



WATER AND DEVELOPMENT

Experiences of the Swiss Agency
for Development and Cooperation
(SDC) in the Water Sector



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Switzerland is often referred to as Europe's "Water Tower" because many of the rivers and streams that wind their way throughout Europe into different seas have their sources here. With our water reserves, we have a vital resource at our disposal that is less abundant elsewhere – on a global level, freshwater is becoming a scarce resource. The global population is growing and per capita water consumption is rising steadily. At the same time, the quantity of freshwater on earth that is available for use is decreasing because of factors such as chemical and organic pollution and salt-water intrusion into groundwater reserves. If water consumption continues to grow at present rates, two out of three people will experience water shortages by the year 2025.

However, the world's total freshwater reserves are sufficient to meet all of our needs if we manage them in better ways, and this poses one of the great challenges for mankind in the 21st century.

Water-related issues have always been of central concern in sustainable development. A holistic understanding of the water cycle is important: besides ecological and economic significance, water also has deep cultural and social meaning. Ever since the creation of the Swiss Agency for Development and Cooperation, water supply problems have been a focus of attention. In order to do justice to the principles of sustainable development, we aim for an integrated approach in our water projects by attempting to give balanced consideration to socio-cultural, ecological, economic, technological and institutional areas, as well as to knowledge and standards. Access to adequate water resources, drinking water supplies and sanitation services are core areas of concern in development cooperation (both in the

fight against poverty and in the drive for food security), and during the provision of humanitarian assistance after natural or man-made disasters.

In the framework of the International Year of Freshwater 2003 as declared by the UN, we are actively and strongly committed to playing a significant role. We would like to inform as many people as possible – in Switzerland and abroad – about the links between water and development. We will also make use of this occasion to organise ourselves in terms of content and strategy, in order to maximise our contributions to water-related development issues well into the future.

With this brochure, we undertake the first step towards developing a truly comprehensive water strategy. We present an overall view of the various SDC competencies and activities in the water supply sector and we illustrate them with the aid of specific examples. On the foundations of our long-standing experience in the water sector and our steadfast commitment towards priority countries, we want to face the future. The experiences gained in the field and the continued cooperation with local partners provide the necessary grounding for the strategy.

Please allow yourselves to be inspired by the experiences presented in this brochure, and discover the complexity and diversity of water and development.



Walter Fust
Director Swiss Agency for Development and Cooperation (SDC)







PART I: INTRODUCTION



Looking Back: “Water for All” – the Engagement of SDC

Water-related issues have always been of central concern in development cooperation. Consequently, Switzerland is strongly committed to dealing with these issues responsibly in its bilateral programmes, in the framework of international negotiations and in international initiatives. The Swiss Agency for Development and Cooperation (SDC) has been engaged in the water sector for more than 30 years.

Cooperation as a Strategy

Already in the sixties and under the name of “Service for Technical Cooperation”, the Swiss Agency for Development and Cooperation was engaged in the drinking water and sanitation sector. The majority of projects in developing countries were originally the result of private initiatives. Right from the beginning, cooperation with non-government organisations and local institutions was an important component of the Swiss government’s development strategy. The first sizeable water project was the reaction to a severe drought in India in 1965. By drilling for water and the subsequent installation of hand pumps, Switzerland made a valuable contribution in the struggle against water shortages. The Swiss Agency for Development and Cooperation helped to introduce new methods in the procurement and supply of drinking water, took on advisory functions and delivered technical know-how. Close cooperation also existed in research.

Extension and Specialisation

In the seventies, further water supply projects were undertaken, and SDC began to specialise: water

was one of the basic elements to be promoted. The directorship of Development Assistance at that time (DEH) co-operated with UNICEF and commissioned organisations like the Swiss Association for International Cooperation, Helvetas, Swissaid and the Institute Universitaire d’Etudes du Développement (IUED) with the technical realisation of water projects.

From Irrigation to Integrated Use of Water

The sixties and early seventies were characterised by a strong belief in the potency of technical solutions. Many gigantic dams were built – supported mainly by international financial institutions and private enterprise – in order to build up water reserves and to boost the production of food. These projects succeeded in turning large areas of tree-covered land into farmland, thus ensuring food and income for growing populations. Little attention was given to the social and ecological damage that resulted from this practice. Countless people were forcibly relocated without compensation, forests were ruined and river courses were changed – negatively affecting the local environments of entire regions.



Irrigation channel in Bolivia.

The Wastewater Problem

For more than 50 years in most industrialised countries, wastewater has been collected in extensive piped networks and drained into central locations. Ideally, the collected wastewater is processed through treatment plants before being channelled back into nature. Such elaborate systems are technically challenging to build and to operate and they require large quantities of water in order to function. They rely on a consistent supply of electric power, they are costly to build and they are costly to use because of the spare parts, energy and chemicals they consume during normal operation. The widespread shortage of resources in developing countries means that such systems can only be built in large urban centres and total or partial failures are commonplace. New and innovative approaches are needed.

SANDEC is the Department for Water and Sanitation in Developing Countries at the Swiss Federal Institute for Environmental Science and Technology (EAWAG). In cooperation with SDC, with the "Water-Supply and Sanitation Collaborative Council" and with various bilateral and multilateral partners, SANDEC is looking for new solutions in the field of wastewater management.

With the "Household-Centred Environmental Sanitation" approach (HCES), attempts are being made to address the sanitation problem as closely as possible to its source. Decentralised systems reduce the need for the construction of kilometres of sewers and allow for the management of waste closer to where it is generated. With the HCES approach, the quantity of water needed for safe disposal can be reduced considerably. Additionally, the nutrients embodied in the waste can be reclaimed and put to good use in farming. The introduction of separating toilets where faeces and urine are disposed of separately is an important component to this approach and is being discussed not only in developing countries, but also in Switzerland.

World Water Council (WWC)

The World Water Council is the International Water Policy Think Tank dedicated to strengthening the world water movement for an improved management of the world's water resources. It seeks to promote awareness and build political commitment on critical water issues at all levels, to facilitate the efficient conservation, protection, development, planning, management and use of water in all its dimensions on an environmentally sustainable basis.



Micro-irrigation in Mali.

The shortcomings of this irrigation policy were soon visible. This led some countries, among them Switzerland, to address the problems of efficient water use for farming, the conservation of rain water and the equitable distribution of water rights. Since water does not respect social or ecological boundaries, the approach to a solution for these problems had to be of an integral nature. Therefore the eighties saw a phase of self-determination and integrated development of water catchment areas in South Asia, in Central Africa, as well as in the Andean highlands of South America. In areas where irrigation programmes continued to be supported, such as in Pakistan, Sri Lanka and Ecuador, Switzerland increasingly advocated for the strengthening of democratically organised water-user groups.

The Drinking Water Decade Points the Way

The eighties were proclaimed by the UN as “the International Decade of Drinking Water and Sanitation”. Every woman, every man and every child was to have access to safe drinking water in sufficient quantities and to have access to adequate sanitation services. It soon became obvious that these goals were too ambitious. However, the Water Decade prompted the significant allocation of finances for sector development and large segments of society were made aware of the scale and nature of water supply problems at the global level. In the beginning, the goal of “water for all” was the primary focus of attention. Gradually, issues of appropriate technology, institutional strengthening and sustainable operation and maintenance of water infrastructure rose in prominence and started to receive due attention. With the best of intentions, the international development cooperation community had started out by

concentrating all efforts on extending access to drinking water. Consequently, the management of solid waste, the management of wastewater and the promotion of hygiene education were not given the attention that these key issues deserved.

Networks and Partnerships are Necessary

During the Drinking Water Decade, SDC started to promote international networks and partnerships in the drinking water and sanitation sector in order to foster mutual learning. At the same time, the global shift towards participative programming strategies for watershed management was developing and many countries started to seriously address the local needs of water users.

In Switzerland also, SDC fostered the linking-up of partner organisations. In the beginning of the eighties, the “Aguasan” panel of experts was set up – an interdisciplinary association of practitioners drawn from most Swiss organisations dealing with water-related issues in development cooperation. International workshops are organised every year, bringing together experts from Europe and from developing countries.

New Distribution of Roles between State and Civil Society

In the nineties, institutional questions, the sustainability of investments in drinking water and sanitation infrastructure, and regional decentralisation programmes rose to prominence. Previously, the central governments of developing countries used to be the principal partners in international development cooperation and this general rule also held true for SDC. Central government agencies decided where to build water treatment plants and



Drip irrigation in Bhutan.

where to take measures for the protection of water resources. In the long term, these agencies found themselves less and less in a position to meet the costs of operating and maintaining water supply systems or irrigation schemes. At the same time, it was realised that effective and integrated water management can only be achieved with a concerted effort from central government, from local institutions and from non-government organisations. This led to a new distribution of roles between state and civil society, and an appropriate financial involvement by the ultimate users of services was sought.

On a global level, privatisation efforts within the framework of reform and structural adjustment processes have markedly increased. SDC also takes part in this process in the search for new alliances between state and private enterprise, devoting increasing attention to areas where profit expectations are low and where the poor are excluded from access to basic services. This concerns mainly informal urban settlements and rural areas in most developing countries. In all cases, effective social and ecological regulation is of utmost importance so that access to water is assured for the poorest segments of society.

First World Water Forum in Morocco

Under the leadership of the World Water Council (WWC), the first “World Water Forum” was held in 1997 in Morocco. The main objective of this conference was to reach an agreement on the procedure and the measures for the protection and the sustainable use of water resources according to the “Vision for Water, Life and Environment in the 21st Century”.

Second World Water Forum in The Hague

In March 2000, more than 5,000 people from 120 countries attended the second World Water Forum in The Hague, Holland. Under the motto “Making Water Everybody’s Business,” the Vision 21 was complemented by the action plans that were worked out in the various regions. The participating ministers gave assurance of the political will for the realisation of the plans.

Third World Water Forum in Kyoto

The biggest international water event so far took place in Kyoto, Japan in March 2003 with 24,000 participants and 350 thematic workshops; it was the showcase event of the International Year of Freshwater 2003. The core message “From Declarations to Actions” calls for an increased engagement from all actors in the sector. In order to defuse the global water crisis, existing resources have to be used more efficiently and greater financial means have to be made available. More regional activities are essential for the realisation of the declared objectives. On controversial subjects like privatisation, water as a human right, and major infrastructural projects (dams), an increasing readiness for discussion between the different protagonists is emerging. In the ministerial declaration of the water forum, internationally agreed principles were affirmed.

Global Water Partnership (GWP)

The Global Water Partnership aims to support partner organisations in the realisation of measures proposed by the WWC. Since 1990, seven regional GWP groups have been established in Latin America and Asia.



The daily bath in Mali.

A well as the centre of the community, Mali.

Integrated Water Resources Management

Water shortages were only recently perceived as a truly global phenomenon. For decades, however, millions of farmers in the semi-arid and arid zones of the world have been facing a similar challenge. In these areas, every drop of water is used with the utmost care and ecological reasoning in order to ensure survival and to reclaim a few crops from the soil. The art of water-saving has always been understood by peoples living in climatically harsh regions – through the use of small-scale irrigation techniques, through the use of drought-resistant plants, through specific reforestation, and through securing steep slopes and gullies with biological means, with wood and with stones. SDC has been able to learn a lot from these village communities. With programmes that are conceived, organised, planned and realised by local populations and their institutions, much valuable local knowledge can be consolidated and disseminated. Development partnerships with common objectives come into being, aiming at sustainable use of water resources for the benefit of the entire population.

Today, Integrated Water Resources Management (IWRM) has priority in the international water dialogue. IWRM means the conscious, sustainable use of water resources, taking into consideration all relevant and potentially competing needs. Water reserves are used directly for consumption, for irrigation, for recreation, for the preservation of ecological systems as well as for the production of electricity and other production purposes. An integral and global view is therefore essential to ensure that the common resource is used equitably and in a sustainable way. The most important IWRM promoters, on an international level, are

the World Water Council (WWC) with its headquarters in Marseilles and the Global Water Partnership (GWP) with its headquarters in Stockholm. The SDC played a decisive role in the formation of these two organisations in the mid-nineties.

In order to make world-wide coordination and consultation possible, WWC and GWP have introduced international world water fora that take place every three years. The first world water forum, 1997 in Morocco, laid down the redistribution of tasks; at the second forum in The Hague in 2000 and at the third in Kyoto in 2003, specific action plans were submitted. With the call “From Declarations to Actions” at the Kyoto conference, the international commitment is to be strengthened and particularly aligned towards poorer segments of society.

If social, ecological and financial aspects in water projects are to be taken into account, consideration has to be given to comprehensive criteria:

- The water resources should be used as efficiently and sustainably as possible.
- The right to water access for all people should be acknowledged world-wide.
- The available water resources should be actively protected against contamination.

A suitable general framework has to be worked out in order for effective IWRM to be possible at all. Institutions that contribute to the process have to be strengthened and suitable management instruments have to be developed. Since 70 percent of water use worldwide serves irrigation purposes, IWRM is greatly concerned with irrigation management, with a focus on technical efficiency, population participation and administration of water rights.

In the foreground the channel, in the background irrigated rice fields.



Case Study: Integrated Water Resources Management in the Fergana Valley

Derek Müller

The water sector in post-Soviet Central Asia is marked by fragmentation. Reciprocal demarcation in search of national identities, robust conflicts of interest between upper and lower river basins, and the setting of new national boundaries along cultural and political lines render the management of water according to hydrological borders practically impossible. New forms of cooperation enable new solutions.

The collapse of the Soviet Union left many economies in Central Asia heavily reliant on irrigation-intensive cotton production, mainly in the lower regions of the river basins. High water losses are a major problem with these irrigation systems. The losses are a result of unsatisfactory maintenance and a lack of supply guarantees because competencies are not clearly defined and because the authorities' capability to manage the systems is limited. This is especially difficult for small private enterprises to cope with because they are less able to defend their interests in the face of demand from larger national enterprises.

The subordination of water supply and distribution to the needs of intensive irrigation leads to public health hazards and long-term ecological problems. The densely populated Fergana valley, which crosses parts of the three states – Kyrgyzstan, Tajikistan and Uzbekistan –, is severely affected by this problem.

Building-up of Capacities and New Institutions

With the Integrated Water Resources Management Project in the Fergana Valley, SDC is contributing to the development of rural income, to an increased integration of water users in the deci-

sion-making process and to the ecological sustainability of water use. In the present phase of the project, residents take part along the South Fergana Canal, which is fed by the Syr-Darja River in the provinces of Fergana, Andijan (Uzbekistan), Osch (Kyrgyzstan) and Sogd (Tajikistan). Under this initiative, 10,000 hectares are under cultivation with the involvement of large, medium and small enterprises.

At all levels of water management – river commission, provinces, communities, enterprises – the appropriate institutions are supported with advice and transfer of know-how. Additionally, water user associations are set up and strengthened. These associations contribute to the overall process by involving people in decision-making on issues of water usage and allocation. Since this project partly sets foot on new ground, it also carries out applied research.

A syndicate comprising the Interstate Commission for Water-Coordination (ICWC) and the International Water Management Institute (IWMI) implements the project. While the IWMI experts manage the whole project and secure the availability of international experience, the local ICWC co-workers do the major part of the field work and training.

International Water Management Institute (IWMI)

The International Water Management Institute (IWMI) is one of the 16 organisations that make up the Consultative Group on International Agricultural Research (CGIAR), which is co-funded by the nutritional and agricultural organisations of the UN and the World Bank.

Interstate Commission for Water Coordination (ICWC)

The Interstate Commission for Water Coordination (ICWC) was founded by the governments of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. ICWC is made up of the Inter-State River Commissions of AmuDarya and SyrDarya and the Scientific Information Centre. ICWC is associated with the International Fund for the Saving of Lake Aral (IFAS).



Transfer of know-how is a key component for successful projects.

Higher lying fields can be irrigated by means of a water wheel.





PART II: THEMES AND CASE STUDIES



Introduction: Water Issues Play Central and Multiple Roles in Poverty Reduction

Barbara del Pozo

Water is essential for life – for human beings, animals and plants. Although human beings can survive for weeks without food, survival is only possible for a few days without drink. The body needs at least two litres of liquid per day. Human beings need water for living, regularly and in sufficient quantities. The right to life is doubtless the most basic of all human rights. Therefore the right to water is also a basic human right. In order to secure health for human beings, drinking water has to be clean and free of organic pathogens, heavy metals and chemical residues.

One third of mankind lives in poverty. For 1.4 billion people each day, being poor means not having regular access to sufficient, clean drinking water and not being able to enjoy adequate personal and environmental hygiene. As a result of this situation, too many people are continually exposed to disease; they are restricted in their ability to work, and they live under the ever-present threat of an early death. According to UN estimates (Agenda 21 Conference on the Environment in Rio 1992), 80 percent of all diseases and one-third of all deaths in developing countries are caused directly or indirectly by contaminated water. A sufficient supply of drinking water as well as adequate sanitary facilities, wastewater and solid waste management are therefore critical pathways to health improvements for the world's poor.

Improvement of nutrition (i.e. sufficient and balanced nutrition) and specifically the securing of food supplies (i.e. the continual safeguarding of a regular, sufficient food supply and risk protec-

tion against shortages) are matters of highest priority in the struggle against poverty. Here again, the availability of water plays a decisive role because water is indispensable for food production. SDC is supporting irrigation projects which make increases in food production possible, irrespective of climatic influences. Surplus production can be marketed; agricultural products can be processed and sold. In other words: water also generates income.

The possibility of irrigation assumes that the poor obtain access and control over water for irrigation. Water frequently bypasses – often illegally – the land of poorer, small-scale farmers and flows into the irrigation systems of huge cultivation areas where broccoli, cotton and cut flowers may be produced for export to Europe or North America. The allocation of water resources is an eminently political problem; it is often a question of power between competing user interests. In order to be effective, however, poverty reduction strategies urgently call for a more equitable dis-



Improved nutrition has utmost priority in poverty alleviation.

tribution of existing water resources, even as overall water scarcity increases. In particular, poor small-scale farmers need to have a say in the setting and application of water policy and in the question of resource allocation as a means of ensuring the sustainable use of available water resources. Comprehensive, long-term protection of water is a basic requirement for sustainable development.

Struggle Against Water Pollution

Unreasonable use of toxic substances, uncontrolled industrialisation and urbanisation, and farming practices that are harmful to the environment lead to an increasing contamination of surface water and groundwater in developing countries. This has grave consequences for the populations who rely on these water resources. In many regions of the world, the principal source of water contamination is the improper application of pesticides in farming as well as the faulty packaging, storage and disposal of chemicals. SDC is supporting projects that aim to better understand such events, practices and consequences, to draw attention to the risks associated with the use of such products, to create suitable legal and institutional frameworks, to promote technological alternatives and to support the search for preventive solutions and responsible means of waste disposal. In the small, artisan gold mines of Peru and Bolivia, the miners are trained in technologies which help to avoid the use of substances like mercury or which enable the recycling and cleansing of waste water. In addition, the local population is informed about the risks and consequences, especially with regard to water contamination. Thanks to the partnership between research and laboratory institutions in Vietnam, it was possible to discover extremely high arsenic levels in Hanoi's groundwater – up to 300 times higher than the international norm allows. The plain of the Ganges River in Bangladesh and West Bengal has been struggling with the same phenomenon for years.

Many elements for a life that enjoys well-being and dignity depend on water: it is obvious that improvements in the water sector represent a decisive means of empowerment for the poor. Human beings mobilise and develop a sense of ownership with respect to gaining access and control over water. They immediately realise their ability and their power to improve their situation. It has been evident that activities in the water sector are often successful in changing the status and the role of women. In the poorer regions of the world, it is mostly women who fetch drinking water and produce food for children. If they are included in water projects right from the beginning, this inclusion can contribute to an improvement of their status in the family and in the community.

A comprehensive approach to the resolution of water problems is imperative: the connections and interactions are all too obvious between water and health, hygiene, nutrition, methods of cultivation, the protection and sustainable use of natural resources, productivity, income generation, local governance, economic policy, legal systems and participation in political decisions. Therefore, it is not surprising that far-reaching and participative development programmes in water catchment areas – with cross-cutting strategies that were supported for decades – are strengthened anew today. Interventions in the water sector make it possible to combine short-term achievable goals which bring swift, tangible improvements with long-term strategic goals which aim at profound structural change.



Having sufficient safe drinking water is not a matter of course.



1 Clean Water – Key to Health Improvements

Regula Meierhofer, Michael Hobbins and Daniel Mäusezahl

Approximately 80 percent of all diseases in developing countries are caused by the consumption of contaminated water. The consumption of dirty water raises the risk of diseases like diarrhoea, cholera, typhus, hepatitis A and dysentery. Every year, four billion cases of diarrhoea occur, causing 2.2 million deaths – mostly amongst children who are five years old or younger. The solar disinfecting of drinking water (SODIS) is one way to reduce the frequency of diarrhoea and to improve the health standard of people in developing countries.

Complex water treatment and distribution systems are found mainly in urban settlements across the world. In developing countries, these conventional systems often function only sporadically and tend to supply water of unreliable quality. A lack of trained, skilled workers, the erratic supply of chemicals and spare parts, and widespread financial insolvency hinder the reliable running and maintenance of these systems. Across the world, people in many urban centres who are already connected to piped systems – as well as those who have no access to piped supplies – are therefore constrained to consume water of questionable quality on a daily basis. Processing of raw water into drinking water is frequently the job of the individual household.

The quality of drinking water can be improved with suitable treatment. Storage of treated water is also important to ensure that water that has been rendered safe to drink does not become re-contaminated as it is used. These measures alone, however, are not enough to guarantee health benefits. Hygienic behaviour is also needed so that sickness can be contained. Recent investigations show that the regular washing of hands with soap can reduce

diarrhoea incidence rates by 47 percent (Lancet Publication April 2003). The installation and proper use of sanitation facilities is yet another important factor which contributes significantly to the reduction of diarrhoea; in this way, the incidence of diarrhoea can be reduced by 30 percent. The consumption of clean drinking water reduces the number of diarrhoea cases by another 20 percent.

SODIS: The Solar Disinfecting of Drinking Water

The application of SODIS, the solar disinfecting of drinking water, is one way of processing drinking water. For ten years, researchers at EAWAG (Swiss Federal Institute for Environmental Science and Technology) carried out intensive laboratory and field tests on SODIS with the sustained support of SDC. The treatment process is deceptively straightforward – contaminated water is filled in transparent PET bottles and exposed to full sunlight during six hours. During the exposure, 99.99 percent of all pathogenic viruses and bacteria are destroyed by the UV-A-light from the sun's rays combined with the effect of increased water temperature.

The Birth of an Idea

The idea of disinfecting drinking water with the help of the sun's rays originated in Beirut more than twenty years ago. Afim Acra - a professor of microbiology – had filled plastic bottles with water, which he then left on his balcony as an emergency water supply during the war. On checking the water quality, he discovered that the sunlight was capable of destroying the micro organisms in the water. He published his findings in a professional journal in 1984. Nobody was inclined to believe him – until EAWAG recognised the potential and began to take up the cause.

PET bottles are exposed to the sun for water disinfection.



Case Study: SODIS and Health – an Investigation in Bolivia

The effect of SODIS on the health of children under five years old was investigated in the Andes region of Bolivia for the first time in the year 2002. With SDC's support, the project was carried out by local partners (Fundación SODIS, University of Cochabamba and UNICEF) and the Swiss Tropical Institute in Basle in cooperation with EAWAG/SANDEC.

Initially, SODIS was introduced in 18 villages in the region of Mizque, Cochabamba, Bolivia. Training courses, which were organised monthly, contained various topics concerning SODIS; preparation of fruit juice with SODIS processed water and the production of brushes and soap to clean the bottles. This introduction met with a good response, and the courses were repeated on demand.

During a campaign in schools, more than a hundred teachers from the region took part in training sessions on SODIS and health. At the close of this campaign, the local school authorities and a local non-government organisation organised an event at which drama and songs were performed. The

event was a success – about 1,600 people took part. In this way, the project reached a user-rate of 30 percent over the entire population in the project area.

SODIS Improves Health Standards

During an investigation of 200 Bolivian households, the effect of SODIS on health was evaluated. Although practically all respondents in the villages knew about SODIS, it was not used everywhere. Some people showed a general lack of interest, whilst others doubted the cleansing effect of sunlight. Only 18 percent of those interviewed named “water” as source of infection and a cause of diarrhoea in children. But 73 percent of the respondents mentioned, among other things, that “dirt” could be the cause of diarrhoea.

The investigation in Bolivia has shown that SODIS has a positive effect on health wherever the transmission of diarrhoea can be traced back mainly to drinking water. However, if there is a general lack of hygiene and awareness, SODIS on its own can only reduce the overall incidence of diarrhoea by a small amount.

From Ideas to Action in Developing Countries

Although the application of SODIS is very simple and inexpensive, a creative, promotional process is required to spread information and knowledge about SODIS in developing countries. Trust in this simple water treatment method by local institutions, organisations and general populations can only be built through costly information campaigns, practical demonstrations and careful training. In order to promote the SODIS application in developing countries, the SODIS Foundation supports suitable projects in Latin America. Similarly, the SOLAQUA Foundation supports local non-government organisations in Kenya, South Africa, Uzbekistan, Pakistan, Nepal, India and Sri Lanka. The idea behind SODIS is now slowly gaining in recognition on an international level. On World Water Day 2001, SODIS was recommended by the WHO as a means of treating drinking water that can be carried out by households. This recognition is an important stimulus for government institutions and non-government institutions to integrate the SODIS application and training in their projects.



Using SODIS provides clean drinking water.

2 Water and Food Security

Katharina Jenny and Markus Engler

To produce a kilogram of rice with traditional farming, 3,000 litres of water are needed; for the production of a kilogram of bread, approximately 1,300 litres are needed. The list goes on – and the quantities of water used remain consistently high, mainly because more stable yields can be achieved with the help of irrigation. Because of irrigation, an important contribution towards the security of food production is possible. But agriculture is by far the biggest consumer of water today.

On average, more than 70 percent – and in developing countries more than 80 percent – of water that is used by people flows into the production of food and into the cultivation of export products. Meanwhile, many of the irrigation methods that are currently used are extremely inefficient and technically outdated. It is assumed that more than 60 percent of all irrigation water is simply lost, unused. Against such a background, many water projects have not actually led to higher agricultural yields but to drastic environmental damage once all the side-effects have been taken into account. Among other things, unsatisfactory irrigation methods are responsible for irreparable salinity and excessive leaching, leading to a growing barrenness of soils. This has led to a loss of more than ten percent of all irrigated areas of cultivation. In wide regions of India and China, the uncontrolled and unsustainable use of ground water has caused an annual lowering of the water table of between one and three metres.

At the same time, more than 800 million people suffer from chronic malnutrition in a world where enough food is produced for all. A large part of this disadvantaged population lives in arid regions and is entirely dependent on farming. According to predictions, an additional fifth of today's developing countries will suffer from extreme water shortages by 2030. The question must be asked as to how serious the effect of looming water shortages will be for food production. If water becomes a scarce commodity, food security can not be guaranteed.

Some time ago, SDC promoted the maintenance and repair of irrigation systems in Sri Lanka, Pakistan, Bolivia and Ecuador with great financial commitment in order to increase the production of food and to create new sources of income for people. Investments in infrastructure alone, however, were not sufficient because the problem of equitable management of water is more important. Therefore, SDC reoriented provision of sup-



Farmers in Pakistan organise themselves in water users' associations.

port from technical solutions towards the promotion of democratically-functioning farmer organisations.

Today, SDC is convinced that optimisation of agricultural production with limited quantities of water can only be successful if man and technology can be considered jointly. The best technology does not bring any benefit if people can not apply it or can not see any advantage in it. When combined, adjusted farming practices and efficient irrigation systems can reduce the use of water many times over, and can contribute to the enhancement of life's quality.

Innovative Drip Irrigation

"Drip Irrigation" is an invention that has found great favour mainly in Israel, in order to practice farming in deserts. It can save up to 70 percent of water used with conventional systems and can considerably increase the yields because every plant is irrigated individually and sparingly. The disadvantage is that the system is expensive.

Some private organisations have reduced the cost of the underlying technology drastically so that even the poorest families can benefit. One of the simplest systems is the so-called "bucket kit" – a water container with about ten metres of drip irrigation hoses. In India, such a "kit" costs about six US dollars plus the cost of the container. With such equipment, a family can economically irrigate about a hundred plants, which yields an earning of up to 40 dollars at harvest. The non-government organisation IDE-India (International Development Enterprise India) has now reached an even more radical simplification and will offer a "kit" for one dollar, with the container included in the price. The potential cost-benefit ratio associated with the use of the equipment is extremely attractive, and new possibilities will present themselves in the dissemination and application of this technology. But it will not be enough to hand over such "kits" to people without adequate training beforehand because the narrow drip nozzles are easily clogged if the water is not clean. Additionally, the planting – and above all the marketing – of vegetables, tree seedlings or fruits has to be learned.



Low-cost irrigation from India.

Case Study: Irrigation in Pakistan

After renovating the irrigation channels leading from the water catchment area to the fields in the Upper Swabi System of Pakistan, the quantity of water available has doubled. However, such cost-intensive infrastructure projects can only lead to an improvement of the economic situation of the population if the water is used efficiently. This requires a linking of adjusted technical solutions and institutional aspects with questions of agricultural cultivation methods and marketing.

Organised Farmer Groups Adopt a More Equitable Distribution of Water

Supported by a national non-government organisation, farmers organise themselves in water user groups along the separate channels, the so-called "Water Users' Associations" (WUA). Apart from the planning and the construction of the channels, they are responsible for the management of the water. While traditional distribution was characterised by social imbalance and inefficiencies, the WUAs allow farmers to understand the benefits of water distribution based on clear, jointly resolved rules. Thus the small-farmer at the end of the channel is also guaranteed a reliable share of the water available. In combination with prompt repair work on the channels, the systematic water management leads to a marked reduction of water losses and significantly contributes to higher productivity of the cultivated areas as a whole.

Institutional Cooperation Leads to Better Services for Farmers

The SDC-sponsored project "Agricultural Development Component" has also established a new, more effective approach to the provision of advisory services. The technicians of the irrigation department, the officials of the agricultural advisory service and the staff of the national non-government organisations usually come to the village as a team and give advice to the farmer groups. Technical solutions, questions about types and methods of cultivation, organisational problems like water allocation, procurement of seeds or marketing of products are discussed in a context which appeals to the working methods and mind-sets of the farmers.

The WUAs are also merging into farmers' associations in order to market their products without the need for intermediaries. Owing to better quality and new packaging methods which have been introduced by the project, they obtain prices that are threefold higher than the levels practised before the project started.

Maintenance of irrigation channels in Pakistan.



Cooperation Increases the Harvest Returns

Zada Khan is a small-scale farmer in the north-western province of Pakistan. He can hardly believe it when he watches the water gushing through the repaired irrigation channel onto his field, where an abundant sugar harvest is starting to grow. Earlier on, he was only able to procure a little water from time to time, with great effort and pain, because his fields lay at the end of the channel, and the channel was in very bad condition.

When he first heard of the project which was to double the quantity of water in the channel, he was sceptical. So far, mainly government circles and large-scale farmers had benefited from such projects. This time, however, everything was different. All the farmers whose fields bordered the channel were invited to form a water users' association, through which they could jointly organise the repair of the canal. With the support of the project organisers, they managed to mobilise everybody – even the landowners who did not cultivate their land themselves and who lived elsewhere. At first, many had to be convinced that this collective regulation of repair work would benefit all those involved, that it was worthwhile to contribute money, and that the resources were used competently by the government authorities. Today, Zada Khan usually harvests two to three times as much as he did before the improvements were carried out.



Water distribution is based on collectively approved rules.



3 Water Catchments as Residential Areas and Economic Activity Zones

Martin Sommer

Shortage of water for agricultural production systems is a core problem for the future. At the World Summit in Johannesburg 2002, a renewed call was made for the sustainable use of fresh water resources in their water catchment areas. Although irrigated, intensive farming was included in this plea, extensive and often isolated production areas in developing countries are particularly concerned because poverty is harshest there and food supplies are directly endangered.

Watershed Management

Water catchment areas are natural geographic units and comprise the drainage area of a river from the source to the river mouth. In developing countries, the rural populations of a water catchment area often depend on the agricultural use of this region for their livelihoods. In many places, deforestation and excessive use of pastoral areas lead to soil erosion. The increased surface run-off affects harvest yields, and incomes are reduced. For the local population, there is often no other choice but to migrate to the cities. Watershed management will reverse this trend and contribute to the sustainable use of natural resources so that the living base of local populations is preserved.

In India alone, food production from rain-watered small-scale farming accounts for two-fifths of national requirements. Development policy experts agree that poorly developed border regions which are plagued by drought and rely on extensive cultivation require enhanced support to ensure their viability as living spaces and economic areas.

Since the eighties, many Indian organisations have committed themselves – with support from SDC, and others – to locally anchored, integrated approaches to improve, in parallel, water and soil resources, to increase productivity from agrarian activity, and to strengthen the social integration and self-determination of the people. The water catchment areas of rivers are the geographical locations for such programmes.

Damage to Ecological Systems Leads to Water Shortages

The heart of the problem is the progressive and excessive exploitation of natural resources through deforestation, over-grazing, harmful agri-

cultural cultivation practices, increasing monoculture – caused by distorted subsidies – and the wasteful use of ground water. As a result, small-scale farmers are increasingly marginalised and people who do not own land (and who are dependent on the products of nature or cash earnings from farm labour) are pressed into seasonal migration. Such processes lead to prolonged family separations and an increased dependency on external traders and moneylenders to bridge financial crises.

The Trend is Reversible

Numerous case studies show that through calculated measures, it is possible to make more water more accessible and to reverse this unravelling of social fabric. Approximately two decades of unostentatious development work have proved that the approach in the South-Asian context is lasting and effective.



A village organisation meeting in Rajasthan, India.

Case Study: Where Sustainability was always Taken for Granted – Watershed Management in Asia

After three decades of SDC development cooperation in the water sector, valid conclusions can be drawn for sustainable water management in the future. This means to fully acknowledge water as the multifunctional lifeline of entire valleys, to promote independent and self-determining organisations of entire valleys, and to carefully select measures and align them pointedly towards trading centres.

Experience has shown that even ecological systems under stress can recover speedily. With measures like traditional forms of water conservation, stored rain water, cleansed village reservoirs, reduced surface drainage through vegetation and technical barriers, terracing for increased infiltration, water saving cultivation practices through a selection of drought-resistant plants, home gardens for the usage of residual water from the household, pot or drip irrigation, seeping basins or silage, the water economy can be influenced quickly and effectively. In the upper parts of the water catchment areas, the vegetation cover is renewed. It is protected from livestock damage by organised grazing and though use which is based on social control with respect to local needs for firewood and building material. These measures increase the available biomass at local level, and the niches for production of medicinal herbs, berries, honey or other forest products regenerate gradually.

Social and Economic Advantages

After a few years, the ground water level also starts to rise again in lower lying areas. Wells become usable again, both for households and for local small-scale irrigation. With this development, walking for long distances to fetch water becomes unnecessary, especially for women and children – and the time saved can be used for productive activities in the fields or in small-scale industries. In all, agricultural productivity is increased several times over in a few years, creating new opportunities for work and building up capital for investment in the region.

Solidarity Promotes Individual Independence

A supporting pillar in this approach is the organisation of villagers in savings and credit groups on a self-help basis. Today, hundreds of thousands of small-scale farmers in numerous states in India, Bangladesh, Nepal, Afghanistan and Sri Lanka are organised anew in self-help groups. With

combined financial and labour contributions, capital is accumulated which, in turn, finances and maintains revitalisation measures in the region to the ultimate benefit of the general public as a whole. In advanced phases, these self-help groups enlarge their sphere of activities and become centres for production and marketing. Such activities may include the lending of agricultural equipment, the sale of seeds and fertilisers, or the transportation of products to market. Their main objective is to support their members with modest credits for the purchase of small animals, equipment or seeds – members who are often illiterate and therefore have little chance of gaining access to credit through more formal systems. In this way, independent entrepreneurship is encouraged and the dependence on rich local leaders or moneylenders is diminished.

Democracy Guards against Risks

From this environment of change, new problems may also result. Differences of opinion about costs and the effectiveness of actions are not rare, and the risk that certain individuals are favoured more than others is ever present. Through the collective membership in the groups and rotating tenure of office, a democratic culture in the handling of conflicts often emerges and problems are settled in a socially balanced way.



Measures for erosion protection and improved groundwater recharge using local materials.

4 Private Sector Participation in Water Issues

Pierre Walther and Marcus Buezberger



In the controversial subject of private sector participation in the water sector, an ethical conundrum prevails – how far and in what way should a few multinational companies be permitted to run urban water supply systems or entire irrigation systems, generating profits in the process. At the same time, an enormous and little-tapped potential lies in the active participation of the private sector for securing water supplies and for making improvements in sanitation. With such steps, progress can be made in the struggle against poverty.

In many cities today, water supply systems are already run by specialised, licensed companies. And the increasingly liberalised trade regulations afford better access of private firms to this business. Although in the developing countries of the South, only the largest cities ultimately represent markets that are attractive enough to raise the attentions of multinational private companies, the issue has already led to many political conflicts.

Together with a reinsurance company (SwissRe) and the State Secretariat for Economic Affairs (seco), SDC has formed a working group in which the many aspects of this subject are discussed. At the beginning of 2003 in a first study, the chances and risks were analysed. A second study revealed that from a privatisation perspective, new parallels can be drawn with areas of SDC's attention such as rural development or urban poverty.

Private Sector Participation in Water Supply Systems Outside Major Cities

In Southern countries, many people live in areas which cannot be reached by commercial enterprises, either now or in the future. These people live in small townships, in rural areas, or in the informal settlements of large cities. For such zones, many different public-private management models have been developed in recent years. Together with its partners such as Helvetas or the Water and Sanitation Programme of the World Bank, SDC is involved in pilot projects to develop sustainable management models for these difficult situations – for instance, with water supply systems which supply different villages or which envisage the cooperation between small townships.

SDC has supported the rural water supply sector in Lesotho since 1978.



Wanted: A Code of Practice for Privatisation

The dream of sufficient and clean water for all can only be financed if the private sector is encouraged to invest in the area. So far, a broad consensus exists; the recently published Camdessus Report "Financing Water for All" also reaches this conclusion. Estimates concerning the additional financial resources that are required to meet the Millennium Development Goals vary between 10 and 30 billion US Dollars. Public discussions about privatisation are characterised by a polarisation around fixed positions which associate private sector participation with the outright divestiture of public assets, corruption of public officials and exclusion of access to services for the poorer segments of society. These apprehensions, however, persist for good reason, and a lack of knowledge and transparency, combined with non-coordination serve to perpetuate this state of affairs. To counteract this trend, the reinsurance company "SwissRe", the State Secretariat for Economic Affairs "seco", and SDC have begun work on a code of conduct and guidelines to help govern the participation of the private sector in water management. These three institutions are of the opinion that all interested parties – government, end users, and the private company involved – could benefit from more professional, more transparent and better coordinated privatisation processes. Such guidelines and a code should be worked out in an approach that includes all interested parties – a so-called "multi-stakeholder process". The cooperation of SwissRe (private sector), seco (representation of national economic interests), and SDC (representation of the poor) promises much in this regard, even though there are underlying tensions and contradictions. Diverging interests have to be reconciled and weighed up. The common incentive to continue this work remains the shared conviction that a solution can be found for the benefit of all.



Building a water tank.

Case Study: Private Sector Participation in Rural Drinking Water Supply in Lesotho

Since 1978, SDC has supported rural drinking water supplies in Lesotho. Switzerland's principal partner in this initiative is the government of Lesotho. In the middle of the nineties, the authorities realised that they would be unable to supply 8,000 villages with drinking water in a sustainable way. For this reason and against the background of decentralisation efforts, the partners pointedly aimed at increased involvement of the private sector in the provision of services. In retrospect, this change in strategy proved more difficult than expected.

After the government of Lesotho had realised that it could not accomplish the enormous task of supplying water in rural areas unaided, the appropriate department decided to focus on supervision and the provision of support, and would no longer intervene in the direct construction or maintenance of drinking water supply systems. The state-sponsored field personnel were progressively trained for work in the private sector and to operate as small businesses. This process of "privatisation of state-sponsored personnel" (engineers, masons etc.) will shortly be brought to a close.



A facility combining standpipe and washstand.

Difficult Change in Roles

The step from government employee to private businessman is gigantic. Whilst some adapt quickly to the new role, others face difficulties in the payment of their labourers or in the completion of their work on schedule. Those who encounter difficulties quickly disappear from the business scene.

Initially, the privatisation process met with opposition from many government employees. They interpreted the move as an undisclosed government strategy to reduce personnel levels in a tactful manner. District engineers and departmental workers had to spend considerable time to present the new policy in a convincing way to the staff. Other problems resulted from inadequate internal coordination within the government regarding this change in strategy. The Ministry of Finance was only marginally involved in the planning of the new policy so that payments made to small businesses were noticeably late.

Positive Outcome

In retrospect, the reform can nevertheless be judged as a success. Private contract partners today are paid on the basis of actual performance. The countryside drinking water supply in rural areas has improved substantially. More village communities than before have access to water, and management and maintenance of infrastructure have also improved decisively. Privatisation in countries where governments have a heritage of implementing service provision directly (such as in Lesotho) requires time, patience, perseverance and creativity.



A galvanized tank for emergency water supply.

5 Private Business as a Motor for Water Supply and Sanitation

Urs Heierli

Privatisation of waterworks is a subject which stirs up many public emotions because it is feared that exploitative monopolies could emerge. Even though water is a public asset and should remain so, this does not mean that private initiatives should not play any role. In Switzerland, private sanitary businesses install bathrooms, repair water mains and sewers, and unblock pipes – naturally taking on jobs which complement the operation of public water supply systems. Also in developing countries, there is a dynamic private sector working in the water domain.

The water sector in developing countries is partly privatised – women in Bangladesh repair hand-pumps, water salesmen in Africa sell water door-to-door with a donkey and a push cart, cistern lorries deliver water in the cities. Frequently however, the private sector is hobbled instead of being promoted in developing countries. This may be because donkey carts are perceived as an old-fashioned means of water transportation, or because there is insufficient understanding of the role of intermediary trade. So many handpumps were (and remain) purchased centrally and are then directly installed in villages by government officials. Even though this approach functions for the first few years, serious disadvantages emerge in due course – as key spare parts are increasingly required but cannot be found anywhere. Which private trader chooses to deal in low-value, low-turnover spare parts, which perhaps cannot be sold before years of storage?

Profitable Supply Chains as an Incentive for Private Initiatives

In terms of rural water supply in developing countries, the situation would look very different if de-

velopment organisations purchased pumps from local traders, allowing them to make business on the resale and maintenance of pumps. Today, the development cooperation community is aware of how important profitable supply chains can be for the long-term sustainability of investments, and they have started to formulate a policy which permits private initiatives to prosper. For example, certain subsidies can be counter-productive because they induce market distortions and represent an obstruction to private enterprise. The World Bank, with the support of SDC, has started a supply chain initiative which seeks to avoid old mistakes.

The rules for the promotion of a private water and sanitation enterprise are relatively simple: a trader will offer products, spare parts and services (repairs) provided that the business is profitable. To prevent a supplier from holding a monopoly, competition is needed. Success is not automatically guaranteed in this way (even in industrialised countries, there are countless jokes about plumbers who never turn up when the tap leaks), but it is patently clear that without private enterprise, nobody is in the position to repair a defective water supply.



Private latrine manufacturers contributing to improved sanitation.

Case Study: How a Flourishing Latrine Business Emerged in Bangladesh

The Emperor Augustus knew very well that it was possible to make money for the government coffers of ancient Rome through the natural needs of the populace. When his advisors tried to stop him from charging fees for the use of public toilets, he made the famous statement: “Look here, the money doesn’t stink.” In Bangladesh, like in other countries, there were water supply and sanitation programmes which were co-financed by SDC. While the popularity of hand pumps spread rapidly, the use of latrines did not find favour. Despite subsidies, they were used as goat shelters instead of being used as intended.

In cities, beautiful bathrooms were valued, and private sanitary enterprises which offered bathroom tiles and a wide selection of bathroom fittings boomed. Not so in rural areas. This situation changed about 15 years ago, when a totally new concept was introduced under the banner of “sanitation through the private sector”.

- With a comprehensive social mobilisation campaign, latrines were propagated as desirable goods which offered “prestige, comfort and privacy” to their owners. The unprotected latrines which were used earlier and which were hanging above the village pond were socially ostracised.
- More and more private latrine manufacturers came onto the scene and were encouraged to produce, but were not subsidised. Soon, they sold the latrines more cheaply than did the subsidised state-owned centres, which were left holding their products.

This change in strategy resulted in the emergence of more than 4,000 private, competing latrine manufacturers and a flourishing rural industry which produced more than a million latrines annually. Even penniless families receive credits through non-government organisations and purchase latrines from the private producers.

In this way, the stench has diminished in Bangladesh – women do not need to go to the fields before dawn any longer, and there are less cases of diarrhoea. Now the trade earns money which does not stink, generating highly welcome rural income.



Concrete rings for latrine construction.



6 Water and Good Governance: New Alliances

Raúl Artiga, Laurent Thevoz and Pierre Walther

Every year worldwide, substantial financial resources are invested in projects for the improvement of the drinking water supply and sanitation in rural areas. Such investments are compelling. But is their effect durable – over periods of 20 to 30 years?

The assumption that the sustainability of development projects rises if they are geared to the needs and wishes of the population – and if they are co-financed by them – has held good and remains standard practice for the future. SDC goes a step further in this logic: sustainability can only be guaranteed if a carefully developed partnership is also set up with local authorities. Above all, communities must gear themselves for the management and maintenance of infrastructural installations. Workers from SDC projects in Latin America deliberated over this issue at a workshop held in the spring of 2002.

Sustainability in the Local Political Context

Previously, many organisations working in development cooperation paid little attention to the context of local politics. The matter was considered to be of little relevance in discussions about sustainability. This was an over-simplification which no longer finds favour today. Through decentralisation, communities today have direct control over greater financial and institutional resources and hence become partners in the planning and financing of projects. Especially in less developed rural areas, local institutions have to play an important and continuous role in safeguarding the

sustainability of such installations – for instance, in matters of local conflict resolution or in the backing-up of water committees.

The new approach takes into consideration the specific circumstances and possibilities of every community, with respect to management as well. Sector programmes in development cooperation become part of the local political agenda and have to consider the context in which they intervene. The policies of national governments or donor agencies either strengthen or weaken the hands of local authorities.

Opportunities and Risks

Sector policies and programmes in development cooperation which strive for sustainable impact have to take into account certain conditions:

- Project planning and implementation need more time so that problems at the local political levels are not overlooked.
- Agendas and criteria for prioritisation (geographical focus, for instance) have to be defined together with the elected local authorities.
- Rights and duties of the participants – as well as the forms of cooperation – have to be laid down and made binding in national sector policies.
- For sustainability to be achieved, a period of at least ten years (a few election cycles) is required.



The local managers of the treatment plant.

Although decentralisation is important, the process also carries certain risks. This caveat should not be allowed to hinder the democratisation process, which is very important for many countries and which ultimately forms the basis for durable investment impact in rural infrastructure. The objective is a self-reinforcing alliance – infrastructure projects can be a good vehicle to strengthen local environments in which decentralisation can prosper.

Case Study: Development in San José Las Flores, El Salvador

The community of San José Las Flores has about 5,000 inhabitants and is situated about 105 kilometres from San Salvador, the capital of El Salvador. The civil war of the eighties severely affected the region, causing widespread population migration. During the final years of the conflict, the local authorities were able to function again and gradual rebuilding was initiated under their leadership. Through skilful politics, they were able to mobilise internal and external sponsors for reconstruction. This was also the case in the water sector.

The community found the necessary backing, for example in the local non-government organisation “Pro Vida” which grew out of political resistance and is supported by SDC. Since 1996, the water project has achieved positive results:

- Water supply in the main township of the district, supporting 185 families.
- Programme in health and hygiene education.
- Strengthening of a water committee which is responsible for the management and maintenance of the water supply system.
- Network for wastewater disposal in one area.
- Biological wastewater treatment plant for 126 families in the main township, with a total cost of 100,000 US dollars.

Wastewater Treatment Plant

Building the plant was a success for the community. Each family actively contributed to the project with 80–100 working days. It should be possible to pay the wages of a plant operator from the income generated by irrigating plots of land with treated wastewater. From a technical point of view, the plant is an example for other communities to follow on a national level.

Local Politics

At the plant’s inauguration, it was clear that for operation and maintenance – at least initially – each family had to be charged an amount of 1.20 US dollars. This represented a new dimension in local politics. Although this is a modest sum for sustaining the operation and maintenance of the plant, the measure triggered off opposition. Previously, officials of the community were of the opinion that public services should be subsidised.

The scope for more localised decision-making and action combined with a corresponding allocation of responsibilities must be taken further with the decentralisation process. The local authorities have to convince the population that service users should contribute financially towards the processing of wastewater, just as they do for other public services like power and drinking water supplies. For this to be effective, it is necessary to discuss the question of regional financial involvement with neighbouring communities who share the water resources and are deriving benefits from the ongoing pollution control.

The long-term sustainability of the plant substantially depends on whether the local authorities succeed in this task of public motivation.



The Municipality of San José las Flores, El Salvador.

7 Water: The Blue Agent for Peace Promotion

Günther Bächler

Eleven years after the United Nations Conference on Environment and Development (the Earth Summit) was held in Rio de Janeiro, global environmental protection issues on our blue planet – water issues – remain deeply sobering topics. Both increasing shortages and increasing contamination of fresh water give us cause for concern. The increasing scarcity of this natural resource has become a cause of conflict, and has even led to threats of war in some regions.

At “Rio+10” (the follow-up conference to the Earth Summit that was held in the summer of 2002 in Johannesburg), water projects were presented whose aim is to contribute to stabilisation, conflict prevention and cross-border cooperation. In the “Water for Life” initiative, the EU forms peace and security partnerships with governments, and protagonists from civil societies and enterprises following the theme of water and poverty reduction. Under the “Internationally Shared Aquifer Resource Management” initiative, the International Association of Hydrologists will promote cross-border water cooperatives. This will be achieved by a network dealing with scientific, legal, socio-economic, institutional and ecological problems. The “Sustainable Water Management in the Balkans and Southeast Mediterranean” project pursues similar objectives – in which requirements are met on a regional and local level to develop and implement an integrated water resources management plan.

Although there are well-documented examples of successful transboundary cooperation practised by river basin inhabitants – like the Rhine commission – more and more conflicts are arising in this difficult topic. Eighty of the world’s 240 international rivers are located in Africa. Many of these rivers flow through up to ten countries. These rivers play central roles in socio-economic development, and they also attract intense political attention. Institutional regulations partly exist in the form of River Basin Organisations (RBO), but in many cases, these have only reached the early stages of development. Today, less than ten percent of transboundary river basins are linked across political borders by international cooperatives.

Although the existing cooperatives have to cope with increasing environmental stress through drought, desertification or changing rainfall patterns, neighbouring states must also take their susceptibilities to other forms of crisis and political instabilities into account.



Bridge across the headwater of the Blue Nile in Ethiopia.

The Search for a Balance between Protection and Use

The Mekong River Commission (MRC) was founded on 5th April, 1995 when four countries – Cambodia, Laos, Vietnam and Thailand – signed a Memorandum of Cooperation for the Sustainable Development of the Lower Mekong River Basin. The MRC is the first regional institution which brought together these four countries – a theatre of numerous regional conflicts until the middle of the eighties – for peaceful arbitration and conflict management or conflict prevention. A hundred ethnic groups live along the lower Mekong River Basin; it is the third most productive river system in the world and the most varied in terms of ecological systems and biodiversity. 40 percent of the population live below the poverty line.

In the past, SDC sat amongst the most important financial sponsors of MRC. At the present time, SDC's engagement comprises the provision of direct assistance to MRC core activities as well support for two of the three bigger programmes, namely for the "Basin Development Plan" and the environment programme. The "Basin Development Plan" is meant to provide a framework for regional cooperation between adjoining countries. The environmental programme will strengthen the competencies of the adjoining countries, in order to secure the balance between protection and use – so that the Mekong Basin stays healthy and in a position to perpetuate diversity and productivity in the long run.

A long way to go from the headwaters of the Ethiopian highlands to the delta at the Egyptian coast of the Mediterranean.





Case Study: Peace Promotion on the Blue Nile

“The next war in the Middle East will be fought over water, not politics.” This prediction, ascribed to former Egyptian Foreign Minister Boutros Boutros-Ghali, should prove to be inapplicable in the Nile Basin. In fact, an almost exemplary cooperation between the ten adjoining countries has emerged on the basis of an integrated approach in the Nile basin. The “Nile Basin Initiative” (NBI) has made this possible with the support of the World Bank and some donor states (above all Canada) together with experts and local forces.

Political tension exists mainly along the Blue Nile which has its source in the highlands of Ethiopia, and which feeds the Main Nile with about 80 percent of its total flow. For this reason, the Swiss Federal Institute of Technology (ETHZ), together with SDC developed a dialogue project for the region of the Blue Nile to complement the more comprehensive “Nile Basin Initiative”. The project started with an extensive conflict and cooperation analysis of the various actors, which is presented in the form of a twin (downstream-upstream) dissertation. The situation in Sudan as intermediate nation was also analysed.

After the raw material was presented, the ETHZ and the Conflict Prevention and Management section at SDC conducted an interactive problem-solving workshop in the autumn of 2002, at the Lake of Lucerne. From Egypt, Ethiopia and Sudan,

two high-calibre representatives from each nation participated in order to think about common problem resolution. The workshop was thematically open and moderated by two mediators. The controversial subject of an international “Nile Basin Agreement” was excluded from the proceedings because it was not the Nile water in itself that was the main cause of conflict. The participants felt that the problem of water shortage was both fundamental and cooperatively manageable, once the political and developmental questions were answered:

- Poverty and unequal development in the region.
- Excessive dependence on agriculture for the majority of the population.
- Orientation towards short-term objectives, instead of long-term and common interests of all adjoining countries.
- Regional instabilities in connection with civil wars and interventions.



The Blue Nile has its source at Lake Tano in the Ethiopian highlands.

The joint projects of the Nile basin residents were considered to be especially constructive by the participants. Today, Egypt benefits from NBI water management projects in Ethiopia. Ethiopia directly benefits from localised development, and the growing trust, the increasing security, and the more efficient use of water in the upper reaches of the Blue Nile benefits Egypt.

The participants of the workshop agreed to publish a joint document about the future options for cooperation. It should point the way to the next NBI conference. Within the framework provided by the International Year of Freshwater, a second workshop with the same delegation is taking place.



Water extraction from the Blue Nile will also increase in Sudan: irrigated agriculture in Gezira.



8 Rural Water Supplies: Humanitarian Aid in the Drinking Water Sector

Peter Kaufmann

Planning and implementing rural infrastructure projects (including drinking water supply) in the framework of humanitarian aid differs only marginally from those approaches used in development cooperation. Environmental aspects, gender questions, human rights issues and good governance are equally taken into account, and medium- and long-term deliberations are included from the outset of an intervention.

The improvement or the rehabilitation of drinking water supply systems in rural areas calls for a thorough understanding of the socio-economic environment, the availability of drinking water and the circumstances that will surround the future managers and users of the systems. On the basis of this information, a decision can be made on whether to provide the rural drinking water sector with humanitarian aid or not.

Populations Build their own Drinking Water Supplies

The value of a drinking water supply system is generally the greatest when it is built by its ultimate users. That means that new water supply systems are planned jointly, and only the materials that are not available locally (like hand pumps, electric pumps, water pipes, cement and other building and replacement materials) are purchased elsewhere. The Swiss Government makes the personnel of the Swiss Humanitarian Aid Unit (SHA) available for humanitarian assistance – this Unit supervises the building of installations and makes sure that the material is used properly.

In order for a water supply system to be able to operate for a good number of years, it has to be technically straightforward, requiring only the minimum of imported materials for operation and capable of being repaired by the operators themselves. The supply will only function in the long run if running costs are modest and are paid by the water consumers.

Simple Water Processing is a Key Factor

In many cases, water must be processed before it can be safely consumed. For example, the drinking water for a refugee camp in Sudan had to be sourced from an irrigation channel which contained extremely turbid (muddy) water. In cooperation with SANDEC, the Department for Water and Sanitation in Developing Countries at the Swiss Federal Institute for Environmental Science and Technology (EAWAG), the SHA decided to construct a simple gravel filter. The filter basin was built with sandbags and sealed with plastic foil.



Training of health workers.

Case Study: Drinking Water Supply in Moldova

Moldova is the poorest country in Europe and a main theatre for the provision of humanitarian aid by the Swiss federal government. The supply of drinking water is extremely poor in many villages and towns. Out of a short-term humanitarian project that lasts for two to three years, a long-term engagement of the Swiss Agency for Development and Cooperation may possibly emerge.

During a fact-finding mission conducted by SDC in the Moldovan region of Nisporeni in the year 2000, the Moldovan officials who were responsible for the water supply still dreamt of a Russian regional supply with processed river water, a 50 kilometre long pumping main and a water consumption of 200 litres per person per day. Only with considerable effort was it possible to explain that no such investments in infrastructure could be supported within the framework of emergency humanitarian aid.

Initially, a concept had to be developed for a region in which only small quantities of good drinking water were available. The idea was that the supply of water should be divided: for personal hygiene and the kitchen, every inhabitant would receive ten litres of clean drinking water daily. For laundry and cleaning, water of lower purity would be used. The clean drinking water would come from a protected spring, and the everyday household water from wells.

Wells and Spring Water Catchments

Because many wells were in poor condition, the well water was constantly polluted. The rehabilitation of wells was therefore undertaken, with SDC's support. With simple drawings, the causes

of contamination could be explained; at the same time, better ways of digging wells were also demonstrated.

In the region of Nisporeni, there are many small, natural springs that provide good quality drinking water. Although small, the idea that these springs should be tapped and channelled was quickly accepted by different communities, and several simple but reliable water supplies were built.

Most of the work was carried out by the eventual consumers which will lead to a long-term identification with the systems. Only specialised work was conducted by professionals, and the building material was made available by the SHA.

Simultaneous Improvements in Sanitation

In addition to the building of water supply systems, a start was made with the construction of latrines near schools, together with the dissemination of information about the connection between clean drinking water and effective sanitation. In parallel with a project for health education and hygiene behaviour implemented by SHA's medical group, all segments of the population were able to be reached, including hospitals, women's groups and residents associations.



A local engineer explains the workings of a hand pump.

Many wells are in a neglected state.

9 Water in Excess – Catastrophic Consequences

Franz Stössel and Markus Zimmermann



In connection with the global changes in climate, SDC has to deal increasingly with natural disasters like flooding. Today, this subject is an important element in integrated water resources management. SDC provides assistance in the event of natural disasters through emergency aid and help in reconstruction, and is also engaged in preventive action.

“Thus, Switzerland also sent experts to Saxony. The Swiss confederates are familiar with the mood swings of mountain streams – the Alps send us their regards. The Müglitz and Weisseritz have shown that they too can behave like mountain rivers and we have seen that the Ore Mountains (Erzgebirge) can be every bit as dangerous as the Alps. For this reason, local experts were full of praise about the ideas and experiences of the Swiss...”

Sächsische Zeitung, 4 March 2003. (Newspaper of Saxony)

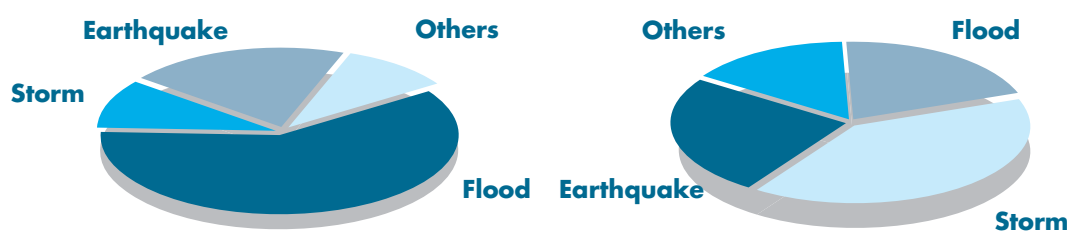
Water plays a central role in triggering natural disasters. Excess water in the ground or on the surface can cause the formation of rivers of mud, flooding and landslides. A global study shows that slightly more than half of all victims of the worst natural catastrophes (floods, storms, earthquakes) die because of floods – roughly 25,000 deaths annually. The economic damages caused by floods amounts to about one-third of the damage caused by all natural catastrophes – roughly 25 billion US dollars each year.

Asia is severely affected by floods, particularly China, India, Japan, and countries along the Mekong River. However, 2002 showed that extensive flooding and the associated devastation is not confined to developing countries. The flooding

of the Moldova, the Elbe, the Danube and their tributaries demonstrated the vulnerability of Central Europe. In Switzerland, thunderstorms claim two to three lives annually and cause damage valued at 250 million Swiss francs. In 1987, storms caused damage valued at 1.3 billion Swiss francs and eight people lost their lives.

Avoiding Risks of Flooding, Reducing Damage

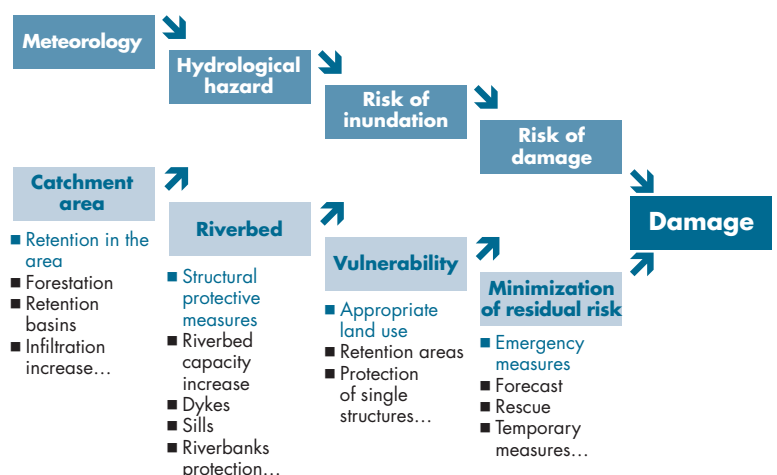
The reduction of flood risks, flood prevention measures and the limitation of potential flood damage have a long tradition in Europe generally, and in Switzerland in particular. Flood prevention belongs to sustainable development of any region. In many developing countries however,



Deaths from natural disasters

Economic loss due to natural disasters

It is a long way from a single raindrop to a major flood.



prevention measures have made little progress. Risk management is frequently restricted to reactive intervention once the event has occurred (“response”).

“Prevention” in its wider sense covers the prevention of flooding, for instance through extensive reforestation or through the building of dams, reservoirs and dykes. Flood damage can be prevented most efficiently by limiting the use of flood-prone

areas for certain applications (“land-use planning”). Among other measures, good monitoring and an early warning system are effective means of preparedness. With timely information, it is possible to erect temporary safety walls such as sand-bag embankments, or to carry out evacuations. This also calls for the preparation of relevant response units. Integrated risk management also includes the financial covering of flood damage through suitable insurance.

Case Study: Flood Prevention in Saxony, Germany

In the framework of support to the victims of floods provided by the Swiss federal government, SDC supports the appropriate agencies in Saxony with the planning of a comprehensive flood protection concept for the tributaries of the Elbe.

In a first stage of the project, an event analysis will be compiled in Saxony. Special attention is given to the processes that caused the most damage. It was apparent that insufficient hydraulic capacity of the riverbeds, combined with large quantities of debris moving down the Müglitz, led to big problems. The damage was magnified severely in many places by the narrowing of rivers through road and bridge construction. From the insight gained, it is possible to define scenarios and endangering patterns.

In an intensive exchange of experience, an attempt is being made to extract insight from Switzerland’s Flood Protection strategy, to be adapted to the local circumstances with the Saxon partners. The objective is to reach an appropriate protection of residential and economic space with

land-use planning measures – whereby high priority is given to the drawing-up of flood risk maps – to prevent a further increase in damage costs, and to treat flowing waters as an essential component of the environment with the relevant requirement for space. The Swiss know-how meets with an active and positive interest on all levels, and discussions with the Swiss advisory team are very much in demand, not least because of the enormous time pressure. Initial success could be recorded with the laying down of a Saxon guideline for the determination of a damage potential, and the setting down of differentiated protection goals. After a processing time for pilot projects lasting five months, all the water catchment areas in Saxony will now be dealt with according to this procedure. With this, a first phase of the flood protection concept has already been completed.

The August floods of 2002 have caused damage around the tributaries of the Upper Elbe valued at billions of Euros. Now the Free State of Saxony is faced with the challenge of rebuilding several hundred kilometres of waterways that were largely destroyed, and at the same time has to improve flood prevention along the rivers in a sustainable manner.

Weesenstein

In August, the Müglitz stream flooded the whole valley. In the framework of flood protection measures against repeat occurrences, optimal security has to be targeted, while taking into account the intensive land use for buildings, farming, roads and railways. The reconstruction of the river course with its tight bends and multiple narrow passages plays a central role in this regard.



Floods can have disastrous consequences.



10 Capacity Building as a means of Promoting Self-Help

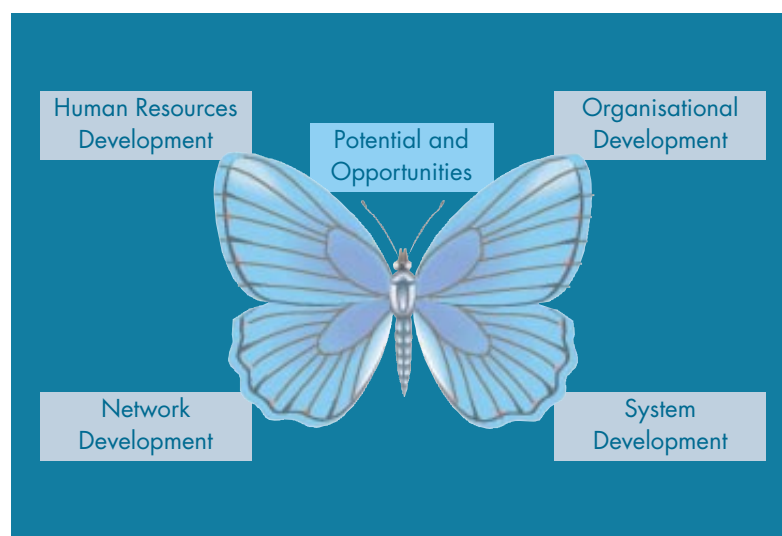
Arthur Zimmermann and Cyrille Ameg

Capacity building is an important activity within all SDC programmes in order to promote sustainable development processes with partners. Special emphasis is given to common learning and the empowerment of disadvantaged local populations, so that these groups are able to articulate and defend their interests, and to develop greater self-confidence. Capacity building also forms the basis for the strengthening of local institutions. In order to be successful, capacity building must take place through locally anchored advisory centres.

Various action strategies increase the self-help potential of the local population:

- Promotion of the individual capacity for learning (human resources development).
- Enhancing the ability to achieve and the flexibility of organisations (organisational development).
- Establishing and strengthening the cooperation between organisations and networks (network development).
- Development of well disposed, legal, political and socio-economic conditions, so that human beings and organisations can unfold and improve their performance (system development).

These four dimensions should be considered in a balanced mutual relationship and supplemented by the fifth dimension, the empowerment strategy. Capacity building has to respect and build upon the local realities, change processes and reforms that already exist. In this, local knowledge plays a central role.



Butterfly with four dimensions of capacity building...

...and if the butterfly had a sting, it could symbolise the participant's capacity for self-assertion and tenacity in the cooperation system.

Resource centres are determining structures in the development of capacities of communities and partners. It is they that register, document and disseminate experiences, and finally adapt them to the respective environment and, correspondingly convert them into action. Already in the early eighties, SDC took part in establishing resource centres in the water and sanitation sector in East and West Africa. Their importance as capacity building agents was confirmed in a study in 1998. Consequently, resource centres in Africa, Asia, Europe and Latin America are uniting into a global coalition under the unifying banner of "Streams of Knowledge". This global network is composed of regional networks.

Capacity Building – From a Simple Building Site to a Complex Partnership

Long-term programme credits through SDC have enabled Helvetas to distinguish itself as an expert organisation in the sector of drinking water. In this regard, the building-up of core competencies is linked closely with changing framework conditions. These changes influence the choice and development of partners and call for flexibility from the development cooperation community.

In the drinking water programme launched by Helvetas in Cameroon in 1964, the development workers used to lend a hand in community water projects in order to pass on practical knowledge in building techniques to the farmers. The increasing demand and the call for trained tradesmen led to the setting-up of a building trade school. Up until 1988, more than a thousand masons, plumbers, carpenters and mechanics had been trained there. Those that were most successful received further training to become foremen, technicians or engineers. Together with Helvetas, they built more than 500 simple and complex water projects, most of which still function today. The population made regular contributions in the form of labour and cash payments, often supported financially by relatives who had emigrated. For maintenance in the village, project committees and repairers were trained. Since 1994, Helvetas has also been engaged in measures to protect springs because of the growing shortage of land and water.



A workshop for local capacity building in Ouagadougou, Burkina Faso.

Case Study: Regional Centre for Water Supply and Sanitation, Ouagadougou, Burkina Faso

The “Centre Régional pour l’Eau Potable et l’Assainissement à faible coût” (CREPA) is one of five African international networked education centres for water supply and sanitation whose main task is capacity building. CREPA has a membership presence in 15 countries from West and Central Africa and holds a key position in the West African alliance. It offers training, applied research, legal help, management of knowledge and advice.

The regional centre CREPA considers capacity building as a means of actively involving populations in community development. The centre provides factual information and support calculated to strengthen the resources and the self-respect of the people – two important factors for success in development projects. Moreover, CREPA promotes dialogue and cooperation between state and civil society through coordination points such as non-government organisations, commissions and associations. These agencies receive training in participative methods, in communication techniques and in practically-oriented management counselling.

Capacity building takes various forms according to project, local context and specific objectives:

- Courses in various technical and administrative subjects are offered in order to boost the organisational and specialist competencies of staff in key positions.
- At colleges and universities, CREPA arranges basic and advanced training courses for engineers, technicians, tradesmen, communicators and communal contact-persons for drinking water, sanitation, health and community development.
- Projects, non-government organisations, associations and private agencies receive training on demand in the realisation of specific activities in the water supply, sanitation and/or hygiene sectors.



Water distribution with handcarts.

- In smaller communities that have no suitable local organisations, elected representatives of the communities accept the responsibility for the promotion of hygiene. They are trained by CREPA and receive a mandate for carrying out project activities.
- The proper administration of water resources presupposes the formation of an appropriate commission at user level. Commission members are trained separately because they take over different roles. Accordingly, the persons responsible for the maintenance of infrastructure may be trained by a pump specialist and the financial administrators may be trained by a management expert. This kind of skill development calls for the cooperation of various specialists.
- CREPA arranges seminars to sensitise political decision-makers about water-related problems. Additionally, various information media are also targeted at this important group.
- Another key activity is the cultivation of public relations. CREPA produces topic-related posters and puts them up in suitable spots such as schools, departmental offices and public places in communities. For years, video films produced by CREPA have also been successfully used in training and sensitising campaigns.



Water filter:
the sand remains in
the container.

A slab for latrine
construction.





PART III: SYNTHESIS AND OUTLOOK



Challenges for the Future

Water shortages will become commonplace. If present trends continue, two out of three people will suffer from water shortages by the year 2025. However, sustainable use and distribution of available fresh water reserves is possible. SDC supports the campaign to establish access to water as a human right.

Integrated Water Resources Management is Pivotal

Water is life. Water is a resource which is put to multiple uses – as drinking water, for sanitation, in farming and industry, for the production of energy. But nature also needs water for the preservation of its ecosystems. These varying interests compete with one another and can lead to full-blown and violent conflicts. Furthermore, the “spears” of the various protagonists are unequal in length, because not all have equal access to water, and the supervision over water resources often lies in the hands of a few. Yet, water knows no boundaries. Water is truly a global asset and access therefore has to be safeguarded for all, and water usage has to be planned efficiently, in a fully comprehensive and sustainable way. The protection and regeneration of water resources must be included in this planning. Much too often, water is polluted and those responsible know that they will not be held responsible for the consequences of their actions.

For years, SDC has been pursuing integrated and sustainable approaches through its programmes. The relationship between mankind and the environment stands in the centre of this ideology. SDC’s main objective is the improvement of human living conditions through sustainable development and poverty reduction.

The embedding of a project or programme in the specific ecological and cultural context is important for integrated action, while concurrently taking into consideration the social, institutional, technical, economical and legal aspects. The weighing and adjusting of the differing views and interests of the various claimant groups is crucial – often on the basis of a shared interest in the long-term preservation (and therefore sustainable use) of vital water resources; yet this common interest may have seemed imperceptible at the outset.

In the planning and realisation of an integrated approach, consideration must be given to realities in the sector. Connections across sub-sectors can be illustrated best with the help of the Global Water Partnership’s “Comb”.

SDC’s Thematic and Regional Priorities

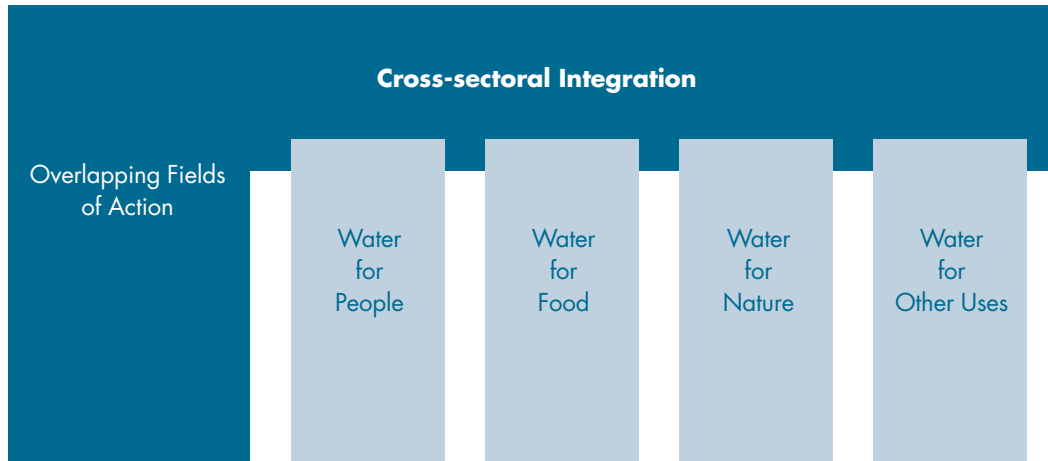
In the past five to ten years, SDC has invested an average of roughly 50 million Swiss francs per year in close to a hundred water projects. In doing so, it has accorded a distinct priority to the area of “Water for People” (water supply and sanitation).

In 2003, SDC regulates about 60 million Swiss francs for 125 projects in the water sector. A little more than half of this amount flows into the area

Rice growing in Indonesia.



Integrated Water Resources Management and its Relations to Sub-Sectors



“Water for People” refers to the drinking water and sanitation sub-sector, which has always had priority in the water programmes of International Development Cooperation.

“Water for Food” refers to the area of agriculture and irrigation for the production of food and fibre crops such as cotton, flax and hemp. “Water for Food” accounts for a large share of total water use.

“Water for Nature” refers to the availability of water for nature and thus, for the preservation of ecosystems such as wetlands and water catchment areas, coastal and sea ecosystems.

“Water for Other Uses” refers mainly to the use of water for industry, energy and transport. These are important elements of the global economy and are therefore often given priority at the expense of other uses.

The **“Overlapping Fields of Action”** refer to cross-cutting subjects such as the influences of the environment and issues of governance.

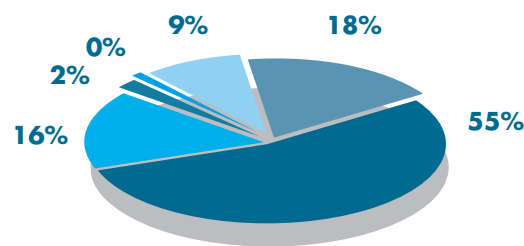
The **“Integrated Water Resources Management”** (IWRM) takes into account the four categories of uses “Water for People”, “Water for Food”, “Water for Nature” and “Water for Other Uses” which are combined and considered along with the cross-cutting themes in an overall, integrated approach to resource management.



A well in Burkina Faso.

of "Water for People". The IWRM and watershed management projects take up another fifth of the total. Since the early eighties, watershed management projects have been following an integrated approach. Sixteen percent flows into the category "Water for Food". Another tenth of the total volume is intended for cross-cutting spheres of action and mainly focuses on the subjects of conflict prevention, good governance, financing, risk management and social development. "Water for Nature" and "Water for Other Uses" are of minor significance in practice.

Planned Expenditure in 2003 by Sub-Sector



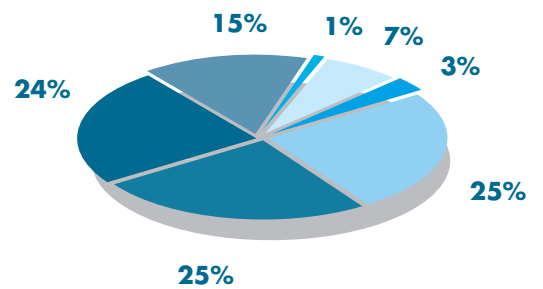
- 55%** Water for People
- 16%** Water for Food
- 2%** Water for Nature
- 0%** Water for Other Uses
- 9%** Overlapping Fields of Action
- 18%** Integrated Water Resources Management

On top of the average 50 million Swiss francs per year, additional investments are made in humanitarian aid projects in response to major floods and for the prevention of various natural disasters. These budgets are determined annually and vary significantly. Depending on the severity of events, large sums can be spent on immediate help in re-

construction. For example, 2002 was the year of flood disasters and 40 million Swiss francs were spent on humanitarian aid. Exceptionally at that time, SDC did not just provide support to developing countries, but also provided reconstruction and mitigation support to Germany and Austria after extensive flood damage.

The allocation of funds across regions is more or less balanced and follows clear priorities. Of the 60 million Swiss francs which were spent in the water sector in 2003, Latin America, Asia and Africa received an equal share of about one-quarter each. Other less distinct geographical priority areas are Eastern Europe and Central Asia with about 15 percent of the total budget. The Near- and Middle East along with support for activities on an international level take up the remaining and modest balance of reserves.

Expenditure in 2003 According to Regions



- 25%** Latin America
- 25%** Africa
- 24%** Asia
- 15%** Eastern Europe
- 1%** Near- and Middle East
- 7%** International
- 3%** Others

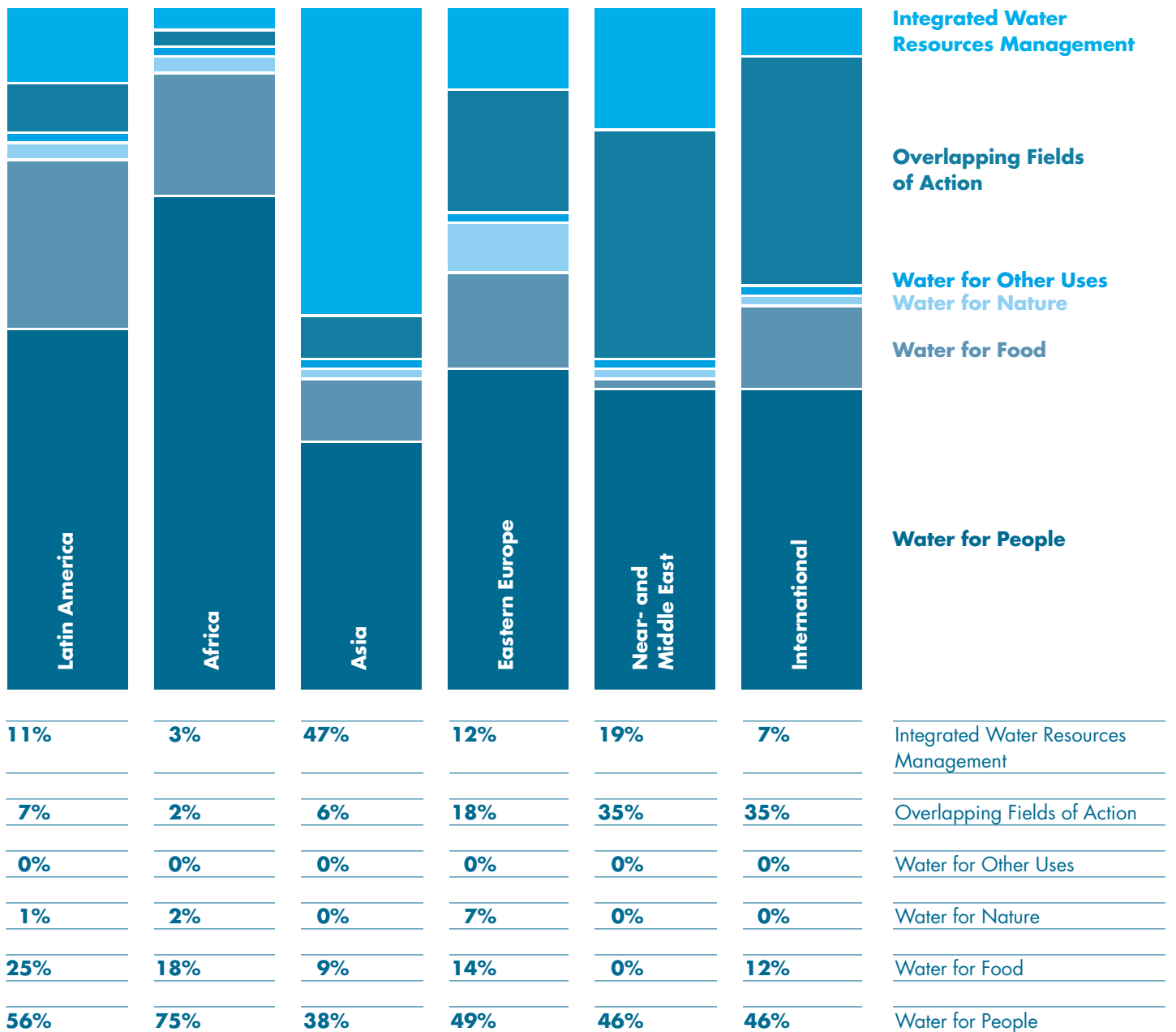


Water has cultural and social values as well as economic and ecological significance.

Across regions, the priority of thematic focus can be very different: integrated approaches play a particularly important role in Asia. In contrast, special emphasis is placed on “Water for People”

in Africa, particularly on water supply and sanitation measures. Here the IWRM projects only take up a small part of total allocations.

Expenditure in 2003 by Subject and Region

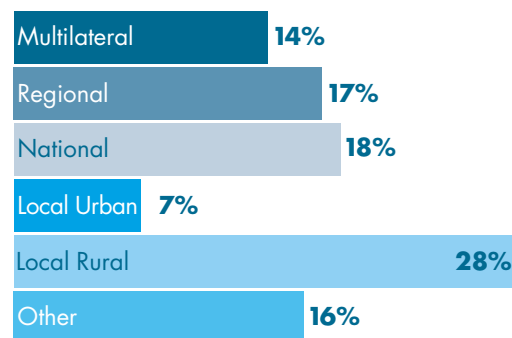


Levels of Intervention and Partners

About one-third of all water projects are implemented at local level, the majority of them in rural areas. This corresponds with SDC's traditional priorities which focus on rural development and place human beings, their interests, concerns and participation at the centre.

Interventions on a regional, national and global level are represented in a balanced way in each area. The international water networks also belong in this category, which SDC has actively supported since the International Drinking Water Decade. While the earlier share of local projects was even larger, a shift in engagement towards higher levels has taken place in recent years. The local engagement will still constitute an important part of SDC's work in the future, however.

Number of Projects According to Levels of Intervention



In cooperation with the partners, work is proceeding in a more integrated and broadly-based way today. In this regard, a "multi-stakeholder approach" is urgently needed. For example, solutions have to be developed locally and anchored nationally, and strategies have to be developed at national level, but tested and anchored locally. An optimal cooperation of the most important partners at micro-, meso- and macro-levels is essential for the success of the project.

On these various levels, SDC has collaborated in stable partnerships for a long time already. This applies to the local level as well as to the global level. The traditional, long-term partners in the water sector at local level cannot be listed individually because of their number. On a global level, they are the World Bank, UNDP and UNICEF. Commissioned by SDC, the most important proj-

ect management organisations – which mainly implement local projects – are the Swiss NGOs Intercooperation and Helvetas. The complete list of other highly professional and long-standing cooperation partners would be long. Finally, it is worth mentioning that SDC has implemented many projects itself, in cooperation with local partners – to a volume of about 16 million francs per year, which is a major exception in cross-comparison with other SDC activity sectors.

Challenges for the Future

Against the backdrop of the global water situation, the International Year of Freshwater 2003 provides an important opportunity for SDC to look back and to engage itself in a more determined way. This brochure shows where and how SDC has worked in the water sector in the past, as well as how it has positioned itself. This brochure is therefore the result of an internal review and an evaluation of experiences.

A retrospective view is always a prerequisite for future orientation. Thus, this brochure also encapsulates the basis for the new SDC water strategy, which brings itself in line with the challenges of the future.

Considering Switzerland's declared commitment to the "Millennium Development Goals" and the "Plan of Implementation" which were endorsed at the Johannesburg Summit, SDC intends to pursue its active engagement in the future and to face up to the new challenges in the water sector.

A basic principle of future engagements will be that sustainable water management provides the ecological, economic and social prerequisites for secure living and contributes towards poverty reduction.

Further important principles and strategy elements were developed by Switzerland within the framework of the Third World Water Forum in Kyoto in March 2003. In the coming months, the corresponding, concrete strategy elements, action fields and priorities will be weighed up within the framework of SDC's available experiences, evolving general conditions, possibilities and resources. The result of these deliberations will subsequently be incorporated into SDC's new water strategy.

Switzerland's Position in Kyoto, March 2003

- Water is a key element for sustainable development.
- Water is a common asset with economic, ecological, social and cultural values. These values have to be taken into account in a balanced way for successful, integrated water management.
- Water is a limited resource. Its use has to do justice to various needs and groups concerned.
- Responsible management of water is a prerequisite for equitable access to fresh water resources and their distribution.
- Decentralisation is essential. The management of water resources should occur as close as possible to the users-especially in rural areas.
- Regional and international cooperation as well as good water management are core contributions to peace, security and stability on all levels.
- New and innovative approaches to financing, investment and partnerships are to be developed in order to generate sufficient financial means to guarantee a financially-acceptable access to water and a functioning infrastructure for all.
- An integrated water management covers all aspects of the sector and calls for an interdisciplinary and responsible approach in cooperation with all those involved.
- Adjustment to climatic changes means taking precautionary measures, i.e., prevention of natural disasters – like droughts and floods – through risk- and danger management.
- It is a global task to reach the internationally agreed water goals. Therefore, an international coordination mechanism in the area of water should be established which allows us to rationalise efforts, to strengthen cooperation, to develop synergies, and to avoid duplication of tasks.
- The protection of ecosystems as well as the sustainable use of water are of first priority. Preventive measures for the protection of water resources will turn out cheaper and more efficient than the remediation of water pollution caused by irresponsible use.
- The application of water-saving technologies as well as sustainable use of water, for instance in irrigation, make it possible to save large quantities of water and to channel these into drinking water and other requirements.
- The aspect of gender has to be integrated at all levels. The inclusion of women in the search for solutions and their subsequent realisation is an important procurement of resources and leads to a more efficient use of water.

In the future – and for the water strategy that is under development – it is important that local people play central roles from their specific environments. Special attention has to be paid to them. They are the people who build the infrastructure and who work with it; they operate it and through their actions they are able to carefully and sustainably use common and precious water resources. Through all of its activities, SDC seeks to improve the living conditions of these people and to alleviate their poverty.

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2003

Internationales Jahr des Wassers
Année internationale de l'eau
Anno internazionale dell'acqua
Onn internaziunal da l'aua
International Year of Water