



# REPORT ON EFFECTIVENESS

## SWISS DEVELOPMENT COOPERATION IN THE WATER SECTOR



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Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Agency for Development  
and Cooperation SDC

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## Information about the chapters and chosen presentation

The report begins with simpler effectiveness-related data before going on to more complex correlations. The chapter entitled «Access to water» describes which and how many people have benefited from water programmes. In the technical discussion, this is also mentioned as an outcome. The subsequent chapters «Direct benefits for the population» and «Effects on general conditions» show how access to water has helped people, regions and institutions. Experts speak of impacts when describing these aspects. The chapter entitled «Sustainability» examines the possibility of making targeted results last, pointing to already observed cases of sustainability. The chapter «Impact on multilateral policies and professional networks» highlights Switzerland's active and successful par-

ticipation in international institutions and programs. This participation serves to strengthen and broaden the effects mentioned earlier. The chapter entitled «Effectiveness at what price?» provides an estimate of the costs (of the programs) and benefits (of the achieved effects).

Whenever the targeted (positive) effects were not (fully) reached, the report gives an explanation of the major problems encountered during program implementation. Given the matters covered in this report, an effort was made to summarize key impacts and briefly illustrate these impacts with examples. The examples themselves are not fully depicted.

## Editorial

This Report on the Effectiveness of Swiss development cooperation is directed at the general public and renders an account of successes achieved through implemented measures, but also on problems encountered and existing challenges.

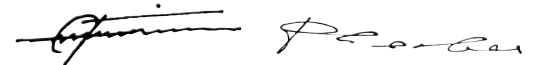
The decision to report on the effectivity of activities in the water sector was made by the SDC and SECO. Access to water for drinking and production purposes are basic requirements to overcome poverty. Access to water is an internationally recognized and promoted goal (a Millennium Development Goal). For many years, Switzerland has made substantial efforts to achieve this objective in developing and transition countries, as well as in international organizations. The results of these efforts are of interest to the general public.

The conclusion reached in this report on water is that development cooperation is necessary and meaningful: on the one hand because access to water is a basic human right and because many needs remain unfulfilled, on the other hand because develop-

ment cooperation generates positive changes and is effective.

In addition to taking stock of achievements, the other reason for compiling this report is to improve the Swiss Government's engagement in water programs. Ultimately, any reactions received on this effectivity report should help the government align its future reporting on the effectiveness of development cooperation, more specifically with the expectations of the general public.

We wish you interesting reading and look forward to receiving your reactions.



### The role of the SDC and SECO

SDC supports rural drinking water supply, sanitation and small-scale irrigation in countries of the South, Central Asia and Eastern Europe. Both interventions of development cooperation as well as humanitarian aid come to bear in these areas.

SECO promotes the supply of potable water and sewage disposal in metropolitan areas in countries of Eastern Europe, Central Asia and the South.

The Federal Government (SDC and SECO in consultation with other departments of the Federal Administration as well as private actors) exerts influence on international expert discussions and makes use of their expertise. In addition, Switzerland works closely with multilateral organizations in order to strengthen their contribution to the attainment of international development goals.

Reactions to the report: [info@deza.admin.ch](mailto:info@deza.admin.ch)



Cattle trough at a water pump in Niger (Photo: A. Winizki)

## Brief overview

Over the past five years Switzerland has invested an average of CHF 68 million per year in the water sector of development cooperation. The following report shows that this has contributed substantially to reducing poverty, strengthening local institutions and creating basic conditions for development. The overall balance is positive, but in the future environmental questions deserve more attention.

### Access to water and sanitation

Thanks to Swiss water programs, about 370,000 people per year in the reporting period have received better access to drinking water and sanitation facilities in residential areas. Access to irrigation water was improved annually for approximately 30,000 people.

Switzerland is thus making an important contribution towards achieving one of the international development goals (Millennium Development Goal No. 7: «Reduce by half the proportion of people without sustainable access to safe drinking water and basic sanitation» by 2015).

Nevertheless, this direct contribution still amounts to less than 1% of the worldwide goal, which is why Switzerland reinforces it by supplying multilateral organizations with expertise and financial contributions. Furthermore, it is essential that concerted actions and cooperation continue with donors in partner countries, in addition to specifically promoting

and supporting national water programs. Switzerland has already achieved a great deal in many of the countries examined.

### What are the effects of having access to water?

For those directly affected, noticeable effects include the containment of diseases, the time saved for collecting water, higher income and increased knowledge (e.g. on diseases and hygiene). It also has significant structural effects: improvement of the economic location, strengthening of public supply and waste management businesses (public utilities) and environmental protection.

One of the most significant effects of Swiss cooperation was achieved by promoting local institutions: those directly affected handle the operation and maintenance of their own water supply installations.

Switzerland's commitment to regions experiencing difficult conditions and its incentives to reduce the risks of natural disasters and water conflicts contribute to crisis prevention.

#### Pressure on water resources

In Niger, important improvements were made in gaining access to water, but climate change and the neglect of ecological principles could endanger any successes achieved so far. Everyone wants a share of the water that is now more readily available. The temporary presence of foreign herds is increasing and leads to overgrazing.



Sewage treatment plant in Debrecen, Hungary (Photo: SECO)

## A well-invested Swiss Franc

Investments in the water sector have a good cost-benefit ratio, as demonstrated by the projects investigated in which each invested Swiss Franc yielded a social and economic benefit of at least 3 to 5 Francs. Thus investments are also meaningful from an economic point of view.

## Chances of sustainability are proven

Swiss programs that were realized with motivated partners have shown better results and are sustainable. Programs that do not treat a problem comprehensively, or were realized with «reform-resistant» partners, have less chances of being sustainable.

The implementation of several programs was delayed due to civil wars and bad government leadership, a fact which negatively affected their sustainability.

One big challenge for all participants is the consequent implementation of a holistic water management, especially in the light of risks resulting from climate change.

## Results need time

The public wants to see fast results in development cooperation – this is justified. However, daily life in developing countries and the relationship between conducive and hindering factors are extremely complex. Investigations

made for this report have shown that basic social, political and economic conditions can change rapidly and this in turn may considerably influence the success and sustainability of Swiss programs. A long-term commitment on a local, national and international level is thus necessary to influence basic conditions.

## International partnerships are required

Switzerland's influence on the global agenda in the water sector is greater than would be expected by its financial commitment. Well positioned internationally, Switzerland's approach to engage itself not only in countries but also in international and multilateral programs and organizations of the water sector has proven of value. Both sides have gained knowledge and improved their work, and this in turn has benefited the inhabitants of developing countries.

### Success stories in Nicaragua

Nicaraguans believe that supplying drinking water facilities in their country is the key to improve their quality of life. The ability to organize themselves also affects other areas of life.

### Reaching EU standards

Thanks to Swiss support, the city of Debrecen (Hungary) now has a water quality equivalent to EU standards for the cleaning of sewage water.

### The increasing importance of knowledge exchange

The intervention of the Global Water Partnership (GWP) helped Morocco develop a new strategy for coping with droughts. It was supported by «drought-experienced» countries such as the USA, South Africa and Australia. Switzerland is a supporter of the GWP.

# Scope of the Report on Effectiveness

For decades water has been an important sector of Swiss development cooperation. It concerns making improvements in drinking water, wastewater management and sanitation, as well as irrigation and the management of water resources. The scientific basis for this report on effectiveness was provided by the German Development Institute (GDI).

## The Swiss program

Switzerland supports its partners with both know-how and money, and increases effectiveness through its involvement in other programs and by cooperating with other donors. Swiss water programs are conducted both in developing countries of the South as well as in transition countries in the East.

In development cooperation and humanitarian aid, Switzerland supports various types of approaches in the water sector:

- Bilateral projects are developed and implemented directly with partner countries. Nongovernmental organizations, the private sector and international organizations render important services, such as infrastructure projects, training programs or political advisory services.
- Multilateral projects are supportive contributions to organizations that work on a cross-national basis. They serve research, knowledge exchange, dialogue on appropriate strategies, the formulation of policies and the implementation of measures.
- Swiss networks foster the exchange of knowledge and coordination among organizations within Switzerland.

## More than just a «Swiss» program

Generally, support is given to programs that are planned and co-financed by local partners. It is not simply a «Swiss» program.

The contributions made by those directly involved are considerable for many of the programs examined in this report. This not only refers to monetary investments or donations, but also to active participation in realizing programs.

The programs examined are also aligned with projects organized by other donors.

## Scientific basis

In 2007 the German Development Institute (GDI), together with experts from the consulting company FAKT, examined the effectiveness

of ten Swiss water programs in nine countries, namely in Bangladesh, Kyrgyzstan, Moldova, Mozambique, Niger, Nicaragua, Tajikistan, Hungary and Uzbekistan.

Some of these programs have a long history. In individual regions, the Swiss commit-



Cooperation of the Moldovan population  
(Photo: T. Umbehr)

ment dates back to the year 1975. In others, Switzerland was only involved for a few years. The examination was generally concentrated on the past five years.

The SDC and SECO selected the programs to be examined. A balanced selection of geographical priority areas, program objectives and contributions from involved federal offices was deemed important. Whether or not the programs looked promising was not decisive.

The GDI also examined 11 multilateral programs and the work of two Swiss networks.

The examined bilateral and multilateral water programs have an annual budget of CHF 22 million, i.e. 32% of the entire water budget.

### A partner country of the Swiss water program

Moldova is the poorest country in Europe, with almost 50% of its population living below the poverty line. The Swiss program is active in rural areas, where extreme poverty is particularly found.

### How was this Report on Effectiveness compiled?

Fourteen experts worked on the study. They began by analyzing documents, in addition to conducting telephone interviews and sending involved parties written questionnaires. In seven cases effectiveness was also checked locally. This data was mainly collected during workshops attended by inhabitants of the affected population.

Results of the examinations from different data sources were then compared and showed good concurrence. The present report is reinforced by comprehensive material and

also covers the results of an additional cost-benefit analysis of Swiss water programs.

One important finding reached through the work on this report is that any water program supported by Switzerland must be better organized when it comes to collecting data on access to water and documenting results.



Main irrigation canal in Ferghana Valley, Central Asia (Photo: M. Kollmuss)



River weirs in the Province of Téra, Niger (Photo: GDI)

## Access to water: Who has profited?

Over the past five years a total of approximately 400,000 people per year have directly profited from the Swiss engagement in the water sector. Today the urban population has better access to drinking water and sewage disposal facilities. Rural areas profit from drinking water, sanitation and irrigation installations.

### Drinking water supply

Over the past five years approximately 30 % of Swiss aid flowed into the supply of drinking water to urban areas. In Debrecen (Hungary), Switzerland helped to improve access to drinking water and obtain better sewage disposal facilities for approximately 195,000 persons. Surveys made in 2005 with customers of urban waterworks showed improved customer satisfaction (80 out of 100 points). In Khujand (Tajikistan) 40,000 people benefited from water programs.

Resources are being used efficiently. For example, due to the Swiss commitment the city of Debrecen (Hungary) has strongly reduced its relatively wasteful water consumption from 200–250 liters per day and per person to 80 liters per day and per person. In this way the same amount of water can now supply more families.

The situation at the outset and accessibility are often more difficult in rural areas. In the last five years, approximately 70 % of Swiss aid in the drinking water sector flowed into rural areas.

### River weirs in the region of Téra (Niger)

Water availability was increased using simple methods such as the construction of weirs.

Swiss support is considerable and also has an impact in terms of figures. In Nicaragua, Switzerland has provided 285,000 persons with access to drinking water in the past 25 years, while in Niger 700,000 persons have profited since the beginning of the Swiss project (1978).

Some setbacks have also been noted: In Cabo Delgado (Mozambique) the supply rate of clean drinking water for the population sank from 61% in 1996 to 41% in 2002, among other things due to the lack of spare parts for hand pumps resulting from an import stop. This was a serious setback. Switzerland has since revised the project and was also successful in having the import prohibition rescinded. This led to a definite improvement.

### Irrigation in the Ferghana Valley

Approximately 680,000 farmers benefited from this project. Previously, water losses in the canal system due to technical defects and illegal usage were immense. At times, only 50–60% of the fed water actually arrived at the end users. Through its approach of focusing on implementing organizational measures, the Swiss program was marked by success.

### Ambitious goals in Cabo Delgado (Mozambique)

The goal of the Swiss program launched in 1979 was to establish the supply of drinking water and sanitation facilities for an entire province – about twice the size of Switzerland – for 1.3 million people. Expansion progressed quickly. By 2002 only 58% of the wells functioned because important factors had been neglected: the availability of replacement parts and the low organizational abilities of the population. Switzerland and the government of Mozambique reacted to this situation and adapted the project accordingly.

### Community hygiene and sewage water

The disposal of faeces (from latrines) and hygiene education form part of every rural drinking water project implemented by Switzerland. No sufficient health effects can be achieved without these measures.

The success of Swiss programs varies from country to country. While enormous progress was seen in Nicaragua, only a minimum of headway was made in Cabo Delgado (Mozambique).

Swiss experiences correspond to those made by other donor countries: It is more difficult to achieve success in community hygiene than in the supply of drinking water because the former entails changing people's behavior.

In Debrecen (Hungary) as well as in the city of Nukus (Uzbekistan) sewage disposal was at the top of the priority list compiled by the partners. In both cases the water quality was decisively improved thanks to the Swiss engagement. In Nukus approximately 80,000 people are now connected to an improved sanitation system.

### Investments in Khujand (Tajikistan)

Thanks to this project approximately 30% of all water pipes and house connections were repaired. In addition, a damaged water pump was replaced, benefiting 40,000 people. Previously, 40–60% of the water was lost because of leaking pipes.

### Irrigation

Over the past five years approximately 150,000 people have received access to an irrigation infrastructure thanks to Swiss investments.

In the Ferghana Valley (Central Asia), Switzerland supported the modernization of irrigation systems and agriculture which directly and even indirectly benefited 680,000 people living on 1,700 km<sup>2</sup> of land.

In dry regions such as Niger it was possible to increase water availability with some simple measures. In Téra (Niger) weirs were built in the riverbed causing the groundwater level in



Modification of distribution network in Khujand (Photo: SECO)

the surrounding countryside to rise. The resulting available water is used for drinking water, animal drinking troughs and for cultivating vegetables.

### Conclusions and possibilities for improvement

Swiss programs have made an important contribution to providing more women, men and children access to water. This is achieved not only by constructing new installations, but also by modernizing old or defective facilities (wells, pumps).

The technologies employed in the Swiss programs are for the most part adapted to local conditions and needs and consist of both simple measures (river weirs) as well as modern installations (pumps in city water supply installations). Measures for disaster mitigation



are also being increasingly incorporated into water programs.

Access to water is not guaranteed after completion of the installations. The responsibility for operation and maintenance must be regulated. Here the Swiss program has shown considerable success with its policy of forming and strengthening local operating groups.

Sometimes the development environment could be better incorporated. Take the city of Khujand (Tajikistan), for example, where the drinking water supply system supported by Switzerland is linked to the city's power supply via the pump system. Due to this coupling, the

frequent power outages in the winter lead to operational interruptions in the supply of drinking water.

Moreover, the waste disposal components (sewage water, latrines) in most drinking water programs must be reinforced. This becomes increasingly important as wastewater accumulates with the improvement of the drinking water supply.



Hand pump in Bangladesh (Photo: T. Linder)



Higher production with irrigation: Tree nursery in Niger (Photo: A. Schenker)

## Direct benefits for the population

Improved access to water increases the standard of living and reduces poverty as a result of improved health, food security, income and availability of time. Effects on organizational capacity and the empowerment of women were attained but depend strongly on the respective environment.

### Containment of diseases

A reduction in the frequency of waterborne diseases (diarrhea and cholera, et al) was recorded in practically all drinking water programs that were examined. This notably improved the quality of life and the productive efficiency of the local population

In Bangladesh the lack of sanitary facilities and appropriate hygiene causes two to three serious cases of diarrhea per household each month which in turn results in two to six lost working days per month. The ensued damage to the economy is very high. A national reduc-

tion of these diarrhea cases was brought about by switching to groundwater usage (hand pumps), a project that was co-financed by Switzerland.

Wherever health benefits were achieved in Swiss programs, families saved money on medications, physician and hospital costs. Transportation costs to the hospital were eliminated.

However, health benefits in many regions are modest without the respective hygiene education. In Mozambique only 5% of the population washed their hands regularly after

improvements to the water supply system. The reasons are found in traditional behavior and the low importance attached to hygiene measures. The health benefits of having a supply of potable water are thus hardly perceptible.

In Moldova drinking water measures helped to repel hepatitis A. Unfortunately, this positive effect of the Swiss program was outweighed by the general decline of the health care system.

Meanwhile, the aforementioned health benefits achieved by the Swiss program in Bangladesh are also endangered. The health of more than 50% of the population is now



Public water supply site in Niger (Photo: SDC)

threatened by the arsenic contamination of the groundwater. This was not predictable at the time, and Switzerland is supporting research aimed at finding a solution to this problem.

### Saving time hauling water

Drinking water programs shorten the distance to wells. The time won per household thanks to these Swiss programs is approximately one to eight hours per day/night. It varies depending on the specific measure, time of year or residential structure.

The time won can be used in a variety of ways. In Niger the women use it mainly for parenting and for small trade. In other countries the girls who used to get the water now go to school on a regular basis (Nicaragua), or they have time for much needed rest (Moldova).

Irrigation programs also help to save time. In the Ferghana Valley women and men no longer need to guard the fields – which took up to 10 hours daily – thanks to a regulated water supply system.

In Cabo Delgado (Mozambique) the time savings effect was lost again because the population in villages that have developed along roads grew faster than expected. An insufficient number of wells and long queues were the result. During the rainy season people thus frequently again began to use water of lesser quality.

### Food security

Access to water for irrigation and animal watering troughs, as well as its fair distribution, is of great significance to farmers and cattle drovers. The production of food was expanded (Niger, Central Asia: Ferghana Valley). Food became more diversified and healthier through the cultivation of vegetables.

Drinking water programs also had a positive effect on food security. Fewer cases of diarrhea have a favorable effect on nutritional balance. Women and children use fewer calories to haul water when the water supply site is located closer to their homes.

#### Clean drinking water for children

Diarrhea is currently still one of the main causes of child mortality in developing countries. The effects of Swiss programs thus cannot be underestimated.

#### New jobs

In the areas surrounding river weirs in the Téra (Niger) region irrigation cultures, a fishing industry as well as the production of unbaked bricks have emerged. The population now has more alternatives in case of droughts.

#### Water comes to the people

In Niger the distance to public water supply sites was reduced from a maximum of 3.5 kilometers to 1 kilometer. Waiting times were also shortened because fewer users are registered per site. This saves people up to 4 hours daily.

## Higher income

The income of affected farmers increased, especially with irrigation projects. Farmers in the Ferghana Valley (Central Asia) talk about an income growth of 100% in Tajikistan and 10–15% in Uzbekistan.

The effect of such irrigation projects was heightened thanks to a holistic approach (Niger, Central Asia: Ferghana Valley). Switzerland not only finances water projects, but also other accompanying measures such as the construction of roads or grain store-houses.

The program in Bangladesh is particularly successful. It is based not only on the construction of new installations but also on the marketing of simple technology (treadle or pedal pumps), especially with small farmers. By using pumps they can also cultivate vegetables and rice to improve their income. Over one million poor families have so far succeeded in raising their income above the poverty level.

In urban areas the connection of a house to a water and sewage network produced economic benefits. In the city of Nukus (Uzbekistan) real estate with sewage connection gained 25% in value. Access to bank credits was facilitated accordingly.

## Experience with self-organization

Water projects promote local organization (establishment of and work in water user groups). In this area Swiss development cooperation achieved substantial successes in practically all programs. With little exception the groups continue to function well.

Not only is the population's self-esteem strengthened, but any organizational skills they developed can also be used to achieve other goals.

## Increased know-how

All Swiss programs entail an educational component and almost always meet with success. Knowledge is assimilated and implemented.

Alone in Moldova, 30,000 people received information on the connection between drinking water and its quality, hygiene and health, as well as on the efficient handling of water. This information also reached 40,000 people in Nicaragua and 145,000 inhabitants of the city of Khujand in Tajikistan.

In Mozambique long-term courses and grants were carried out for experts in the water sector. These achieved better results



Dedication of a pump station in Moldova (Photo: T. Umbehr)

### Voice from Moldova

«The water project was actually a school on democracy for us. The population was able to participate at all levels.»

than short training sessions. More than 60% of the 730 trained people were then able to be employed.

### Empowerment of women

Women profit from drinking water projects both as a target group (time savings, reduced workload) as well as participants (water user groups).

Experiences in Nicaragua are especially positive. Women now have more of a voice in decision-making, and the construction of school latrines allows girls the carefree attendance of school.



Water committee with female participation in Nicaragua (Photo: A.Maître)

All in all, however, the projects examined show that sustainable results in this direction are only attainable when the political and social will exist. No project alone can lead to any transculturation.

The example of Moldova mirrors the reality of many water programs. Only 10–20% of the women participate in the general meeting of members of water user groups. On the other hand, women hold a strong position in accounting «because women have a better flair for dealing with money.»

### Conclusions and possibilities for improvement

In 7 out of 10 examined bilateral projects Swiss programs showed a clear poverty-reducing effect with regard to one or more of the described factors (health, productive usable time savings or income growth). Work on this report confirms that the objectives strived for with these programs were reached.

These effects are direct, realistic and sometimes surprising: Farmers in the Ferghana Valley report that they can now sleep better because they have fewer conflicts with the family and neighbors concerning the allocation of water, and because the fields need to be watched less.

Strengthening the organizational skills of the local population is one of the largest successes of Swiss programs.

Although the extent of these results is immense, a great deal still depends on external factors. Prices dictated by the state can, for example, dampen the effect of an irrigation program because farmers cannot make use of new opportunities (Ferghana Valley). Conflicts over land ownership are also an obstacle (Niger).

Deficits are noted in projects in Mozambique, Bangladesh and Khujand (Tajikistan) where the desired effects were only partially reached.

The basic principles of «no water supply without sewage disposal» and «no irrigation without drainage» should in the future be better observed in all Swiss projects. Otherwise the impact of any implemented measures in the drinking water area on health will be considerably less effective than planned and could also pave the way for environmental problems.

#### Empowerment of women in Nicaragua

Numerous advanced training courses in the Swiss water program proved to be effective. Today women make up approximately 40% of the chairpersons in water user groups.



Wastewater clarifiers 30 km outside of Nukus (Photo: GDI)



Agriculture in the Ferghana Valley depends on irrigation (Photo: C. Lang)

## Effects on general conditions

Economic impulses, incentives for good governance practices and protection of the environment are examples of effects on general conditions. They guarantee a reduction of poverty and are visible in all water sector projects supported by Switzerland.

### Improvement of economic position

Most of the water programs examined encourage those involved to believe and invest in development.

In Debrecen (Hungary) the all in all favorable and affordable water and sanitation costs have become a positive location factor from which private individuals and industry profit. Debrecen has come considerably closer to being a «clean city» for its citizens and tourists. As for Nukus, the city now has a better reputation based on the modernized sanitation system, so that many pieces of real estate have also experienced an appreciation in value.

In Moldova the water program gave momentum to a change in the population's mentality towards showing more initiative, a fact which could trigger a local development impulse in this post-Soviet society. Hope remains that the government will provide the corresponding political support.

From a structural point of view, irrigation projects (Ferghana Valley) are also effective. The intensification of production, processing and marketing of products has created additional jobs that are distributed throughout the

year. The food cultivation palette was diversified which in turn reduced migration, especially of younger men.

Local trade can profit from the investments of Swiss programs, but only function if it is included and promoted as a partner. This was not always the case. In Bangladesh, for example, Switzerland once supported the distribution of hand pumps for many years without involving local trade.

### Strengthening of public utilities

Swiss investments in urban public utilities usually led to strengthening these businesses which in turn served to improve sustainability. Customers profit from this and fewer state resources are bound.

In Khujand (Tajikistan) the Swiss program helped professionalize the management of public utilities. In 2006 they experienced their first positive turnover. Previously, drinking water was only available for a period of six to eight hours per day. Now the drinking water facility operates almost 24 hours a day – a success story that is, however, occasionally undermined by power outages.

Meanwhile in Nukus (Uzbekistan) the Swiss program resulted in considerable savings in energy costs.

Nevertheless, problems still arise when it comes to safeguarding all of these successes on a long-term basis. Since water was provided free of charge during the age of the Soviet Union, the population is not always prepared to pay an appropriate price. However, in Khujand an information campaign was able to increase the rate of payments from 60% to 90%.

### Conflict reduction

In all irrigation projects examined Switzerland played an important role in spreading con-

From the outset, the Swiss program was therefore aimed at solving organizational problems. This had an impact on society, along with the contributions to the renewal of infrastructure.

Niger is another country where measures designed to regulate conflicts have so far proven to be effective. New voting procedures were established that have increased communication among ethnic groups.

### Incentives for good governance

A major part of these effects is directly related to good governance. The state was strengthened both locally and nationally so that it can



Production of hand pumps by small local businesses, India (Photo E. Baumann)

flict-solving strategies and helping water users reach a consensus.

One example is found in the Ferghana Valley (Central Asia). There was a lack of cooperation between post-Soviet states and the allocation of water provoked numerous conflicts.

better fulfill its responsibilities for the benefit of its citizens.

In particular this includes fostering and supporting national water programs. Switzerland was able to contribute to positive developments in Bangladesh, Niger and Nicaragua. Cooperation with other donors and multilateral organizations was essential.

#### A development impulse

The favorable development seen in the Ferghana Valley (Central Asia) is largely due to Swiss programs. Agricultural productivity has risen, and farmers say that water distribution at the upper and lower reaches of the river is now much fairer. Conflicts have been reduced.

#### Jobs in the hand pump sector

Thanks to Swiss support, numerous countries have taken up the production of hand pumps (India, Bangladesh, Mozambique, Tanzania, Afghanistan, et al).

#### Environmental protection

Investments made in wastewater treatment (Nukus, Debrecen) clearly have positive

impacts on the environment, especially when it comes to protecting bodies of water. Nukus (Uzbekistan) lies at the heart of the environmental catastrophe surrounding the Aral Sea. There the Swiss program focuses on helping the city collect and treat sewage water. One favorable side effect of this program is also the more efficient use of energy (annual energy consumption has been reduced by 40%).

Several Swiss-supported water projects have not yet been able to achieve a balanced water household (Niger and the Ferghana Valley). The alignment of water withdrawal with water availability is yet to be achieved.

Still, when viewed from a long-term perspective, the effects of these programs can be positive. Decentralized settlements are maintained. Improved living conditions can lead to the implementation of more intensified measures aimed at protecting natural resources.

### Influencing development trends

The analysis shows that water programs can also produce positive structural effects which in turn can have a certain influence on overall development. At the same time, general development problems may, however, also overshadow the successes and effects of Swiss development cooperation in the water sector. Nicaragua, for example, lacks employment opportunities, while Moldova and Tajikistan are currently caught up in a general economic decline, and Niger is fighting the consequences of climate change (droughts).

A further example is the Province of Cabo Delgado (Mozambique). The province was marked by a brutal 16-year civil war following the country's independence from Portugal in

1975 – as the Swiss program began. This fact must be considered when evaluating effectiveness.

### Conclusions and possibilities for improvement

All examined projects have had positive effects on basic conditions: economic impulses, conflict management, environmental protection, strong supply and waste disposal businesses and good governance.

The effects of these Swiss programs can partially influence development trends in a region or city. A totally negative trend (gross development) is not reversible.



Khujand: Khukand: Water meters are important for equal treatment of users and to encourage payment of bills. (Photo: M. Gysin, SECO)

#### Improved payment behavior in Khujand (Tajikistan)

Despite problems, customer satisfaction in Khujand (Tajikistan) is much higher than before, as shown by improved payment behavior. Within a period of nine months, the percentage of bills paid climbed from 60 to 93%.

#### Pollution of the Aral Sea

According to statements from local authorities, the Swiss contribution to improve sanitation came just at the right moment, otherwise the situation would have worsened dramatically.

## Effectiveness at what price?

The cost-benefit ratio of Swiss measures in the water sector is good, even when compared internationally. In the programs examined, a social as well as economic benefit averaging at least 3 to 5 Francs for each invested Swiss Franc is estimated.

The effects presented so far underwent a cost-benefit analysis. For this purpose ten programs were examined that usually run at least five years and are sufficiently documented to allow such an analysis.

In this cost-benefit analysis costs were recorded as comprehensively as possible, while benefits (effects) were evaluated more conservatively. Calculated as benefits were higher earnings and income, as well as savings in health care costs and time. Although other benefits (e.g. stronger local organizational ability) escape a simple monetary evaluation, they must be considered in the total balance.

As concerns installation lifespan, 10 years were calculated for drinking water systems and 20 years for irrigation plants.

### Drinking water programs

The analysis revealed that each franc invested in drinking water projects brought in a return of at least five francs, which is a good result in the international comparison.

Average costs per person were CHF 50, resulting in a return benefit of CHF 250. This benefit developed in approximately equal parts from avoided health care costs and productively won time resources.

Further influences on the result include the technology applied, settlement density, prices and local operational management of the water installations.

### Irrigation programs

The balance shown for irrigation projects is also positive. Each invested Swiss franc per country resulted in an average return benefit of at least three francs.

Although costs for irrigation projects are relatively high at CHF 475 per person, the benefits are just as high (CHF 1,400 per person). A production changeover – for example from grain to vegetables – has a special impact.

The benefits resulting from increased production are relatively easy to calculate. Other effects, such as improved conflict settlement, were not included in the analysis.

### Balance and opportunities for improvement

From an economic viewpoint, investments in development cooperation focusing on the water sector are meaningful. Moreover, the impacts were achieved at a good price.

Water programs in remote and poor areas also yielded good results, despite the exclu-



Benefits result especially for women and children (Photo: SDC)

sion of effects that cannot be calculated from a monetary point of view.

In the future, Swiss water programs should create a better framework for recording data on costs and benefits and should support countries in planning their own programs accordingly.

#### Numerous benefits at minimum costs

The drinking water program in Niger is based on the application of simple technology and is extremely cost-efficient with its total per capita investment of CHF 26.



## Sustainability of effects

Are these effects maintainable in the long term? The analyses prepared for this report show that the chances are good and particularly so in projects where partners set clear objectives and make their own personal contributions. In poor countries the partners continue to depend on development aid for larger investments and repairs. The consequences of climate change must be taken increasingly into account.

### Technical-financial sustainability

It is considerably easier to achieve technical-financial sustainability in better situated countries and with competent partners.

A good example of this is Debrecen (Hungary) where supply and waste disposal busi-

nesses are excellently managed and where basic legal conditions are clearly defined and controlled by an independent authority. Operation and maintenance require no subsidies. Experience has demonstrated the sustainability of Swiss programs.

Problems with sustainability are found especially in poor countries, particularly when water rates do not cover actual water



Public water supply site in Moldova (Photo: T. Umbehrr)

nesses are excellently managed and where basic legal conditions are clearly defined and controlled by an independent authority. Operation and maintenance require no subsidies. Experience has demonstrated the sustainability of Swiss programs.

In rural areas the functional capability of water user groups is a decisive factor for sustainability. In all Swiss programs these groups are capable of making small repairs, or even financing the connection of new households to the drinking water supply network (exception: Mozambique). However, only in exceptional cases are enough resources available to cover larger repairs or modernization projects.

Meanwhile the program area has witnessed the development of a private sector consisting

supply costs, or when the systems are not properly maintained and modernized. Any achieved success is thus threatened in the long term.

The lack of payment morale can also become a problem in irrigation projects. In the Ferghana Valley (Central Asia) an average of only 56% of those benefiting from them pay water taxes to the canal authorities. This means that only running expenses can currently be covered.

Sustainability is also doubtful when it comes to installations that depend on the importation of spare parts from abroad. For example, any spare parts for the city of Nukus (Uzbekistan) must be procured in Switzerland. This requires permits from various public

### Insufficient cost coverage in Moldova

The drinking water project has by far the largest influence on the quality of life. In order to manage Swiss investments sustainably the water price must be the equivalent of 60–90 centimes per m<sup>3</sup>. At the moment it is at 50 centimes.

### Successful water user groups in Nicaragua

Water committees in Nicaragua are well managed and set aside reserves for larger repairs. This was how a water pump valued at approximately CHF 6,000 was replaced. One problem remains: the rapidly rising price of electricity is a threat to small water suppliers who have to pump groundwater to the earth's surface.

### An open question in Nukus (Uzbekistan)

In a country such as Uzbekistan the procurement of spare parts from Switzerland involves high administrative costs.

### Social acceptance for latrines in Mozambique

In the Swiss program region of Cabo Delgado one third of the population has a latrine. In the country's interior they are used because inhabitants are afraid of encountering wild animals. They are hardly used on the coast, among other things because people fear they could collapse in the sandy soil.

authorities, but the necessary foreign exchange is not always available.

### Social and institutional sustainability

The water user groups supported by Switzerland normally function in a transparent and efficient manner, thus increasing the chance of sustainability.

In order for the system of water user groups to expand, they must be formally recognized. This requires political dialogue with the governments, a process that met with success in Niger and Nicaragua. However, dependency on the political will of governments remains high.

In Cabo Delgado (Mozambique) the Swiss approach functioned only partially. The role of water user groups was not only insufficiently defined but also lacked legal backing. The government failed to give local partners the promised resources, and bookkeeping on contributions received from the population was unsatisfactory right from the start. These factors all prevented trust from developing within the population.

In Bangladesh the weakness of institutional structures also threatens sustainability. Since elected local governments fail to fulfill their responsibilities, 640 village committees were established and their members trained. After four years of project running time, only a third of these committees are still in operation.

The rates for water and sewage water disposal per household are socially acceptable in all examined Swiss programs. They amount to 3–4% of the average household budget in Debrecen (Hungary) and in Nukus (Uzbekistan).

Poor families are entitled to receive subsidies. In Nukus for example, 10% of all earnings from water and sewage fees go to the Association of Apartment Owners who can then use 60% of the money to subsidize destitute families. This helps in hardship cases.

In addition, the subject of «cross-subsidies» is already being discussed in rural drinking water supply systems. Good approaches are found in Nicaragua. Individual water consumption is measured and financially strong households that consume a lot of water pay more than poor households. This creates justice and transparency and promotes social sustainability.

### Ecological sustainability

Although those involved in integrated water resource management (IWRM) are aware of its principles, the greatest weakness is still their insufficient application in water projects that are also supported by Switzerland.

The overall ecological trend is precarious in some of the countries examined. The danger of drought is clearly growing, while water consumption is rising. Almost everywhere the risk of disaster is currently increasing. Unfavorable climate factors are even more intensified by the climate change.

All of these trends threaten the sustainability of many of the positive results achieved through development programs in the water sector.

In approximately half of the programs examined, Switzerland has reacted to the threat. In Niger, for example, wells were constructed in regions where the potential threat posed by climate change is great. Also strengthened was the population's ability to cope with the risks of natural catastrophes (Disaster Risk Reduction) and with conflicts concerning water distribution.

### Conclusions and improvement possibilities

In most programs the chances of achieving sustainability are good, both financially and socially. In three cases it was even possible to determine the actual sustainability level since enough time had passed between the end of Swiss aid and the analysis. This is confirmed by all involved parties and also by the populations in question.

On the whole, achieving success in the institutional area or in political dialogue has proven to be more difficult than planning and implementing a program locally. The fact that reforms are incomplete and not implemented consistently can threaten sustainability. Important factors include a long-term commitment and cooperation on diverse levels (local, national and international).

In the future, prognoses on climate change should be taken into account more strongly in water programs. In order to counteract the global trend effectively, all involved parties must join forces and clearly strengthen their ecological commitment.

# Impact on multilateral policies and professional networks

Multilateral programs and professional networks have an increasing influence on the exchange of knowledge, the formulation of policies and the planning of investment programs in the water sector. Switzerland participates actively at this level. Its influence on the global agenda is greater than its financial commitment would let us assume.

The multilateral programs and networks supported by Switzerland in the water sector have the following objectives: the exchange of knowledge; advisory services, political dialogue, establishment and strengthening of

basic sanitary installations which substantially contributed to the health of the population.

– The Water Supply & Sanitation Collaborative Council (WSSCC) succeeded through



Borehole in Africa (Photo: Erich Baumann)



Swiss stand at the World Water Forum in Mexico, 2006 (Photo: Francois Muenger)

institutions; as well as the implementation of measures.

Most of the programs supported are designed to reduce poverty. This is achieved indirectly as a side effect of national programs, e.g. by influencing decision makers or by providing information and technologies.

## Effect of programs and professional organizations

The programs and organizations supported by Switzerland reached their goals. This indirectly leads to visible results for the respective populations:

– For decades the Water and Sanitation Program of the World Bank (WSP) has been disseminating practical solutions for the poor population globally. Thanks to a large campaign, Bangladesh, for example, achieved almost countrywide coverage with

lobbying in bringing the long-neglected subject of basic sanitation and hygiene provision into international debates. This success is reflected in the UN Declaration designating the year 2008 as the «International Year of Sanitation».

– The World Water Council (WWC) has strengthened international discussions on the «right to water» and «public-private partnerships». Both themes were the main subjects of discussions at the world's largest water conference (World Water Forums of 2003 and 2006). With its presentation on guidelines for private sector participation, Switzerland was able to make an important contribution towards objectifying the discussion.

– The Joint Monitoring Program (JMP) of WHO and UNICEF measures progress in the water sector and publishes results in

### Rural Water and Sanitation Network (RWSN)

An impact is made by focusing on a single, relevant topic (cost-efficient drilling technologies) makes an impact. The sustainability of the Rural Water and Sanitation Network is, however, uncertain because it depends on external support.

easy-to-understand diagrams. In this way it provides an indispensable basis for making decisions on the application of resources.

The UN Hyogo Framework for Action Plan for Disaster Reduction provides all international humanitarian actors with a direction. Switzerland, which chaired the preadvisory commission, was able to share its experiences and thus substantially participated in the creation of this action plan.

Political dialogue has been marked by successes, e.g. ministries for natural resources and the environment were created in Thailand, Malaysia and Vietnam at the recommendation of the Global Water Partnership (GWP),

(WSSCC, WSP). Occasionally it was able to offer its services in formulating international standards and instruments (e.g. policies and guidelines for hand pumps) that were then distributed.

But Switzerland achieved the most significant impact on policies and within professional circles by promoting basic sanitation and hygiene. The issue was put on the list of millennium goals by multilateral partners. The World Bank's Water and Sanitation Program (WSP) distributed the appropriate technologies and 2008 witnessed the establishment of the Global Sanitation Fund in Geneva. Switzerland was significantly involved in all of these activities.

### World Water Forum

The World Water Council (WWC) has already carried out four world water forums. Designed to mobilize politicians and the general public, they are agenda- and trendsetters on global water themes. The next event is scheduled for March 2009 in Istanbul (Turkey).

### World Economic Forum (WEF)

The Swiss commitment in the scope of the WEF and Swiss know-how led to the establishment of partnerships between national and federal state governments and businesses in India and South Africa. One example is the founding of the Indian Business Alliance in the water sector under the umbrella of the Indian Industries Association.

### The Mekong River Commission (MRC)

By promoting the MRC Secretariat, Switzerland helped to establish a regional cross-national institution in a region that until just recently was wracked by conflict. The Mekong region is the scene of rapid economic growth, especially with respect to trade (river boats) and dam construction for the electricity industry.



Founding of a public-private partnership in India (Photo: Confederation of Indian Industry)

an organization that unites all administrative units for water resources under one roof. This creates clear conditions that make water administration sustainable.

In research-oriented organizations there is a tendency to neglect both the political context and usage in practice (ICIMOD – International Centre for Integrated Mountain Development; IMWI), a fact which curtails the effect of mainly good technologies.

### Switzerland's influence

Together with multilateral organizations, Switzerland maintains continuous dialogue with governments of countries in which it finances programs. With the support of the WSP and Switzerland, Nicaragua has formulated a comprehensive water policy and appropriate investment program.

Wherever a need existed, Switzerland participated in founding a new organization

### Coordination within Switzerland

In Switzerland national dialogue and exchange of information on the water sector were successfully coordinated using two professional networks.

Through the internal federal working group IDANE-Water common positions are worked out for international conferences and negotiations (e.g. on the topic of public-private partnerships). Activities are coordinated, also with regard to content, and comments and suggestions for the Federal Council and the parliament are developed.

Swiss experts are continuously kept updated through the professional network AGUASAN, which is considered the professional body on questions regarding water and development in Switzerland and represents an effective knowledge community.

### Conclusions and possibilities for improvement

Switzerland is a small donor country but it can successfully position topics on the international agenda.

The effect is mostly based on two factors: Switzerland's readiness to enter a long-term commitment in an organization or country, as well as a smart combination of know-how and financing.

Environmental issues, such as climate change, are increasingly found on the agendas of multilateral organizations supported by Switzerland. This is another large task awaiting development cooperation in the water sector, on the bilateral and multilateral level.

## List of examined projects

### Bilateral projects

Region/Country	Year	Description	Swiss Contribution/ Year in CHF	% of Total
Bangladesh	1975–2007	Rural drinking water supply and latrines; program; various stages	410,000	10–30 %
Khujand (Tajikistan)	2005–2008	Drinking water supply for the city of Khujand (145,000 inhabitants); house connections, construction of utility lines, organization and training of users	990,000	67 %
Moldova	2001–2005	Drinking water supply in 15 villages for 25,000 people; school sanitation facilities; originally emergency aid	840,000	67 %
Mozambique: Cabo Delgado	1979–2004	Rural drinking water supply and latrines; 2,000 public water supply sites for 140,000 people; 135 water committees; etc.	1,660,000	80%–90 %
Mozambique: Training	1986–2004	Training program; 732 grants; consulting services; public relations activities	1,300,000	approx. 40 %
Nicaragua	1982–2015	Rural drinking water supply and latrines; 285,000 water connections; 150 water committees; decentralization	1,750,000	60 %
Niger	1979–2004	Program for integrated rural development with water components (wells, weirs); benefiting 700,000 people	2,050,000	90 %
Ferghana Valley (Central Asia)	2001–2008	Integrated management of resources; construction of pilot channels, improved irrigation management	960,000	100 %
Debrecen (Hungary)	1998–2001	Optimization of drinking water and sewage disposal facilities of the city of Debrecen (210,000 inhabitants); modernized technology	1,620,000	25 %
Nukus (Uzbekistan)	1998–2005	Renovation of sewage network for city of Nukus for 230,000 inhabitants; training of personnel	940,000	100 %
<b>Total</b>			<b>12,520,000</b>	

### Multilateral projects

Organization	Year Established	Description	Swiss Contribution/ Year in CHF
Agusan	1983	Platform for Swiss specialists; professional exchange of know-how and experience in workshops; invitation of experts from the South	120,000
GWP	1996	Global Water Partnership; cooperates with many countries; Integrated Water Resources Management Organization (IWRM); numerous donors	350,000
ICIMOD	1983	International Centre for Integrated Mountain Development; located in Kathmandu; 8 regional member countries; research and consulting; Switzerland helped with its foundation; numerous other donors	600,000
IDANE	2003	Platform in the federal administration; ensures Switzerland's coherence in water themes	0
IWMI	1983	International Water Management Institute; headquartered in Colombo; 10 regional offices in Africa and Asia; applied research	450,000
JMP	1990	Joint Monitoring Program for Drinking Water Supply and Sanitation; reference for Millennium Development Goal No. 7 (MDG 7), objective 10	125,000
MRC	1995	Mekong River Commission; common platform of riparian states of the Mekong	550,000
RWSN	1992	Rural Water Supply Network Africa	140,000
WEF	2005	Water Initiative of the World Economic Forum (WEF)	150,000
WOCAT	1992	World Overview of Conservation Approaches and Technologies; promotes innovations; Switzerland is main donor country	1,150,000
WSSCC	1990	Water Supply & Sanitation Collaborative Council; part of UN system; founded with Switzerland's assistance; seated in Geneva	450,000
WSP	1979	Water and Sanitation Program of the World Bank; active worldwide; Switzerland is one of the most important donor countries; pilot projects lead to political dialogue; directly related to poverty reduction	2,330,000
WWC	1996	World Water Council; organizes international water forums; 250–300 member organizations in approx. 60 countries	100,000?
<b>Total</b>			<b>6,515,000</b>

## Methods at a glance

**Questions** – The German Development Institute (GDI, [www.die-gdi.de](http://www.die-gdi.de)) was entrusted with establishing the scientific basis for this Report on Effectiveness. In the analysis made in cooperation with the consulting firm FAKT, the following topics were given priority:

- bilateral projects: poverty reducing effects (access to water, benefits for the population), sustainability
- multilateral measures: Switzerland’s political influence, effects of supported programs

**Document analysis** – This refers to an assessment of the effects as viewed by external evaluators, supported by an analysis of existing reports on the selected programs.

**Written interviews** – This is a Rapid Sectoral Assessment (RSA) through written inter-

views to ascertain the perspectives of directly involved program representatives as well as responsible partner country representatives.

**Telephone interviews** – Here priority is given to the assessments of multilateral programs by persons in charge and employees of multilateral programs in which Switzerland participates.

**On-site analyses** – This refers to the evaluation made by directly affected people and parties, based on two methods:

- Method for Impact Assessment for Programs and Projects (MAPP): Information is collected from target groups and people involved that shed light on development trends and the effects of measures on people’s lives.
- Tracer Studies: These are partially standardized interviews with those affected and with

traceable parties carried out during on-site visits. Discussion partners were selected according to the snowball principle.

On-site analyses were performed in all countries except Bangladesh and Mozambique.

**Final evaluation** – All information was recorded in fact sheets and underwent analysis, quality control checks and evaluation by the GDI.

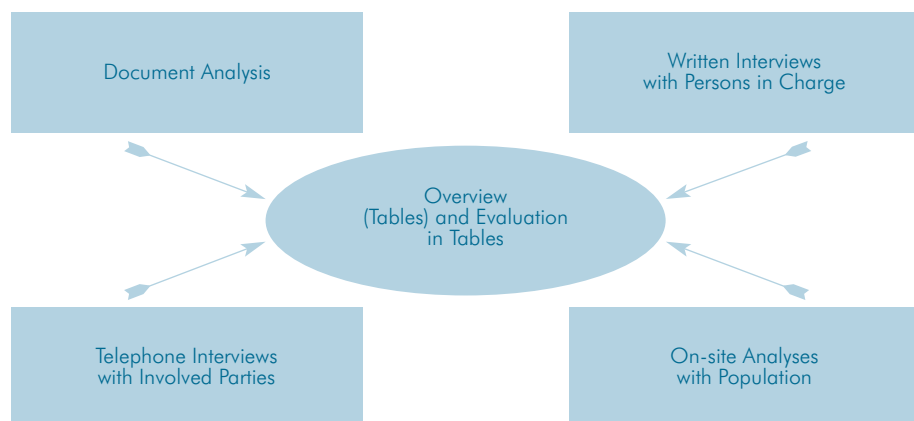
The GDI then summarized the most important statements in so-called synthesis tables. Differences in evaluation were discussed with the individual evaluators.

The material of the Report on Effectiveness consists of an overall presentation including conclusions, evaluations and recommendations, as well as a collection of all on-site analysis reports, fact sheets and synoptical tables. This comprehensive background material is available on request.

In addition to the above, a cost-benefit analysis was made by SKAT (Swiss Resource Centre and Consultancies for Development) and IC. The selected programs are only in part consistent with those examined by the GDI for reasons of data availability, but the objectives are similar.

This Report on Effectiveness was compiled externally on the basis of the aforementioned materials and was discussed with the SDC and SECO with the aim of defining important improvement possibilities for federal water projects. This also includes increased efforts in collecting own data on access to water and its effects.

### GDI Study



## Evaluation of bilateral projects

Overall, the balance of the evaluation made of bilateral projects is positive, and chances are good that the effects will be sustainable for most projects. Water programs dealing with access to water and their contribution to governance have been particularly effective (e.g. participation of the population, improved services of public utilities). The contribution to poverty reduction is given, but also depends on other factors. Promoting the economy was also marked by success, but was not the main objective of all projects.

	Evaluation of Bilateral Projects	Access to Water	Poverty Reduction	Contribution to Governance	Contribution to Sustainable Economic Growth	Chance of Being Sustainable
Bangladesh	0	+	0	++	?	+
Khujand (Tajikistan)	0	+	0	++	0	+/-
Moldova	+	+	+	++	0	+
Mozambique Cabo Delgado	0	0	-	0	?	0
Mozambique Training	+	+	0	0	+	0
Nicaragua	++	++	++	++	0	++
Niger	+	++	++	+	+	+
Ferghana-Valley (Central Asia)	++	++	++	++	++	++
Debrecen (Hungary)	++	++	0	+	++	++
Nukus (Uzbekistan)	++	++	+	++	+	+

Source: GDI, revised for the report. The scale ranges from -- to -, 0 and + to ++. ? = insufficient data for evaluation.

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