the WUP and similar initiatives shows that wastage in urban areas is especially rampant with up to 60% of water in city pipes, not being accounted for (wasted or not paid for.)
It also shows that, with relatively small inputs in terms of enhanced management and operations, this situation can be turned around.

LOCAL CONSERVATION IN RURAL WATER SUPPLIES

In the development of community-based rural water supplies in southern Africa during the 1980s and 90s, technology design emphasised the building of concrete 'aprons' and 'soakaways' at borehole and well sites. Together with health and hygiene promotion and relevant training of water point committees, this strategy ensured more effective protection of the pump, prevention of contamination of the groundwater source, minimal waste of water and use of run-off to irrigate fruit trees.

Sida emphasises and supports:

- The application of water demand management approaches, including the application of more efficient technologies resulting in lower water consumption.
- Appropriate tariff systems, consumption metering, energy efficiency measures, leakage detection and control, and network rehabilitation.
- Alongside technical and institutional adjustments, demonstration activities and user awareness education programmes to encourage and support customers in conserving water and coping with leaks.

Environmentally Appropriate Technologies

While water saving is environmentally and economically important in many settings, from a social perspective increased water consumption by individuals is often critical for improved health status. Various technologies and methodologies aimed at increasing the amount of water available for human use have been, and are being, developed many of which are well suited for application in developing countries. For example, rainwater harvesting technologies are increasingly applied as both a source of water for household use and for intensive, small-scale irrigation. Alternative on-site options for water supply and sanitation have demonstrated positive results in terms of water conservation, environmental effects, social acceptance and economy. In addition, simple methods based on environmental considerations and applied to the design of traditional community-based water supplies can substantially improve these systems.

Sida emphasises and supports:

- Research and development, and application of environmentally and socially appropriate water supply and sanitation technologies, supported by effective policy and regulatory frameworks.
- Artificial groundwater recharge and, where health risks and risks for contaminated groundwater are negligible, recycling and reuse of treated wastewater in order to increase the amount of water available for human use, including for irrigation purposes.

Recycling of Nutrients

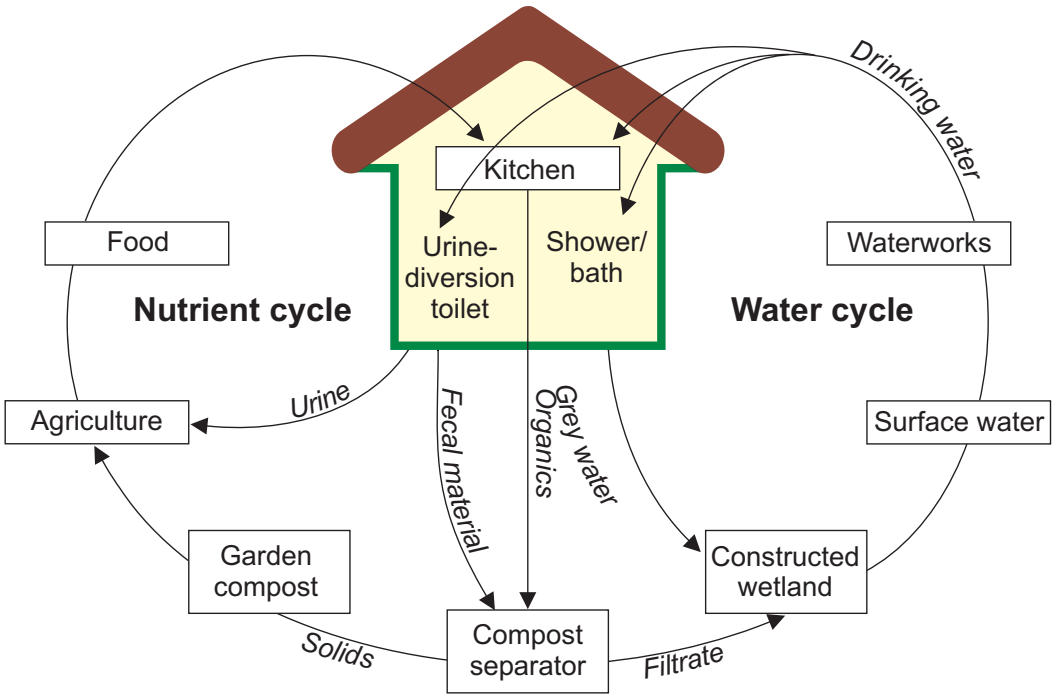
Human beings consume water and food and produce greywater, urine, solid waste and faeces. In conventional, water-based sewer systems, urine and faeces are mixed with water and discharged, sometimes to sewage treatment plants but mostly untreated, back to the surroundings. In this process valuable nutrients such as phosphorus end up in aquatic ecosystems, where they often constitute an environmental and health problem, instead of being put to productive use as fertilisers in agriculture. Sida acknowledges the potential contribution to water conservation, environmental safety and agricultural production that can be made through the use of sound ecological sanitation practices.

Ecological sanitation, which is based on principles of no pollution, recycling and water conservation, is a method whereby nutrients and organic matter in human excreta are treated as resources rather than waste. It minimises discharge and protects surface and ground water from pathogenic and nutrient pollution. Since it requires no, or very little, water it is especially suitable to areas with water scarcity, although its use can be equally valuable where water is abundant for example in areas with a high groundwater table or where flooding occurs. Furthermore, it contributes to improved food security and poverty reduction in rural and urban areas. However, while the basic benefits of ecological sanitation are well established, there are still aspects that require further attention. Examples include cultural objections to handling and using human excreta as well as problems relating to large-scale pro-

RAINWATER HARVESTING IN CHINA

Research, demonstration and extension projects on rainwater harvesting have been carried out with positive results in Gansu, China. A project implemented by the Gansu Provincial Government supported farmers by building one rainwater collection field and two water storage tanks for each farm and by providing one piece of land to grow cash crops. As of 2000, a total of 2,183,000 rainwater tanks had been built with a total capacity of 73.1 million m3 in Gansu Province, supplying drinking water for 1.97 million people and supplementary irrigation for 236,400 ha of land. [12]

[12] UNEP, 2002: Rainwater Harvesting and Utilisation, An Environmentally Sound Approach for Sustainable Urban Water Management: An Introductory Guide for Decision-Makers, [UE-2], Mar 2002, International Environmental Technology Centre (IETC), Division of Technology, Industry and Economics, UNEP.



Source: Oldenburg, M. (Otterwasser) [13]

cessing and handling of excreta and drainage in urban settlements.[14]

Sida emphasises and supports:

- The recycling of nutrients from urine and faeces through appropriately developed, tested and applied technologies and methods of ecological sanitation, including simple, safe methods for separate treatment and disposal of greywater.
- The application of sewage sludge and sludge from other sources such as septic tanks and cesspits, to agriculture lands provided that the sludge does not contain harmful levels of pathogens, toxic or non-degradable substances.
- Mechanisms and capacity to monitor safety levels of waste products, to ensure that the benefits from use of all forms of recycled waste outweigh the risks generated by its use.
- The development and application of effective policy and regulatory frameworks to support safe implementation of ecological sanitation.

Water Quality and Protection of Water Resources

Aquifers and surface water used as a source for water supply are sometimes unsuitable due to their concentrations of chemical constituents such as arsenic, fluoride and nitrates, as well as the possibility of pathogenic contamination.

Small and medium sized industries and their frequently unmonitored and uncontrolled waste products, together with general sewage, are major contributors to point source pollution. This type of pollution, which results from industrial activities often sustained by powerful interests, not only challenges environmental sustainability, but also often poses a direct threat to poor people living close to effluent. Point source pollution is easier to control than pollution from dispersed sources such as drainage from agriculture, while wastewater from industrial processes is often uniform which allows for targeted treatment and sometimes for recycling of chemical components extracted.

ARSENIC IN DRINKING WATER

In Bangladesh, most drinking water used to be collected from open dug wells and ponds, with contaminated water transmitting diseases such as diarrhoea, dysentery, typhoid, cholera and hepatitis. Programmes to provide "safe" drinking-water over the past 30 years have helped to control these diseases, however in some areas an unexpected side-effect has exposed the population to another health problem – arsenic. The extent of the problem is alarming. It is estimated that 46-57 million people are exposed to arsenic concentrations above the WHO provisional guideline value of 0.01 mg/L. Over the next decade, skin and internal cancers are likely to become the principal human health concern arising from arsenic. According to one conservative estimate, at least 100,000 cases of skin lesions caused by arsenic have already occurred. The impact of arsenic contamination spans from immediate health impacts to extensive social and economic hardships especially affecting the poor. [15]

[13] Rosemarin, A. 2003. EcoSanRes – A Swedish International Ecosan Programme. In: Proc. 2nd Int. Symp. "Ecosan – Closing the Loop. Lubeck, GTZ. pp.83-91

[14] UNDP/Sida, 2001: Closing the loop – Ecological sanitation for food security.

[15] Adapted from WHO 2001: Fact Sheet No. 210, Arsenic in Drinking Water.

POLLUTER PAYS PRINCIPLE

The Polluter Pays Principle is intended to hold industries and other major polluters responsible and accountable for the treatment of their wastewater, and to provide incentives for them to invest in less polluting and less wasteful technologies. Strong regulatory institutions with sufficient authority and commitment to enforce existing rules and regulations are a prerequisite for the successful application of the principle. But regulation and enforcement are not the only alternatives. Economic incentives have proved to be even more important, and it has been demonstrated that water-saving technologies and lower pollution strategies are profitable for the companies concerned. These are further reinforced by the complementary strategies of enhanced consumer demand for environmentally sound practices and the introduction of environmental performance standards for exporters.

Sida emphasises and supports:

- Development of appropriate institutional and legal frameworks and capacities for monitoring and follow-up of water quality from point sources as well as diffuse pollution.
- Interventions for treatment of wastewater and reduction of effluent.
- Design of environmental awareness programmes and concrete environmental measures – including information on the health and environmental risks associated with the use of unsafe chemicals – aimed particularly at small and medium-sized enterprises and industrial enterprises in the informal sector.
- Research, development and dissemination of user-friendly, profitable measures to reduce the negative environmental effects of industrial production, including cleaner production techniques and improved waste-water treatment methods.
- Development and promotion of realistic economic incentives and disincentives for environment-friendly industrial production, including water recycling, for example "polluter pays principle", pollution fees, and economic savings.

2.3 Financial Sustainability

Increasing emphasis has been placed on market-driven approaches to development, underscored by user-pays and cost-recovery principles that in turn rest on concepts of demand-driven or consumer-oriented development. Sida recognises the validity of these principles and approaches, especially with regard to technical, environmental, financial and institutional sustainability, while rejecting crude financial valuations that define water and sanitation purely as commercial commodities and ignore their political and social implications. Sida acknowledges the differential capacities among users to access, use and maintain water supply and sanitation facilities, most specifically among and between impoverished and marginalised users. This presents a challenge in terms of investment analysis and decision-making. However, both sets of principles will be simultaneously considered in Sida's assessment of support for water supply and sanitation programmes and activities.

In general, Sida recognises:

- That providing adequate, safe and affordable facilities for all inhabitants should be the first priority in any country's water and sanitation policy.
- That economic principles must be applied, at the aggregated level, to the development and use of water resources and sanitation facilities, in the belief that economic pricing will promote efficient use of resources and hence environmental and financial sustainability.
- That for any given situation a balance must be sought between political, social, environmental and economic considerations.

Ideally, and as a long-term goal, full cost recovery should be achieved including externalities such as social and environment implications.

Investment Needs and Capital Mobilisation

The capital needed for physical infrastructure investments to meet the internationally agreed water supply and sanitation sector goals is immense. Given the relatively limited public and donor capital available there is a need to mobilise local savings from private domestic capital markets.

Sida emphasises and supports:

- Development of capacity and regulatory frameworks within national and local governments, especially in the water supply and sanitation sector, for the mobilisation of domestic capital from saving schemes and banks.
- Facilitation of international and domestic private banking sector lending to investments in public and private infrastructure for poor people in rural and urban settings.
- Development of financing mechanisms that will allow rural and peri-urban/slum communities to access loan financing from banks and micro-financing institutions for investments in non-public (private or cooperative) water and sanitation facilities.

Financial Analysis of Programmes

It is essential that a full analysis of income and cost streams for planned investments in water supply and sanitation is prepared, covering the entire life-cycle of the project including operation and maintenance costs in the future 'post-project' period. Different considerations – in terms of technology choices, investment structures, timetables and institutional arrangements – may need to be applied to rural, peri-urban and urban contexts in order to take account of specific spatial, demographic, economic, cultural and institutional conditions. In rural as well as peri-urban settings, an individual household or a group of households may reduce private investment costs through their own labour instead of contributing in cash. Although whenever relevant and possible, users must also contribute in cash to investment costs. It is normally expected that a household cannot afford to spend more than 3–5 % of its income on water and sanitation.

Sida emphasises and supports:

- Investments based on realistic financial analyses, with discount rates which do not unduly favour capital-intensive investments.
- Assessment and financial valuation of contributions in kind from communities.
- Utilities or cooperatives that must be self-supporting with regard to the servicing of capital costs and allow the saving of sufficient capital to cover major repairs and continuous expansion. To overcome difficulties in covering capital costs in the short and medium term, favourable credits or guarantees could be offered to support investments, while grants could be used for capacity building purposes.
- The application of technologies that can be operated, maintained and, if possible, funded by the users or by resources possessed by the users.

Markets and Providers

Historically, publicly owned and operated utilities have played a dominant role – especially in urban settings – operating as institutionalised monopolies. However, public service providers typically suffer from inappropriate and costly technical solutions, poor procurement systems, weak financial management and political interference, negatively affecting both their delivery and cost recovery capacities. In addition, there is frequently no public accountability and little, if any, space for consumer influence. While all consumers are affected by such inefficiencies, poor slum dwellers and marginalised rural communities are the most likely to remain underserved or excluded from water supply and sanitation services.

PUBLIC/PRIVATE OWNERSHIP OPTIONS FOR RESOURCE-POOR GOVERNMENTS

Resource-poor governments must increasingly explore alternative options for water supply and sanitation sector financing, including private sector investment. Various public/private sector combinations are possible,[16] all of which need to be assessed on their own merits, case by case:

- Publicly owned and operated institutions with a mandate to operate autonomously with or without profit expectations.
- Publicly owned and privately operated institutions, possibly with private sector participation in investments and/or ownership.
- Institutions that are privately owned and operated on a commercial basis.
- Facilities that are jointly owned and operated by consumers through consumer associations or similar arrangements.
- Decentralised distribution based on water kiosks or mobile water vendors.

CLIFF (COMMUNITY-LED INFRASTRUCTURE FINANCING FACILITY), INDIA

In India, Sida supports the development of financial mechanisms (guarantees) for private banks to provide loans for investment in water and sanitation projects in slum areas. The collateral for such investments is often centrally located land that has been granted to the community by the municipality.

[16] For a review of issues relating to privatisation, see for example Rees, Judith A., 1998: Regulation and Private Participation in the Water and Sanitation Sector. Global Water Partnership, TAC Background Paper No. 1. More information on Sida's position with regard to privatisation can be obtained from Sida, 1997: Ripe for Change: A Sida Network for Reforming Infrastructure and Public Enterprise.

INDEPENDENT PROVIDERS

Research in six Latin American and ten African countries has confirmed the importance of independent water supply and sanitation service providers. It is estimated that 25 % of urban residents in Latin America and 50 % in Africa depend on such providers for water. Levels increase to 50 % and 85 %, respectively, for sanitation. Independent providers emerge in response to demand and an enabling environment. Where they provide network services, as is common in Latin America, they compete for clients and sometimes charge even lower prices than official companies which are often subsidised.[17]

In cases where public solutions to service delivery are found inefficient and ineffective, market-based solutions under public control can offer better service to poor people.

However, this needs to be carefully considered according to the nature and scale of a particular service. For example, a large piped water system may be handled best by a public provider. On the other hand, there are successful examples of water vendors having contracts with bulk supply public utilities, and of privately contracted latrine builders and well-diggers. In addition, viable markets have emerged for sewage sludge, wastewater and dry faecal products as fertilisers in agri-based production.

Sida emphasises and supports:

- Integrated, citywide responsibilities for service delivery with special focus on slum areas. If service providers receive subsidies, their operations must be transparent and their services aimed at poorer groups.
- Water and wastewater services in urban areas developed and managed by providers that work under market conditions within efficient regulatory frameworks.
- Development of regulatory reforms and facilities to stimulate small and medium sized enterprises and artisans to provide services in the water and sanitation sector.
- Establishment of transparent and easily monitored regulatory frameworks for public control of service providers.

[17] UNDP/World Bank Water and Sanitation Programme, 1999: Water and sanitation programme 98-99 Report. Final draft.

Tariffs and Subsidies

Tariffs in public utility companies serving urban areas often do not cover even operational costs. As coverage is skewed towards a limited number of inhabitants, this means that subsidies are provided for well-off people in city centres. In rural areas it is more difficult to recover costs, and fees or user charges seldom cover capital costs. Therefore, if governments can afford universal subsidies they are acceptable for investment costs in rural areas, as a bridge to more sustainable financing from local sources. Similarly, subsidies specifically for sanitation components of integrated water supply and sanitation programmes may be necessary since costs for sanitation are generally more difficult to recover than those for water supply. In this case, subsidising promotion and creating awareness is better than subsidising the construction itself.

Sida emphasises and supports:

- Institutional reform of utilities involving changing of tariffs towards pricing structures that allow full cost recovery.
- Water utility tariffs in urban areas that include costs for water supply and collection and treatment of wastewater.
- Systems for pricing of water developed towards covering financial costs, reflecting impact on the economy as a whole.
- Subsidised connections for poor households, which is often a better solution than subsidies through favoured user charges. Subsidies can also be accepted as a bridging measure in rural areas and for the provision of sanitation, in particular for promotion and awareness creation.

2.4 Institutional Sustainability

Sida is committed to supporting institutional sustainability in the water supply and sanitation sector, which includes addressing capacity building needs of facilitating and regulatory institutions, organisations and individuals. The democratic participation of users, women as well as men, in governance and service delivery is a prerequisite for achieving institutional sustainability. Sida recognises that the combination of capacity building and democratic participation potentially has multiple positive benefits for consumers, for the environment, for effective government and for political stability.

Democratic Practice

One of the most critical characteristics of the global distribution pattern of adequate and safe water supplies and sanitation is its profound unevenness both between rich and poor nations and between rich and poor within nations. Sida acknowledges a relationship between poverty and the absence of democratic practices in many countries, and further recognises that adequate provision and sustainability of water supplies and sanitation rests on democratic participation by consumers in their own processes of social change and development.

Sida emphasises and supports:

- Development of decentralisation policies and restructuring of sector institutions to facilitate reform of government from service provider to policy-maker, regulator and facilitator.
- Development of democratic organisational structures and working procedures in order to ensure that all segments of the population, particularly the poor, possess channels through which to express their demands.
- Clarification and transfer of administrative, financial and technical responsibilities to institutions at the lowest appropriate levels.
- When working with low-income user groups, especially in urban and peri-urban slums, addressing the issue of property rights and tenure security as this affects water supply and sanitation, through consideration and/or development of appropriate legal or extra-legal forms of 'ownership' of land or related assets.

URBAN INTERVENTIONS IN EASTERN EUROPE

Lessons learnt from Swedish cooperation financed by Sida with water and wastewater service providers in Eastern Europe in the Baltic Sea Joint Comprehensive Action Programme include the following:

- Progress in economic and political reform stimulates environmental improvements, while environmental policy measures in turn have supported the broader reform process.
- Steep water consumption decline follows the raising of consumer tariffs from previously heavily subsidised levels to reflect actual costs for operation, maintenance and adequate reservation for depreciation, repairs and future investments.
- Tariff increases and water metering need to be combined with institutional support and measures to improve security of supply and water quality.
- Initial investments should focus on emergency repairs, energy saving measures and network rehabilitation.
  Major investments should follow later, only after water companies realise the water demand decline and make realistic demand forecasts.

SUBSIDISE THE POOR, NOT THE WATER

"The water sector is today subsidised by an average of about 80 %. Considering that rich and influential people are generally quite well served with piped water and irrigation water, whereas some one billion of the poor and other disadvantaged groups lack access to safe water, it is obvious that the massive subsidies are misdirected. Equally significant, the combination of subsidies and lack of attempts to monitor performance in water use, results in massive water waste. But subsidies are not inherently bad... The principle should be: Subsidise the poor, not the water." [18]

[18] Lundqvist, J.; Sandström, K., 1997: Most worthwhile use of water. Sida, Stockholm.

Consumer-generated Development

It has been empirically well-established that direct and democratic participation by consumers in planning, developing and monitoring public-use facilities such as water supplies and sanitation produces better results in terms of appropriateness, economic viability and long-term sustainability. User communities are more likely to be willing to pay at least the operation and maintenance costs if they consider services to be appropriate with regard to technology, service level and cost. In rural as well as peri-urban contexts, such involvement and ownership of the process – and in some cases of the actual facilities – can be achieved either at individual level or through user committees or other types of cooperative organisations. In general, water and sanitation interventions must respond to local service demands and be well adapted to local conditions in terms of design, financing and management.

Sida emphasises and supports:

- The provision of water supply and sanitation services based on demand-responsive approaches, whereby consumers take responsibility for construction (mainly in rural areas) and operation and maintenance, and agree to pay related costs.
- Application of participatory methodologies and approaches aimed at consumer involvement and ownership as early as the planning and design stage, which also take account of different needs amongst consumers, for example specific cultural, gender or age-based needs and demands in relationship to technological choices.

Institutional Development

Institutional sustainability refers broadly to the appropriateness, flexibility and longevity of administrative, technical and financial structures and systems, enabled to fulfil their defined

roles, tasks and responsibilities over time. Support to institutional development and sustainability most often includes various aspects of capacity building, including the development or strengthening and application of regulatory reforms, organisational development and human resources development. This can apply as much to national public sector organisations as to local governments, community-based organisations or consumer groups themselves. Capacity building forms a crucial component of interventions in the water supply and sanitation sector.

Sida emphasises and supports:

- Development of institutional capacity at all relevant levels for planning, implementing and monitoring water supply and sanitation programmes – inclusive of hygiene promotion – including development and harmonisation of policy, legal and regulatory frameworks as well as organisational and human development.
- Integration into project design and budgeting of capacity building support for consumers.
- Capacity building and business development support to improve overall management systems, accountability and transparency plus financial and operational performance in sector agencies.
- Progression towards pricing structures that allow full cost recovery as an important part of institutional reform.
- Integration of water and sanitation interventions into comprehensive regional and urban development strategies, particularly into spatial planning at municipal or district level and with national poverty reduction strategies.
- Establishment of structures and capacity for joint management of shared international water resources, with an emphasis on the creation of trust and confidence and institutional capacity building over long periods of time.

Capacity Building for Industrial Water Management

Due to the serious effects of industrial pollution, particularly on the lives of poor people, Sida will provide support to improved industrial water and wastewater management as a priority. A number of specific capacity building challenges arise in this field.

Sida emphasises and supports:

- The development and application of economic instruments, agreements and regulatory frameworks to stimulate cleaner production within industry, based on more efficient use of water, exclusion of hazardous substances, closed circuits for recycling and wastewater treatment.
- Capacity building to facilitate industries' carrying out self-monitoring and reporting, including the development and use of environmental management systems and environmental audits.
- Enabling of regulatory institutions to enforce existing rules and regulations.
- Joint programmes for capacity building and networking between industry, government regulators and independent opinion leaders in civil society and the media.
- Strengthening of the environmental consultancy sector and associated laboratory facilities.

3 Strategic Areas and Key Approaches

In order to use the limited resources available as efficiently as possible to meet the objectives of support to water supply and sanitation programmes, Sida will prioritise and focus its support to the areas specified below.

3.1 Water Supply, Sanitation and Hygiene Promotion in Urban and Peri-urban slums

Urbanisation trends are alarming, particularly in Africa, and urban poverty is becoming one of the major challenges for many developing countries. It accelerates problems relating to water supply and sustainable use of water resources. The lack of sanitation in urban and peri-urban slums is rapidly becoming a major health threat. Sida considers support to water supply, sanitation and hygiene promotion in urban and peri-urban slums an important tool to combat urban poverty.

3.2 Wastewater Management in Urban Areas

Wastewater from urban households that is discharged without proper treatment poses threats to water resources, the environment and to public health. Impact can be observed at local as well as regional levels. Reducing the impact from urban municipal effluents is an important area for Sida's support. Interventions should be based on a holistic and systems-based approach, incorporating the concepts of iwrm.

3.3 Water Supply, Sanitation and Hygiene Promotion in Rural Areas

Nearly three-quarters of the world's poor live in rural areas, and a large part of this population does not have access to safe water or adequate sanitation facilities. Improved water supply in rural areas may not only lead to better health, if combined with sani-

tation and changed hygiene behaviour, but also to better livelihoods through increased small-scale agricultural production. Sida will continue to support water supply, sanitation and hygiene promotion in rural areas.

3.4 Capacity Building for Industrial Water and Wastewater Management

Industrial pollution has serious impact not only on the environment in general but often particularly on poor people who are for many reasons more vulnerable to the negative effects of pollution and who are forced to live in unsuitable areas, for instance near industries of effluent sites. Small and medium scale industries often lack their own competence to deal with environmental issues or even to appreciate the environmental effects of their activities. Sida will continue to support the creation of such competence and awareness.

3.5 Water Supply and Sanitation in Emergency Situations

For several reasons, poor people are particularly vulnerable to both natural and man-made disasters. Sida will continue to provide humanitarian assistance, including the provision of safe water and sanitation, in connection with disasters. This support, which will to a large extent be channelled through un or other international organisations, should as far as possible comply with the approaches and priorities specified in this document.

3.6 Summary of Key Approaches

The following list summarises and reiterates the key approaches in Sida's support to the water supply and sanitation sector. These are listed in no particular order of preference. Rather, these approaches need to be applied simultaneously and in relationship to one another when addressing the multidimensional aspects of this complex sector.

- Integration of water, sanitation and hygiene promotion into a comprehensive approach.
- Integration of water, sanitation and hygiene promotion with related aspects of social, spatial and environmental planning in both rural and urban areas, and with national poverty reduction strategies.
- Creation and strengthening of an enabling institutional and policy environment to support an integrated water, sanitation and hygiene promotion sector.
- Extension of democratic participation of consumers in all relevant stages of water supply and sanitation service design, delivery, maintenance, management and monitoring in order to recognise the poor as active citizens and to counteract practices of social exclusion.
- Reform and refinement of water and sanitation utilities to address the diverse service needs of all citizens.
- Development and use of technologies that are socially, economically and environmentally appropriate and sustainable, including rainwater harvesting and ecological sanitation.
- Strengthening effective cost recovery for operation, repairs and maintenance, and adequate reservation for depreciation and future investments, while at the same time developing mechanisms for appropriate cross-subsidisation in favour of the poor.
- Development and strengthening of appropriate financing mechanisms that link the domestic capital market to poor people's own resources.
- Development of mixed public/private sector solutions for sector investment, service delivery and operations and maintenance.
- Development of user-friendly environmental management and monitoring techniques for all levels of water supply and sanitation service provision and wastewater management and recycling, including capacity building for improved industrial water management.
- In addition to the above, with special regard to humanitarian assistance in emergency situations, coordination of water supply and sanitation planning and inputs from all sources as well as integration of services into existing, local institutional frameworks.

4 Sector Actors and their Roles

This section aims at identifying roles and responsibilities of the major actors in the water and sanitation sector and related areas of Swedish support.

4.1 Users

All water and sanitation interventions must be based on a comprehensive user analysis that distinguishes between critical differences in need, demand and resources within user groups – for example those based on class, gender and age. Sida stresses the importance of participatory methods in planning, design and implementation. Ensuring the involvement of, and endorsement by, the respective users in planning and implementation is crucial for sustainability and for finding appropriate technical, financial and institutional solutions. Sida promotes systems allowing users to influence decisions regarding water and sanitation services. Those systems are likely to be different in rural and urban contexts. Users will, in all cases, be regarded as owners or clients, especially as they are expected to cover the cost for the services in the long run.

In order to empower users in relation to service provision and management, Sida may at times promote and/or support the formation of community-based organisations with a mandate to represent the various community interests with regard to water and sanitation. These community-based organisations will, if possible, be founded on existing social or institutional structures. It is essential to make sure that all concerned groups of users, especially including marginalised social strata, are represented in these organisations.

Sida's interaction with users is mainly indirectly through national/local sector actors within the cooperation agreement framework, but may occasionally be more direct through field-related activities. Information and education are important components in a dialogue with users.

4.2 Central and Local Government

Central government bears sole responsibility for providing an enabling environment for universal access to water supply, sanitation and hygiene promotion. The primary role of the government is to provide appropriate policies as well as regulatory and legal frameworks, although in some contexts the public sector also monopolises actual service delivery. Ideally, the government must ensure that all policies and regulatory frameworks allow harmonised and coordinated utilisation of internal and external financial resources. The regulatory framework for the sector, and its application, must be transparent and consistent with international standards of accountability, including strict measures against corruption and other forms of mismanagement of resources.

Central government must make sure that there is a clear delineation of roles and responsibilities among actors in the sector. This coordinating role is even more important when an integrated, sector-wide approach is applied. In order to carry out sector coordination efficiently, government needs to monitor all key dimensions of sector performance. The government is also broadly responsible for public hygiene promotion, including in relationship to water and sanitation. Health and hygiene awareness also

needs to be fostered through public debate and campaigns in collaboration with schools, the media, and relevant non-governmental organisations.

In many cases, central government's mandate is delegated or devolved to local governments such as municipalities and district councils, who may pass relevant by-laws, undertake local development planning and even be directly involved as investors and/or service providers.

These authorities are located much closer to the users, to whom they are accountable for public health in general and public sector spending, including funds spent on water supply and sanitation. In addition, local government authorities may have responsibility for advisory services and for local capacity building, monitoring, and so on.

A prerequisite for central and local governments to fulfil their roles and responsibilities is that they are democratically elected and that their operations are fully transparent.

4.3 The Private Sector

As previously noted, publicly owned and operated schemes in many countries frequently fail to deliver adequate, cost efficient or sustainable services, often affecting those least able to afford alternatives. Currently, efforts are being made to find a balance where private investment, ownership, service delivery and management are used to supplement and support public involvement in the water supply and sanitation sector. Experience shows that the performance of public utilities can be considerably improved through the application of business management concepts such as corporatisation, full cost-recovery, identification of core vs. non-core services, out-sourcing and decentralisation.

A variety of solutions are being tried, ranging from contracting international operators to promoting local, small-scale entrepreneurs. The concept of public/private partnerships applies to both the urban and the rural setting.

To successfully involve private actors, appropriate regulatory frameworks and transparent and fair tendering processes are fundamental. Capacity in the public sector for contracting and monitoring of private service providers is equally important.

Sida's support to the private sector is normally channelled through cooperation relationships with institutions such as government agencies, non-governmental organisations or through dedicated business development funds.

4.4 Civil Society

Civil society – commonly defined as incorporating institutional actors that exist between the household and the state, such as non-governmental organisations, trade unions, religious bodies etc. – has a role to play in creating awareness regarding conditions and possible solutions to problems in the water supply and sanitation sector. Another important role of civil society is to provide information on links between the sector and developments in other sectors. The media is especially important in terms of awareness creation, public debate and as an agent of dissemination of information.

Residents' associations or other types of community-based organisations are most critical in articulating consumer needs and demands and monitoring service delivery. Various non-governmental organisations may themselves be active in raising investment finance for community water supply and sanitation services, or in delivering or contracting delivery of services.

With regard to civil society in the water and sanitation sector, Sida cooperates primarily with non-governmental and community-based organisations.

4.5 Other International Actors

Sida acknowledges that water and sanitation issues must be placed in a global context. Therefore Sida actively seeks collaboration with other international actors, either directly or together with Swedish government ministries. Some of the most important international actors are:

- **United Nations agencies**
  Cooperation with most UN actors – such as UNICEF, UNDP, Habitat

and who among others – takes place at national level wherever this is regarded as the most efficient way of supporting development in the sector. In some cases, Sida supports regional and global initiatives through these actors.

- **International organisations**
  Sida cooperates with various international organisations in the humanitarian sector to save life and alleviate suffering in accordance with International Humanitarian Law, for example the UN, the Red Cross/Crescent Movement and NGOs.
- **Development banks and their sector programmes**
  Sida strives to coordinate efforts with development banks such as the World Bank, the European Development Bank, the European Investment Bank and other regional development banks, in order to link up with major credit schemes as well as with new sector thinking and reforms advocated by the banks. In some cases joint funding mechanisms are established. Examples of this type of cooperation include: trust funds, consultancy funds, investment credit funds and investment guarantees.
- **European Commission**
  Through its membership in the EU, Sweden contributes to the extensive development activities administered by the European Commission.
- **Bilateral donor agencies active in Sida's partner countries**
  Sida recognises the advantages of working with other bilateral agencies in the water supply and sanitation sector. However, the main responsibility for coordination with other donors lies with the partner country government. Sida promotes efficient sector coordination and offers facilitation to the partner country in order to achieve this.
- **Regional cooperation mechanisms**
  These include the HELCOM Baltic Sea Action Programme and the Lake Victoria Development Programme. Sida takes an active part in various regional coordination mechanisms aimed at capacity development, advocacy, conflict prevention and shared investment programmes. Water and sanitation as well as industrial pollution are key issues in these initiatives.
- **Global agencies and initiatives**
  Sida participates in organisations and networks such as the Global Water Partnership and the Water Supply and Sanitation Collaborative Council to promote policy development and advocacy mainly on a global level. Networking and exchange of experience constitute important features of this cooperation.

4.6 The Swedish Resource Base

A large number of Swedish actors possess competence and experience in the area of water supply and sanitation, qualifying them as valuable counterparts in connection with activities indicated in this strategy. This includes central, regional and local government authorities, agencies and utilities, universities, consultancy and construction companies and non-governmental organisations. Many have been, and continue to be, engaged in specific projects supported by Sida, which has facilitated substantial collaboration with institutions and organisations in cooperating countries. Some of this cooperation is carried out without financial support from Sida.

5 Sida's Methods

5.1 Dialogue

Sida's approach to development cooperation, including within the water and sanitation sector, is that it is the priorities and objectives of Sida's cooperating partners that determine the content of cooperation and support. This does not mean, however, that partner proposals are accepted at face value. Joint assessments and extensive dialogue are essential in finally determining what types of interventions are to receive Swedish support, and how the support will be provided. This strategy document will be one of the instruments utilised in such a dialogue.

5.2 Sida's Main Financial Instruments

Sida utilises various financial instruments for support. The selection of financial instruments will be established in dialogue between Sida representatives, cooperating partner authorities and representatives of other donors where relevant.

Sida's main financial instruments include:

- *Grant financial support* channelled to cooperating partners for programmes and projects governed by bilateral and multi-lateral agreements.
- *Concessionary credits, soft loans and loan guarantees*[19] mainly for investments in infrastructure[20]. This is regarded as a way to make capital available on favourable terms according to international agreements.
- *Contract-financed technical cooperation* for capacity building, project preparation and institutional development. Such cooperation is carried out on a cost-share basis in collaboration between Swedish institutions and partners with a relatively high capacity level.
- *Direct funding of humanitarian appeals* such as the annual UN Consolidated Appeal process, Red Cross/Crescent appeals or appeals linked to sudden emergencies.
- *International training programmes* that offer courses in, for example, water and sanitation. The primary target group of the courses is sector professionals and policy makers in partner countries. The courses mainly aim at widening knowledge on issues beyond technical areas where Sweden has proficient knowledge and experience. The courses also promote opportunities for sharing experiences and establishing contacts between participants from different countries and regions.
- *Funds for stimulation of business opportunities* for Swedish private enterprises in cooperation with private enterprises in partner countries. The financing mechanisms are called: Start Syd, Start Öst and Demo Öst.
- *Research cooperation* to build research capacity within bilateral or regional cooperation programmes. Research support can also be provided to Swedish research relevant to developing countries.
- *Support through Swedish non-governmental organisations* where Sida provides 80% of the funding and the non-governmental organisation 20%.

[19] Concessionary credits, soft loans and loan guarantees are not available for cooperation within the Baltic Sea Environment Programme.

[20] See Sida, 2000: Policy for Credit-Financed Development Cooperation and the Swedish government decision regarding guarantees through Sida ("Försöksverksamhet med fristående garantigivning", March 1999) on the use of these forms of financing.

Annex 1
Glossary of Terms

Artificial recharge: Augmentation of the natural replenishment of groundwater by inducing infiltration of water through wells, through spreading or by changing natural recharge conditions.

Awareness raising: Awareness of the relevant issues (e.g. hygiene promotion and hygienic use of water, cost of service 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.

Capacity building: 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.

Catchment area approach: When management and planning of water resources includes all activities and impacts in the catchment area, i.e. the land area drained by a river and its tributaries.

Cleaner Production: Cleaner Production (CP) is a new, creative way of thinking about products and the manufacturing process. Cleaner Production is achieved by the continuous application of strategies to minimise the generation of waste products and emissions. Cleaner Production could be defined as the continuous application of an integrated preventive environmental strategy applied to processes, products and services to increase overall efficiency and reduce risks to humans and the environment.

Cost of water: The full cost of providing water includes the full economic cost and the environmental externalities associated with public health and ecosystem maintenance. The full economic cost consists of (1) the full supply cost generated by resource management, operating and maintenance expenditures and capital charges, (2) the opportunity costs associated with alternative water uses, and (3) the economic externalities imposed upon others due to the actual consumption of water by a specific actor. [20]

Demand management: The demand management (DM) of water supply is the alternative to supply augmentation, the prevailing policy in many countries until recently. Demand management has various potentially positive effects: 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, and greater use of economic instruments (prices and markets). Demand management entails treating water more like an

[20] Global Water Partnership, 1998: Water as a Social and Economic Good: How to put the Principle into Practice. TAC Background Paper No. 2.

economic resource, as opposed to an automatic public service.

Ecological sanitation: A sanitation system that makes use of human excreta and turns it into a valuable resource which can be introduced into agriculture with no pollution of the environment, and in a manner which poses no threat to human health. 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 ecological sanitation is that on-site containment and sanitisation using latrines that are urine-diversion toilets is the preferred system. These systems also have the advantage that their stored contents can, over time, be used as nutrients for food production; in rural areas they can be used directly by households, and in urban areas also be sold as a fertiliser product for income-generation purposes.

Environmental Impact Assessment (EIA)**:** Various forms of EIA 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 EIA can be undertaken. EIA is part of the project process and must be performed at an early stage. Sida has developed guidelines for how to use EIA in development cooperation.

Environmental Management Systems (EMS)**:** An EMS is a systemised approach for environmental self-monitoring and continuous improvement. The steps in implementing an EMS generally include: environmental assessment, environmental planning, control and monitoring of compliance to policies and objectives, review and improvement. The advantage of implementing an EMS in a developing country context is that it provides a structured approach to self-improvement of pollution abatement as well as an additional incentive in terms of improved trading possibilities and public image. For larger export industries in Asia and Latin America this could be a compelling incentive.

Greywater: Wastewater from clothes washing machines, showers, bathtubs, hand washing, lavatories and sinks that are not used for disposal of chemical or chemical-biological ingredients.

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

Integrated Water Resources Management (IWRM): The Dublin Principles emphasise an integrated approach to water resources management, what is commonly known as IWRM. IWRM relates available water resources to present and future needs of water within ecosystems as well as within all sectors of society. The rationale of IWRM is to provide means whereby equitable decisions can be taken based on a participatory approach to ensure the sustainable use of water resources. Water must be regarded as an integral part of the ecosystem and a social and economic good, whose quantity and quality determine the nature of its utilisation.

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 abatement costs.

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 of responsibility for capital investment, operations, and commercial risk to autonomous water companies.

Recycling and re-use of water: The recycling and re-use of 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, 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.

Sewage sludge: The precipitate produced by sewage treatment.

Stormwater: Precipitation that does not infiltrate into the ground or evaporate due to impervious land surfaces but instead flows onto adjacent land or water areas and is routed into drain/sewer systems.

Tariffs and 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.

Unaccounted for water: The term includes water lost through physical leakage but also water that has been delivered to the customer but where the cost has not been billed or collected.

Wastewater treatment: Methods for wastewater treatment are often classified into four categories in the order they were developed and applied and the degree of treatment they provide:

- Preliminary or pre-treatment, which refers to the removal of large objects and usually includes at least bar screens and grit chambers.
- Primary treatment, which usually consists of primary sedimentation tanks with or without chemical precipitation.
- Secondary treatment, which refers to biological methods such as activated sludge or trickling filters as an alternative to, or in combination with, chemical precipitation.
- Tertiary treatment or advanced treatment, which generally refers to biological or chemical treatment that removes nutrients or toxic compounds or improves the overall quality of the secondary treatment.

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