



Federal Ministry  
for Economic Cooperation  
and Development

SPECIAL 157

# German Development Cooperation in the Sanitation Sector



# Contents

<b>Introduction</b>	<b>3</b>
Wastewater management: Vital for a life in dignity	3
<b>1 Poor Sanitation Hampers Development – Good Sanitation Promotes Development</b>	<b>4</b>
1.1 Causes	5
1.2 Most affected countries and regions	6
1.3 The international commitment	8
<b>2 German Development Cooperation in the Water and Sanitation Sector</b>	<b>10</b>
2.1 Objectives	10
2.2 The German contribution	10
2.3 Instruments and partners	12
2.4 Partner countries and regional priorities	14
2.5 Target-group orientation	15
2.6 Results orientation	15
2.7 Sustainable sanitation	16
<b>3 Regional Sanitation Initiatives</b>	<b>18</b>
3.1 Africa	18
3.2 Asia	20
<b>4 Summary and Outlook</b>	<b>21</b>
<b>5 Annex: Project Examples</b>	<b>23</b>

# Introduction

Less than 150 years ago, wastewater in most German towns and cities was discarded into open gutters running along both sides of the street. Household sewage and industrial wastewater ended up untreated in rivers or lakes or infiltrated into the ground, thereby contaminating ground water. The level of odour pollution in towns and cities would have been unimaginable for people living in Germany nowadays. Diseases like cholera and typhus were widespread because contaminated water was used for drinking, cooking and washing. However, the situation improved rapidly and fundamentally with the introduction of sewage systems and wastewater treatment plants as well as growing awareness of the importance of hygiene.

Even today, people in many of the partner countries of German Development Cooperation can only dream of having their own toilets, hygienic living conditions and a clean environment. Each day more than 5,000 people around the world die from diarrhoeal diseases, most of them children. Drinking water wells in Afghan towns and cities are contaminated with cholera bacteria. In the slums of Nairobi, people relieve themselves using “flying toilets” – plastic bags that are frequently used to defecate in and then thrown away because of a lack of private toilets. Hundreds of millions of people relieve themselves outside – also at night. Women run the risk of becoming victims of sexual crimes. These examples demonstrate how important dealing with excreta and wastewater (experts refer to this as sanitation and wastewater management) is for human development. Nonetheless, this issue has so far not been treated as a priority in the public arena, as the United Nations concluded in its 2006 Human Development Report.

## **Wastewater management: Vital for a life in dignity**

The United Nations General Assembly thus declared 2008 as the International Year of Sanitation and urged all nations to work towards improving wastewater management. The objectives are to enable the more than 2.5 billion people who have to cope without adequate sanitation today to live in dignity, and to protect and preserve eco-systems.

German Development Cooperation has been working for a long time to improve wastewater management. Its approaches are sustainable, protect natural resources and are target-group oriented. Germany also supports partner countries in implementing international agreements that include wastewater treatment to protect transboundary waters. These comprise the 1976 Barcelona Convention for Protection Against Pollution in the Mediterranean, the 1994 Convention for the Protection and Sustainable Use of the Danube River, the 1992 Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the 1995 Protocol on Shared Watercourses in the Southern African Development Community (SADC), to name but a few. German Development Cooperation thus contributes towards improving living conditions, especially for the poor, and towards environmental conservation.

The Federal Ministry for Economic Cooperation and Development (BMZ) views the International Year of Sanitation as an opportunity to review its activities in this sector and to intensify its efforts where appropriate and possible. Since 2007, the Ministry has also fostered the international exchange of sustainable sanitation initiatives by supporting the Sustainable Sanitation Alliance. An overview of German activities in the sanitation sector can be found in this publication.

# 1 Poor Sanitation Hampers Development – Good Sanitation Promotes Development

## German Development Cooperation defines sanitation as:

- secure, affordable and dignified access to sanitation facilities,
- sustainable wastewater and waste management that protects people against infection and preserves the environment,
- awareness of hygiene behaviour.

According to estimates from the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF), more than one-third of the world’s population currently lives without improved sanitation<sup>1</sup>. In other words, 2.5 billion people depend on open latrines, buckets, poorly managed community toilets or have absolutely no access to sanitation facilities. These people have to relieve themselves outdoors.

Around 80 – 85 per cent of wastewater generated around the world is not treated at present<sup>2</sup>. Where sewage treatment plants exist in developing countries, they are often operated inadequately or have been shut down. In many areas, household and industrial wastewater ends up in rivers and lakes or infiltrates into the ground without prior treatment. This ongoing contamination of groundwater and water bodies by municipal and industrial wastewater jeopardises human health

and the natural fauna and flora. The poor are the hardest hit by this situation as they use contaminated water for drinking, cooking and washing.

Numerous diseases are spread through contaminated water resources and poor hygiene practices. WHO estimates that inadequate water supply, sanitation and hygiene are responsible for eight per cent of deaths in developing countries<sup>3</sup>. Informal settlements where a large proportion of the population lives in developing countries are particularly affected.

Contaminated drinking water, inadequate sanitation and poor hygiene are the main causes of diarrhoeal diseases and chronic worm infections. Each year 1.5 million people die as a result of diarrhoea<sup>4</sup>. Children aged below five are particularly vulnerable, with diarrhoeal diseases accounting for 17 per cent of deaths<sup>5</sup>. On average,

1 WHO and UNICEF describe “improved sanitation” as connection to sewer systems or cesspits as well as simple latrines, compost toilets, ventilated improved pit latrines or pour-flush latrines. The term “unimproved sanitation” refers to the disposal of human excreta using buckets, the use of public latrines and latrines that discharge directly into open pits, for instance. The definition of “improved sanitation” is currently the subject of discussion between BMZ and the Joint Monitoring Programme (JMP).

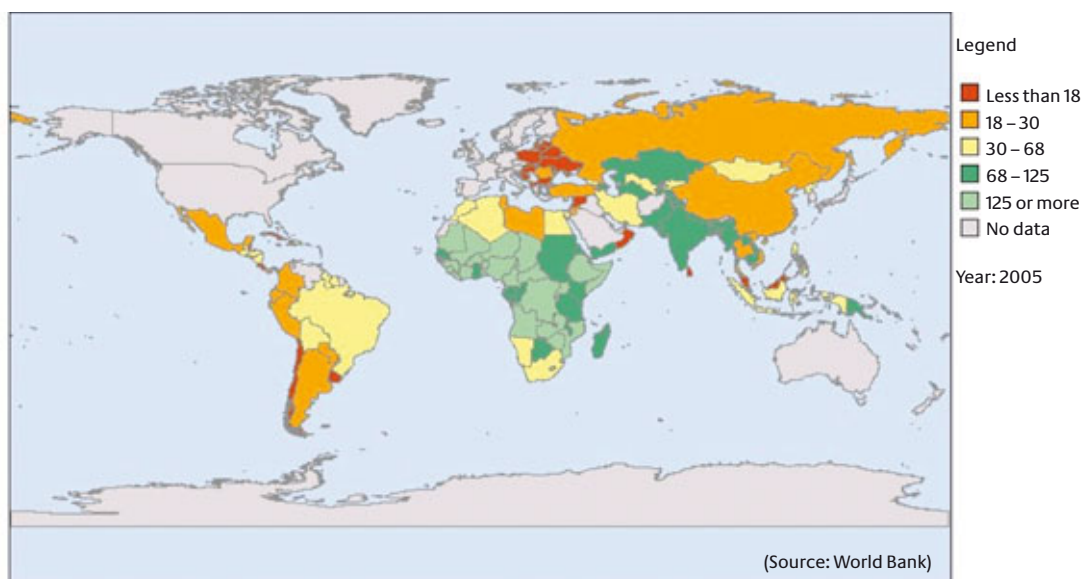
2 Although emerging countries such as China, Egypt and Turkey are rapidly improving their wastewater treatment capacities.

3 Prüss-Üstün, Annette et al., “Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health”, WHO, Geneva, June 2008, page 7. WHO also states that the share of 9.1 per cent of the disease burden is attributable to unsafe water, inadequate sanitation or insufficient hygiene may have been underestimated. Diseases that are unquantifiable include some that are likely to be significant at a global scale. These include infectious diseases, such as legionellosis, leptospirosis, etc.

4 Prüss-Üstün, Annette et al., “Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health”, WHO, Geneva, June 2008, page 7.

5 UNICEF, “The State of the World’s Children 2008”, <http://www.unicef.org/sowc08/report/report.php>.

### Mortality rate for children under five years of age



a child living in a developing country suffers from diarrhoea four or five times each year. The associated loss of fluids and electrolytes can be deadly, especially for children already weakened by malnutrition. Chronic worm infections weaken the immune system, reduce the physical working capacity and school children's ability to concentrate. The situation is especially dire in Sub-Saharan Africa (see illustration). In addition to providing hygiene education, access to clean drinking water and basic sanitation must be ensured to fight these diseases and their devastating consequences.

High rates of illness in the population have a negative impact on the economy. A WHO study estimates that developing countries lose income of around US\$ 1.2 billion each year through diarrhoea-related absences from the workplace<sup>6</sup>. According to this study, investments in the sanitation sector could have an approximate nine-fold social and economic benefit<sup>7</sup>. Sustainable sanitation

systems are thus a key factor for development and a good investment.

Wastewater and waste are frequently disposed by using rainwater drainage systems, particularly in urban settlements in developing countries. This practice spreads disease and contaminates water bodies. Open channels and open sewers are not sufficiently maintained and cleaned, meaning that sewage backs up in residential areas. Hygiene risks are also posed by overflowing septic tanks and pit latrines because faecal sludge is rarely collected and treated using a systematic approach.

#### 1.1 Causes

The reasons for inadequate sanitation and the low public awareness of this topic are complex. Political leaders often lack interest and awareness of this problem. Wastewater, toilets, excreta and

<sup>6</sup> Hutton, Guy; Haller, Laurence, "Evaluation of the costs and benefits of water and sanitation improvements at the global level", WHO, Geneva 2004.

<sup>7</sup> WHO Factsheet International Year of Sanitation No. 2, 2008, "Sanitation is an investment with high economic return".

waste remain taboo topics for many politicians and in many societies. Inadequate laws and regulations are hampering efforts to improve the situation. Even in cases where laws governing how to deal with waste, excreta and wastewater are in place, they are often ignored.

In most instances, there is a lack of strategies and policies to promote efficient structures and institutions. In cases where decentralisation occurs, tasks are often transferred to smaller municipal levels, but not the necessary funding. Responsibility for sanitation is almost always shared by a multitude of institutions (health, infrastructure, local government). Even when reforms move in the right direction, the fragmentation of institutional responsibility slows down the process.

In addition to political challenges, operational deficits also play a key role. Responsibility for wastewater and waste frequently lies at the lowest municipal level where there is a shortage of skilled workers. Furthermore, wastewater and waste charges are not collected efficiently in most instances. As a result, this level of government cannot provide these services profitably. Politicians exert their influence with the consequence that these charges are set far too low, ostensibly for social reasons. As a result, sewers are not cleaned and maintained, sewage treatment plants are not operated properly and the discharge of wastewater into rainwater drainage systems, which are not designed to take wastewater, is tolerated. In many places, both centralised sewer systems which may be appropriate in very densely populated urban areas with high per capita water use,

and decentralised wastewater management systems are neglected. For instance, septic tanks are often emptied by local small businesses. These companies rarely collect or treat this faecal sludge in a sound manner due to a lack of regulated treatment plants and an absence of monitoring.

Wastewater, excreta from latrines and faecal sludge are perceived in many cases solely as waste. However, these substances offer improved sanitation solutions if used within a safe and environmentally sound closed-loop system, for instance to generate energy from biogas or for use as fertiliser and irrigation water in agriculture<sup>8</sup>. Meanwhile, the lack of knowledge is not the only underlying cause; reservations from the local population also exist in many places.

The lack of secure tenure in poor urban districts also leads to poor sanitation. Additionally, there is often a lack of awareness of the importance of hygienic behaviour, and many people do not rank making investments in improving sanitation facilities in their homes as a high priority.

## 1.2 Most affected countries and regions<sup>9</sup>

Official sanitation statistics are gathered in differing ways and sometimes at irregular intervals in individual countries<sup>10</sup>. Frequently, these figures do not allow clear conclusions to be drawn regarding the environmental impact of sanitation facilities. The following figures should thus be viewed with caution. Nonetheless, they do provide an indication of the status quo and trends.

<sup>8</sup> Excreta contain important nutrients for agriculture such as phosphate or nitrogen.

<sup>9</sup> All data from the 2008 Joint Monitoring Report by WHO/UNICEF, c.f.: <http://www.wssinfo.org/>.

<sup>10</sup> For instance, WHO and UNICEF still use figures from 1999 when making statements about access to sanitation in China. In many countries, flush toilets that are not connected to a functioning sewage system are viewed as access to improved sanitation.

Sanitation coverage remains low in two regions:

- More than half of the 2.5 billion people without improved sanitation facilities – around 1.8 billion people – live in **Asia**. Many people in China still use latrines with open pits, especially in rural areas. In 2006, two-thirds of India's population still had absolutely no access to basic sanitation.
- According to WHO and UNICEF, 69 per cent of the population in **Sub-Saharan Africa** – more than 500 million people – live without improved sanitation facilities.

In Latin America & Caribbean, the number of people without improved sanitation fell from 32

per cent to 21 per cent between 1990 and 2006, according to WHO and UNICEF.

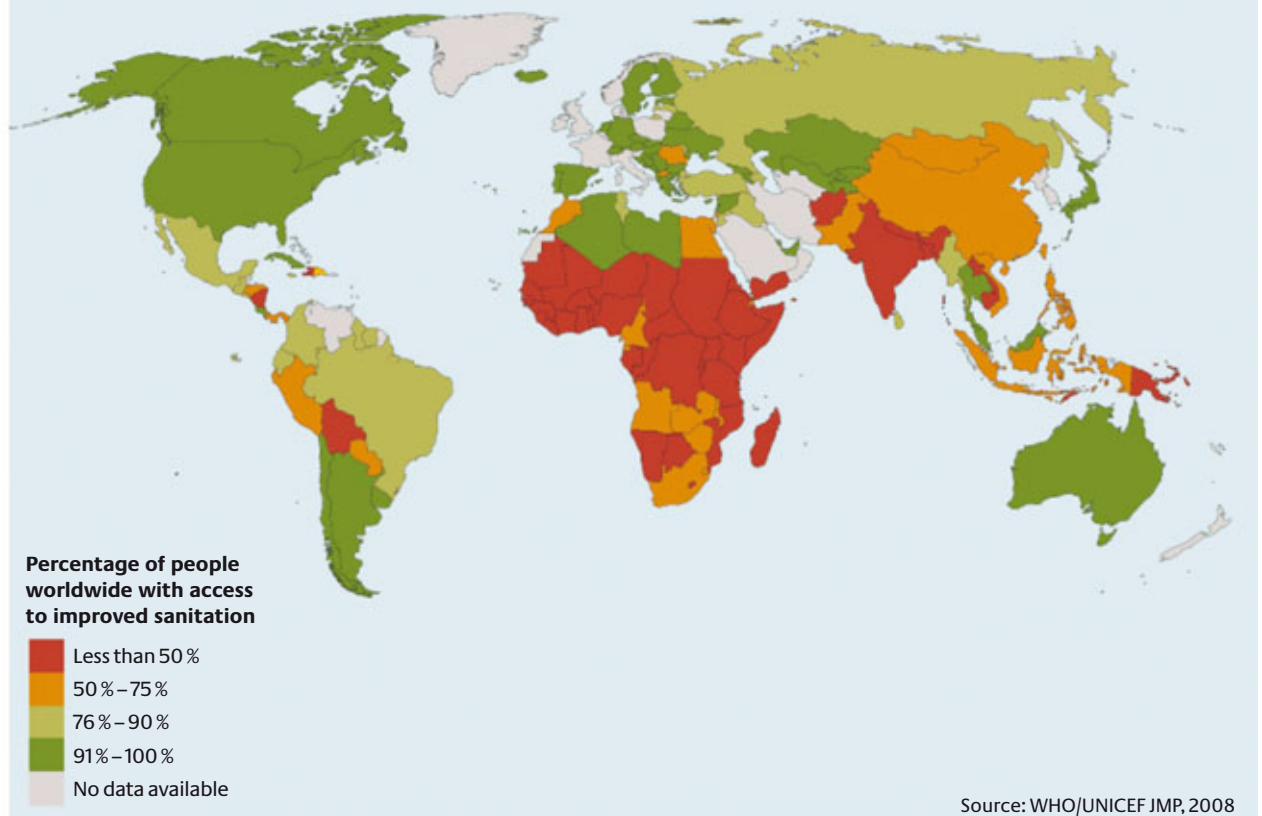
Official figures show that access to basic sanitation in developing countries is presently much lower in rural areas than in urban areas. On the other hand, the effects of inadequate sanitation on humans and the environment are the most serious in urban areas, especially in informal settlements and urban slums.

Even though the number of people without basic sanitation is far greater in rural areas on the whole, the risk to human health is lower in those less densely populated areas. It is foreseeable that conditions in urban areas will probably deteriorate further in the light of rural migration and rapidly growing informal settlements and slums.

### Where hygienic and safe toilets are still a luxury

2.5 billion people are without access to improved sanitation

Most of the unserved live in Africa and South-East Asia



### 1.3 The international commitment

In 2000 the United Nations General Assembly adopted the Millennium Development Declaration. In this document, 189 governments make a commitment to fight poverty and ensure sustainable development. This declaration resulted in eight Millennium Development Goals (MDGs). The seventh goal on ensuring environmental sustainability also contains a commitment to “halve, by 2015,

the proportion of the population without sustainable access to safe drinking water and basic sanitation.” This goal also includes a commitment to the sustainable protection of groundwater and surface water. The effects of improved sanitation also make key contributions to other Millennium Development Goals, such as the fight against poverty and hunger (MDG 1), primary education (MDG 2), gender equality (MDG 3) and health (MDG 4, 5, 6).

#### Water and sanitation is a key to reaching the MDGs

##### Providing access to drinking water and sanitation facilities helps to:

- **Reduce the time and money spent on providing drinking water and sanitation.** This time can be used for economic activity instead. Households also save the expense of treating diseases caused by contaminated water and poor hygiene. Household income increases as adults and children miss fewer days of work and school respectively. This translates into productivity gains of US\$ 9.9 billion a year<sup>11</sup>. Moreover, the fertiliser made from treated excreta, and irrigation water produced from wastewater can increase agricultural production, thereby raising income and food security. **(MDG 1: Fighting poverty).**
- **Significantly increase school attendance of boys and especially girls,** if they are no longer required to fetch water and as sanitation facilities are installed in schools. Better health (for example through fewer cases of diarrhoeal illnesses and intestinal worms) improves the educational opportunities for boys and girls. **(MDG 2: Education).**
- **Promote gender equality.** A safe environment for defecation and urination improves the quality of life and reduces the risks for women and girls. Collecting water and caring for sick family members takes up the time of women and girls in particular. Closer proximity to water sources and improved family health frees up time during which they can contribute towards the family’s income or participate in community activities (user committees), thereby raising their status in society. **(MDG 3: Gender).**
- **Improve health and thus save lives.** Contaminated water, inadequate sanitation and poor hygiene cause 8 per cent of all deaths in developing countries. Children are especially vulnerable. **1.5 million people** die each year as a result of diarrhoeal diseases; more than 90 per cent of them are children less than five years old<sup>12</sup>. Clean drinking water, basic sanitation and hygiene practices protect against diarrhoea, intestinal worms as well as skin and eye infections. Better water management reduces mosquito habitats and thus the incidence of malaria or dengue fever, for instance. **(MDG 4 – 6: Health).**
- **Protect natural resources.** Wetlands, lakes, rivers and groundwater are frequently polluted from water used in households, irrigation and industry. Integrated water resources management can conserve water and soil resources and diminish environmental risks. **(MDG 7: Environment).**

<sup>11</sup> Prüss-Üstün, Annette et al., “Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health”, WHO, Geneva, June 2008, page 21.

<sup>12</sup> Prüss-Üstün, Annette et al., “Safer water, better health: costs, benefits and sustainability of interventions to protect and promote health”, WHO, Geneva, June 2008, page 7.



The 2007 United Nations Mid-Point Progress Report on Development Goals indicates that the postulated improvements to sanitation can only be achieved by 2015 if the present efforts are increased significantly. Despite some successes, progress remains much slower than expected in numerous countries. If the current trend continues, the MDG on sanitation will be missed by a large margin – particularly in many countries in Sub-Saharan Africa where the number of people without access to adequate sanitation facilities has actually increased since 1990 due to rapid population growth.

There are also mounting calls for sanitation to be established as a human right in international agreements. This step would ensure that countries work harder to fulfil their duties to provide improved sanitation for the population, especially for poor people, in the medium term. This right to

sanitation is already implicitly incorporated in numerous international agreements today:

- Article 25 of the **Universal Declaration of Human Rights** (1948) states that everyone has the right to a standard of living adequate for the health and well being of himself and his family.
- Articles 24 and 27 of the **Convention on the Rights of the Child** recognise the right of every child to the highest attainable standard of health and to a standard of living adequate for the child's physical, mental, spiritual, moral and social development.
- The 1966 **International Covenant on Economic, Social and Cultural Rights** stipulates the right of everyone to the highest attainable standard of physical and mental health and an adequate standard of living.

### Sustainable Sanitation Alliance

In January 2007 the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ – German Technical Cooperation) and the Stockholm Environment Institute launched the Sustainable Sanitation Alliance (SuSanA) ([www.susana.org](http://www.susana.org)). Numerous United Nations organisations, the World Bank's Water and Sanitation Program, several German Development Cooperation institutions as well as other international partners have joined this alliance (Total: 100 organisations in October 2008). Members of the SuSanA network want to ensure that the 2008 International Year of Sanitation – and afterwards – is used to promote the dissemination of sustainable sanitation solutions. A sustainable sanitation system must not only be economically viable, socially acceptable and technically and institutionally appropriate; it should also conserve the environment and natural resources.

A key objective of the SuSanA is to improve awareness of sustainable sanitation. For this purpose, the partners will compile and evaluate their experiences with different sanitation systems.

Furthermore, SuSanA wants to create a platform for successful projects and intelligent solutions that enables the Millennium Development Goals to be accomplished by 2015. The partners will develop mechanisms and financing instruments that facilitate rapid, long-lasting and significant improvements to living conditions – especially for poor sectors of the population. SuSanA intends to demonstrate how sustainable sanitation systems can assist in achieving other Millennium Development Goals, as well.

Supporting the SuSanA network and disseminating sustainable sanitation systems internationally is a key BMZ contribution towards the discourse and refinement of policies and strategies in the United Nations International Year of Sanitation.

## 2 German Development Cooperation in the Water and Sanitation Sector

### 2.1 Objectives

German Development Cooperation pursues the following overriding development policy objectives in the sanitation sector:

- to uphold the right to adequate living conditions through adequate sanitation infrastructure.
- to reduce health risks from waterborne illnesses and improve the standard of health.
- to protect the environment, especially through the sustainable management of water resources (ground water and surface water bodies).
- to promote economic and social development and the development of socially and environmentally sustainable towns and cities and their surroundings.

Each German Development Cooperation sanitation project must make a significant contribution towards at least one of these objectives.

### 2.2 The German contribution

The water and sanitation sector has been one of the key areas for German Development Cooperation for more than 30 years. Germany encourages sustainable, resource saving and target-group oriented approaches and supports both tried-and-tested and innovative systems. BMZ also encour-

ages the introduction of closed-loop approaches to the sanitation sector whereby wastewater, urine and excreta are viewed as valuable resources that can be treated and reused.

The water and sanitation sector is the fourth-largest area of investment for German Development Cooperation with bilateral funding of around EUR 350 million per year<sup>13</sup>. Germany has been one of the three largest international donors in this sector for many years. Altogether around 40 per cent of German water and sanitation funds are allocated to the sanitation sector alone. Germany also contributes around EUR 140 million annually to multilateral organisations, such as the EU, the World Bank and the African Development Bank for water and sanitation sector projects worldwide.

German Development Cooperation's current water and sanitation projects improve the lives of over 80 million people and have a volume of around EUR 4 billion. As well as improving wastewater management by financing infrastructure, German Development Cooperation also provides advisory services to relevant ministries, institutions and companies. Participatory decision-making processes, awareness raising campaigns and hygiene education are important approaches in this process.

Integrated water resources management (IWRM) is a key principle of German Development Cooperation in the water and sanitation sector. IWRM is based on the three pillars of sustainable development: environmental sustainability, social justice and economic efficiency.

---

<sup>13</sup> OECD 2006.

### Integrated water resources management

“... is a process which promotes the coordinated development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.”

Source: Global Water Partnership Technical Advisory Committee, “Integrated Water Resources Management”, Background Papers no. 4, Stockholm, 2000.

The national development strategies (e.g. Poverty Reduction Strategy Papers / PRSPs) elaborated by partner countries and their respective sector strategies are the framework of references for German development policy activities and its contribution towards these policies is aligned accordingly. German Development Cooperation supports partner countries in strengthening their capacity to exercise effective ownership and to

have leadership over their development activities in line with the Paris Declaration. Germany is engaged particularly where it has a comparative advantage and can have a significant impact, where partners show a willingness to work in dialogue and undertake reform, and where the institutional, legal and political framework ensures that sustainable outcomes can be achieved.

### International political processes and donor coordination in the water and sanitation sector

Within the framework of the **G8 Africa Action Plan** and the **G8 Water Action Plan of Evian**, the G8 member states have undertaken to intensify their political and financial commitment to the water and sanitation sector and wastewater management, and to cooperate more closely in order to achieve the MDGs by 2015. Until now, especially in Sub-Saharan Africa, which is the focus of the Evian Plan, progress has been too slow, in particular in the field of basic sanitation. As a result, the implementation of the respective chapters of the G8 action plans remains unsatisfactory. During the G8 negotiations of 2008 Germany advocated that the G8 should develop an implementation strategy together with its African partners. The declaration of the G8 Summit addresses this issue.

Germany is deeply involved in the international water sector dialogue focusing on Africa, and promotes international cooperation with regional partners. Of prime importance for this are the efforts to strengthen the political role and operational capacity of the **African Ministers' Council on Water (AMCOW)**, the most important regional political partner in the African water sector. Both at the **Summit of the African Union (AU)** and within the **European Water Initiative (EUWI)**, Germany has helped to ensure that the presentation and discussion of basic sanitation is given high priority.

The improvement of **donor coordination** called for in the Paris Declaration takes place mainly on the ground, i.e. in the partner countries. This is true not just of the coordination between EU member states, but also that with other partners such as UN organisations, non-EU donor countries or multilateral development banks. At the EU level there are basically three types of coordination processes in the water and sanitation sector: (i) EU

Council working groups, (ii) EU financing instruments and (iii) thematic EU initiatives. The German Federal Government is intensively involved in all three types of coordination.

Another platform for coordination is the Development Assistance Committee of the Organisation for Economic Cooperation and Development (OECD-DAC), in which the international donor community agrees on the general principles of *good governance* within the different sectors. Moreover, the OECD-DAC's comprehensive and publicly accessible database on the activities of the various donors in the individual sectors is acknowledged to be the most reliable reference point and statistical basis for donor activities. Germany advocates an extension of the OECD-DAC data collection criteria in the water sector to enhance the acquisition of information on sanitation and waste water management.

An example of a platform with an informal character concentrating exclusively on the wastewater and sanitation sector is the Sustainable Sanitation Alliance (SuSanA), an international dialogue platform founded on the initiative of German and Swedish development cooperation.

### 2.3 Instruments and partners

German Development Cooperation is coordinated by BMZ. The Ministry fosters global framework conditions, carries out political dialogue with partner countries, drafts development strategies, steers intergovernmental development cooperation and supports German non-governmental organisations.

The Federal Republic of Germany also takes part in a number of international initiatives, for instance in implementing the 2003 G8 Evian Water Action Plan.

German bilateral development cooperation is executed by its implementing agencies. A distinction is made between Financial Cooperation (FC) and Technical Cooperation (TC). The German government cooperates with most partner countries through both Financial and Technical Cooperation. The relevant implementing organisations work on behalf of BMZ and through a division of labour to improve sanitation together with the respective partner countries. One of German Development Cooperation's major strengths in the water and sanitation sector is its continuing involvement at the regional, national and local

level through long-term experts and sustainable investment programmes.

#### Financial Cooperation

Financial Cooperation (FC) finances investments in building and expanding wastewater management systems and is executed by **KfW Entwicklungsbank** (KfW Development Bank).

Financial Cooperation projects are integrated into partner countries' development and financing strategies. Each project is thus developed with a specific economic design and tailored financing. Each solution responds to the needs of villages or cities of over a million inhabitants according to the local conditions.

A number of wastewater management solutions that employ centralised, decentralised and semi-centralised systems are compared and evaluated. FC water and sanitation projects also support improvements to hygiene, awareness raising among users and the prevention of negative environmental impacts. Decisions are made in coordination with user groups. Stable institutional structures are formed in close cooperation with sector institutions at various levels (ministries, regional

or local territorial authorities, utility companies), non-governmental organisations and representatives of all stakeholders.

Financial Cooperation funds of around EUR 1.5 billion are currently financing 130 investment projects in 39 countries<sup>14</sup>, thereby improving the living conditions for around 35 million people.

### Technical Cooperation

Technical Cooperation (TC) supplies technical, policy and process advisory services for reforms to the sanitation sector by supporting the establishment and development of efficient and competent organisations in partner countries, ranging from the ministerial level (water and wastewater authorities) to the local and regional level (user groups/utilities). TC is provided by the **Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH** and the **Federal Institute for Geosciences and Natural Resources (BGR)**.

GTZ is providing capacity development to improve sanitation in 24 partner countries on behalf of BMZ. For example, GTZ provides capacity development to institutions and businesses regarding organisational development and technical expertise. GTZ offers advisory services on developing strategies for an improved sanitation, sustainable sanitation and awareness-raising programmes on hygiene for the population. The goal is to jointly improve structures and processes in the partner country in order to facilitate sustainable improvements to the population's living conditions. Current sanitation projects carried out by GTZ on behalf of BMZ have a volume of close to EUR 60 million. GTZ's ecosan programme (see box on page 17) also operates in the framework of Technical Cooperation.

BGR also provides technical advisory services, especially in the area of sustainable groundwater management.

A number of German implementing agencies also provide Technical Cooperation in the water and sanitation sector in the broader sense by strengthening human and institutional capacities. These organisations include **International Capacity Building, Germany (InWEnt)** and the **German Development Service (DED)**. InWEnt and DED mainly strengthen management skills and the development and implementation of adapted technologies. These organisations play a decisive role at the local level by supporting municipal partners in the sanitation sector, for instance through specific training courses, pilot projects, education and awareness raising and public relations campaigns.

### Partners

German Development Cooperation's local partners are governmental and administrative institutions, public companies, non-governmental organisations, joint municipal associations and user groups. Women are involved in this process as they play a central part in the provision, management and safeguarding of water and hygiene education in most of the world's countries.

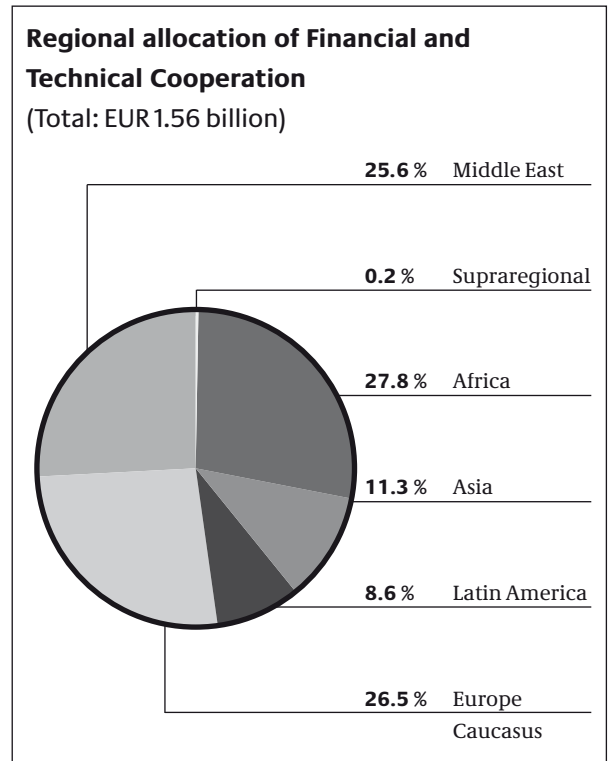
Water and wastewater companies, associations, non-governmental organisations, consulting firms, universities and other public and private organisations in the sanitation sector are among German Development Cooperation's most important partners in Germany and Europe.

<sup>14</sup> In addition to the priority countries of German DC, KfW funds sanitation and wastewater programmes in Brazil, Eritrea, Ghana, Macedonia, Namibia and Turkey.

**2.4 Partner countries and regional priorities**

German Development Cooperation supports sanitation programmes in regions with great water shortages such as countries in the Middle East and North Africa. In these regions, wastewater treatment plays an important role in protecting the scarce drinking water supplies. Additionally, the reuse of treated wastewater in irrigation makes water management more efficient.

German Development Cooperation has long supported Turkey in its efforts to establish wastewater management systems in large and medium-sized towns. Much has been accomplished, for example the quality of water in rivers and at beaches has improved significantly. These programmes are now being phased out. German Development Cooperation is now increasingly supporting emerging countries, which face the challenge of making economic growth environmentally sustainable, in particular in South-East Europe and East Asia.



**Partner Countries of German Development Cooperation with Major Activities in the Water and Sanitation Sector**

Sub-Saharan Africa	Asia	Latin America	South-East Europe	Middle East/ Mediterranean
Benin	Afghanistan	Bolivia	Albania	Egypt
Burkina Faso	India	Nicaragua	Bosnia-Herzegovina	Morocco
Burundi	Vietnam	Peru	Kosovo*	Palestinian Territories
Congo DR	Philippines	Costa Rica	Montenegro*	Syria
Kenya			Serbia*	Yemen
Mali				Algeria
Sudan				Lebanon
Tanzania				Jordan
Uganda				Tunisia
Zambia				

**Partner countries where water or the environment are priority areas**  
 Involvement through regional and thematic programmes  
 \* Wastewater management is a priority area within public infrastructure programmes

German Development Cooperation currently supports 33 countries in managing wastewater and providing sanitation. Altogether, around 40 per cent of total bilateral funding for the water sector is invested in sanitation projects and programmes.

## 2.5 Target-group orientation

Participation and target-group orientation in the planning and operational phases are important to ensure an impact well beyond the project phase. The chosen solutions need to be adapted to the needs of the users. They are successful if users actually make use of sanitation systems and know how to operate and maintain them. The most important target group for German Development Cooperation in the water sector is the poor population, which currently has no or inadequate access to drinking water and is hardest hit by poor hygiene and a polluted environment.

Target-group orientation for projects begins in the planning phase, for instance when selecting areas for intervention, and ranges from designing fee systems to selecting sanitation systems. Processes, targets and instruments are kept as transparent as possible. Target-groups are enabled to make well-informed decisions. This work to create an enabling environment includes awareness raising measures for authorities and the concerned population as well as e.g. hygiene education.

German Development Cooperation is especially sensitive to women's concerns, a step that is particularly important in the sanitation sector: women and girls are not only responsible for health and hygiene matters in most households, having a toilet in their own home also lowers their risk of sexual assault. Where school toilets are non-existent or inadequate, girls frequently end up leaving school when menstruation begins. Women particularly benefit from the use of ex-

creta as a fertiliser or to generate biogas because they are generally responsible for horticulture, feeding the family and gathering firewood.

Health and hygiene education are increasingly being integrated as a pilot initiative or component of German Development Cooperation projects in the education, health and water sectors. The low health status and malnutrition of school children is alarming in many partner countries, above all because of intestinal worms and low body weight. These illnesses are not directly life-threatening, but adversely affect body growth and mental development, thereby reducing the children's quality of life and outlook for the future. It has been shown that schools are a good starting point to bring about lasting improvements to children's health. Reaching children also means reaching parents. German Development Cooperation thus promotes health and hygiene education in schools, e.g. on the correct use of toilet facilities, and informs children about the positive health effects of hand washing and personal hygiene.

Projects in rural areas and peri-urban areas support user groups. It has been shown that their involvement strengthens ownership and local structures. Target-groups also participate in projects through awareness raising and information events, public consultations and user representatives sitting on water utilities' supervisory boards.

## 2.6 Results orientation

In order to measure the impact of German Development Cooperation, all projects and programmes are geared towards achieving impacts with the aim of managing development cooperation measures more efficiently and facilitating reporting to the partner country (*accountability*). For instance, direct results might include better wastewater collection and treatment, the use of environmentally sound, closed-loop sanitation systems or increased efficiency on the part of public-sector institutions.

The results of these projects are also measured in quantitative terms as far as possible. Accurate and reliable data are the cornerstones for results-oriented planning and for effective monitoring. Therefore, German Development Cooperation supports the responsible institutions in gathering and managing data in many partner countries.

## 2.7 Sustainable sanitation

The Water Sector Strategy of 2006<sup>15</sup> is the central guideline for German water and sanitation programmes. The strategy sets the most important targets for German involvement in this sector: environmental, social and economic sustainability.

Individual projects are generally coupled with long-term involvement in the water and wastewater sector in order to ensure their sustainability. Various Development Cooperation instruments are applied at different levels of intervention (multi-level approach). For instance, ministers, businesses and user groups might receive advisory services within a project.

German water supply projects are usually combined with measures to improve sanitation and wastewater management. The problems and opportunities of each water or wastewater project are evaluated and taken into account from an economic, environmental and hygiene perspective. Furthermore, the consequences for the hygiene and resource situation are assessed. For instance, measures are taken to conserve resources and manage wastewater in cases where better water supply raises wastewater production so as to avoid environmental, hygiene or health problems.

Water and wastewater utilities must also substantially improve their corporate governance if they are to improve the quality and efficiency of their

services and improve customer relations on a sustainable basis. Companies, institutions and utilities must be reformed and personnel management must be optimised in many partner countries. German Development Cooperation advises partner countries on how to improve their legal framework conditions and how to strengthen national institutions and regulatory authorities.

By using treated wastewater, for instance in agriculture and forestry, for irrigation, in industry or to recharge groundwater reserves, water shortages can be offset in dry areas and the contamination of water bodies can be avoided in environmentally-vulnerable regions. The required degree of wastewater treatment must be based on local standards or WHO guidelines for the safe use of wastewater, excreta and grey water – tailored to the cultivation culture<sup>16</sup>.

Over the past 150 years, centralised wastewater systems have been continuously expanded and the quality of wastewater treatment has consistently improved. These centralised systems have thus proven to be efficient and key for reducing infection and protecting the environment. However, centralised wastewater systems with good wastewater treatment are capital-intensive, costly to operate and require sufficient water. As a result, developing countries must further develop decentralised as well as centralised solutions to manage wastewater. Germany is providing support with tailored solutions.

Another approach taken by German Development Cooperation involves recycling of nutrients from urine and faeces in agriculture. Urine contains nitrogen and phosphorus and is a liquid fertiliser with no cause for hygiene concerns if used properly. The use of phosphorus from urine and faeces will gain further importance in the future due to the growing shortage of global phosphorus reserves.

15 BMZ Strategies No. 152, 2006, Water Sector Strategy.

16 WHO, Guidelines for the safe use of wastewater, excreta and greywater, 2005, [http://www.who.int/water\\_sanitation\\_health/wastewater/](http://www.who.int/water_sanitation_health/wastewater/).



**ecosan – ecological sanitation concepts**

The **Ecological Sanitation (ecosan)** project, funded by BMZ since 2001 and executed by GTZ, promotes the concept of environmentally, economically and socially sustainable sanitation. Ecosan combines safe sanitation provision for the population with environmental and water body conservation, lower resource consumption, optimised water and nutrient recycling and the generation of renewable energy (biogas).

Ecological sanitation strategies do not favour a specific technology, but encompass all systems that follow a sustainable and resource-saving approach to dealing with materials that had previously solely been viewed as wastewater and waste to be discarded. These strategies systematically close local material cycles (closed-loop systems) like those for solid waste management.

The recycling of nutrients (nitrogen and phosphorus) and organic matter (e.g. compost) helps to maintain soil fertility, leads to greater agricultural yields and thus ensures that the population is fed. Other fuels can also be replaced by generating energy from biogas. All of these factors also create economic incentives for the sustainable operation of sanitation facilities. At the same time, water loss and contamination are reduced: purified wastewater can be used as nutrient-rich irrigation water, to flush toilets, as service water for industry or to enrich groundwater. These are key components of sustainable water resources management in many dry (arid) regions.

### 3 Regional Sanitation Initiatives

The United Nations' declaration of 2008 as the International Year of Sanitation has made a significant contribution towards placing sanitation higher on the political agenda. Regional initiatives to improve sanitation have been launched in many areas following regional conferences on this issue: For instance, in November 2007 Latinosan took place in Columbia<sup>17</sup> and the East Asia Ministerial Conference on Sanitation and Hygiene 2007 (EASAN 2007) in Japan and Africa San2008 was held in Africa in February 2008. In Africa and Asia, both regions with the greatest number of unserved people, politicians are increasingly supporting sanitation. German Development Cooperation will continue to assist its partner countries in implementing these regional processes.

#### 3.1 Africa

The AfricaSan2008 conference took place in South Africa in February 2008<sup>18</sup>. At this event, African ministers, institution employees and international experts discussed the situation on the African continent and adopted an action plan outlining key fields of action and needs in Africa. The ministers in attendance adopted the eThekweni Ministerial Declaration (see box on page 19). In this document, politicians committed to integrating the issue of sanitation into the political agenda and to making it a core topic for the African Union. The African Ministers Council on Water (AMCOW) will observe the implementation of the recommendations in the next few years and has made a commitment to provide a report in 2010.

The declaration also contains many of the recommendations of the Accelerating Access to Sanitation regional conference that Germany and Kenya organised in November 2007. Background documents and the recommendations from this regional conference can be found at [www.gtz.de/sanitation-conference](http://www.gtz.de/sanitation-conference).

The African Water Facility (AWF) is an AMCOW initiative to mobilise financial resources for water and sanitation projects that aims to foster sustainable development in the water and sanitation sector. The AWF is managed by the African Development Bank (AfDB) on behalf of AMCOW. At the start of 2008 AMCOW and the AWF presented the results of a joint study entitled "Can Africa Afford to Miss the MDG for Sanitation?" The AWF, AfDB and AMCOW urged governments, and in particular the relevant ministers in Africa, to make sanitation a top priority in their development and investment plans.

In July 2008 heads of states of countries belonging to the African Union came together in Sharm El-Sheikh, Egypt. By adopting the "Sharm El-Sheikh Commitments for Accelerating the Achievement of Water and Sanitation Goals in Africa", they committed to raising the profile of sanitation by addressing gaps within the context of the 2008 eThekweni Ministerial Declaration on Sanitation in Africa.

<sup>17</sup> <http://www.latinosan2007.net>. Cali Declaration: [http://www.latinosan2007.net/2007/diaadia/Declaracion\\_de\\_Cali.pdf](http://www.latinosan2007.net/2007/diaadia/Declaracion_de_Cali.pdf).

<sup>18</sup> [www.africasan2008.net](http://www.africasan2008.net).

**The eThekwini commitments:**

1. *To review, update and adopt national sanitation and hygiene policies within 12 months of AfricaSan 2008; establish one national plan for accelerating progress to meet national sanitation goals and the MDGs by 2015, and take the necessary steps to ensure national sanitation programs are on track to meet these goals;*
2. *To increase the profile of sanitation and hygiene in Poverty Reduction Strategy Papers and other relevant strategy related processes;*
3. *To ensure that one senior, accountable institution takes clear leadership of the national sanitation portfolio; establish one coordinating body with specific responsibility for sanitation and hygiene, involving all relevant stakeholders, including but not limited to those responsible for finance, health, water, education, gender, and local government;*
4. *To establish specific public sector budget allocations for sanitation and hygiene programs. Our aspiration is that these allocations should be a minimum of 0.5 per cent of GDP for sanitation and hygiene;*
5. *To use modern behaviour change approaches (such as community-led total sanitation, marketing for behaviour change, educational programs, involving communities and their leaders) which make a specific impact upon the poor, women, children, youth and the unserved;*
6. *To develop and implement improved sanitation information, monitoring systems and tools to track progress at local and national levels and to work with global and regional bodies to produce a regular regional report on Africa's sanitation status, the first of which is to be published by mid-2010;*
7. *To recognise the gender aspects of sanitation and hygiene, including involving women more in all aspects of them so that policy, strategy and practice reflect gender sensitive approaches to sanitation and hygiene;*
8. *To increase capacity for sanitation and hygiene implementation and support knowledge exchange;*
9. *To support the leadership of AMCOW in tracking the implementation of the eThekwini Declaration and prepare a detailed report on progress in mid 2010, when AMCOW will provisionally host a follow up AfricaSan event;*
10. *To bring the messages, outcomes and commitments made at AfricaSan 2008 to the attention of the African Union at its 2008 Presidential Summit to raise the profile of sanitation and hygiene on the continent.*

### 3.2 Asia

Heads of government from 15 East Asian countries met at the East Asia Ministerial Conference on Sanitation and Hygiene<sup>19</sup> in November 2007 to discuss sustainable national activities to improve sanitation. In a declaration, the 135 conference delegates stated their intention to increase funding for sanitation and hygiene education, to draft investment plans, to improve regional cooperation on sanitation and to use the International Year of Sanitation to incorporate this issue into the political agenda. In December 2007, the EASAN Declaration was handed over to the first Asia Pacific Water Summit, which took

place in Japan and assembled over 49 heads of state.

In India, Pakistan and Bangladesh “Total Sanitation” campaigns are successful initiatives. They aim to change people’s behaviour and are based on the assumption that disease and environmental pollution can be fought more effectively through hygiene education and public awareness than by expanding infrastructure alone. Municipalities are tackling this problem by launching “Total Sanitation” campaigns: advertising and awareness raising efforts stress the links between unhygienic living conditions and disease and ultimately to avert public defecation.

---

<sup>19</sup> 30<sup>th</sup> November – 1<sup>st</sup> December 2007; Beppu, Japan. <http://www.adb.org/Documents/Events/2007/East-Asia-Ministerial-Conference/default.asp>

## 4 Summary and Outlook

There are no easy solutions to the challenges in the sanitation sector. Indeed, diverse environmental, economic and socially sustainable approaches exist.

One of the strengths of German Development Cooperation is its years of experience with differing approaches and technologies, and in developing sustainable solutions that are tailored to the respective situation. Furthermore, longstanding cooperation in many partner countries has helped to improve conditions (legislative framework, regulation, institutions) and to make water utilities more efficient with better cost coverage.

German Development Cooperation will continue its successful cooperation with countries in the Middle East and North Africa as well as in emerging countries (South-East Europe, East Asia) in the future. With encouraging economic development in many of these countries, investments will increasingly be financed through loans rather than grants in the future. At the same time, partners gain support in creating incentives for closed-loop systems and water resources protection: using scarce water resources carefully also forms part of a forward-looking approach to adapting to climate change.

In many regions of Latin America, Asia and Sub-Saharan Africa, hygiene education and awareness raising are increasingly supported within water and sanitation projects. However, sanitation remains a taboo topic in many countries despite its positive impacts on health and social and economic development. German Development Cooperation will continue to work to change this situation at a political level: it is the responsibility of decision-makers in partner countries to integrate the issue of sanitation into their national strategies and implement these strategies. National

governments must reform the institutional mandates for sanitation and wastewater management and divide responsibilities for the promotion, implementation and regulation of sanitation services provision among the respective ministries (health, infrastructure, water etc.) and the municipal level. However, behaviour changes must also occur among those currently unserved. More priority must be given to sanitation facilities and hygiene. Together with its partners, German Development Cooperation will continue to work on increasing the active demand for improved sanitation with the help of educational programmes.

In Sub-Saharan Africa, in particular, the economic effect of increased support for sanitation can be enormous especially if national strategies not only improve sanitation facilities, but also enhance hygiene behaviour and the generation of energy and nutrients, for instance through sustainable sanitation systems. One major problem is how to make strategies more financially sustainable despite the poor population's low level of income. In order to target the poor, German Development Cooperation will increase support for low-cost and adapted solutions.

Germany will also increasingly foster inter-sectoral programmes, for example by integrating educational and health activities into water and sanitation projects and programmes. At the same time, it will focus more on settlements where the poor and marginalized live.

National policies that result in improved sanitation facilities and wastewater management are being supported through varying concepts, for instance:

- in the water and sanitation sector through the involvement of water utilities in cen-

tralised wastewater systems and decentralised sanitation facilities and town planning (e.g. providing micro loans) to improve housing conditions,

- in the health sector through awareness raising programmes to improve hygiene behaviour,
- in the education sector through educational programmes involving communities to make a specific impact upon the poor, women and children.

- in rural development through power generation (e.g. biogas and nutrient use).

German Development Cooperation thus stands for a holistic approach in the water and sanitation sector. It will continue to support these differing approaches to sustainable sanitation and thus make a contribution towards putting the MDG on sanitation on track.

## 5 Annex: Project Examples

### 5.1 “Efficient management of wastewater, its treatment and reuse in the Middle East”

#### Context

Wastewater management is a substantial problem in most Middle Eastern countries. Only around 30 to 50 per cent of households are connected to the sewage system. Almost 50 per cent of wastewater is not purified and is used in agriculture without monitoring in many of these countries.

#### Project

The Euro-Mediterranean Partnership Programme (MEDA) was created within the framework of the partnership between the EU and non-EU Mediterranean countries. This financing instrument should improve infrastructure in MEDA countries. To this end, a network has been founded that aims to strengthen regional cooperation and water and sanitation provision.

The Efficient Management of Wastewater, its Treatment and Reuse in the Mediterranean Countries (EMWater) project was formed in this context. Partners from Germany, Italy, Jordan, Lebanon, the Palestinian Territories and Turkey carried out various activities with InWEnt between 2003 and 2007 including:

- numerous events on capacity building in the wastewater management sector that have been attended by more than 1,300 experts to date;
- identifying tailored technologies for the construction of five pilot sewage treatment plants. These plants are used by partner universities for training and research purposes since 2008;
- a regional conference held in the Jordanian capital of Amman in November 2006 that welcomed more than 150 experts from 17 different countries;
- the production and dissemination of a video that educates the population about the links between hygiene and health;
- the development of EM Water Guidelines for decision-makers at water authorities. These guidelines were drafted with the help of experts and stakeholder representatives from the region and help to make water strategy planning more sustainable and efficient.

#### Results

A large number of water authority and university employees in these countries attended the capacity building programmes between 2003 and 2008. Five pilot sewage treatment plants have been built in Jordan, the Palestinian Territories, Lebanon and Turkey. In the long term, they will help training institutes in these countries to offer practical training to their employees and students. The EM Water Guide on wastewater treatment and reuse helps decision-makers in the water sector to plan and execute their water policy more efficiently in the long term. A Trainer Tool Kit (TTK) was developed for trainers and lecturers in the water sector and distributed in the relevant countries. The TTK supports training institutes in these countries in improving training for workers in the water sector in the long run. A video to educate the population about water and the environment was produced in Arabic, Turkish and English and distributed in the partner countries.

## 5.2 “Improvements to groundwater protection to prevent droughts in the Kabul Basin” in Afghanistan

### Context

Large parts of Afghanistan’s infrastructure have been destroyed. Housing conditions are catastrophic and sanitation infrastructure is in a very bad condition. 85 per cent of households only have simple latrines or cesspits. Furthermore, waste is being dumped within city limits. Groundwater resources in the Kabul Basin are being contaminated as a result. The high concentration of faecal bacteria in groundwater is a particularly great and lasting threat to the health of inhabitants in the Kabul area. 80 per cent of people depend on groundwater from shallow wells.

### Project

In 2003 the Federal Institute for Geosciences and Natural Resources (BGR) and InWEnt were mandated with implementing a project to protect groundwater in the Kabul Basin. The Ministry for Water and Energy, the Ministry for Industry, the University of Kabul and the Kabul Polytechnic University were the national partners. The project included groundwater testing and awareness raising work and aimed to make decision-makers aware of the fundamental importance of groundwater quality and place this issue higher on the political agenda.

### Results

Extensive groundwater testing has proven that two-thirds of shallow groundwater is contaminated with faecal bacteria. The testing results were presented to the public at an international workshop held in Kabul in August 2005.

At the same time, continuing education campaigns were carried out that were aimed at municipal authorities in particular. Stakeholders were made aware of the links between anthropogenic groundwater contamination (caused by humans) and low drinking water quality at numerous events.

## 5.3 “Communities improve sanitation management” in Mali

### Context

Inadequate sanitation is a major environmental problem in Mali’s capital city of Bamako. The city of 1.4 million inhabitants does not have professionally operated sewage systems. Outdated smaller sewage networks only exist in a few areas of the city and function occasionally.

Each household currently manages the disposal of its wastewater. Wastewater ends up in a cesspit, while washing water is often simply poured into the street, offering a breeding ground for flies and pathogens. Faecal sludge from latrines is discarded in streams and on fallow ground without treatment.

### Project

City administrations and local committees are working together to improve this situation. Members of these committees include municipal administrators, waste collectors, women’s organisations and the traditional district chiefs. At the same time, these committees are strengthening local governance because they involve civil society stakeholders in municipal planning and foster the management of basic municipal services. DED



advisers are providing technical expertise to municipal administrations and local committees and coordinating the various stakeholders.

### **Results**

A treatment plant for faecal sludge was repaired in recent years with the help of DED support. This plant uses a purification process that allows wastewater to flow from one treatment basin to the next basin using gravity alone, thereby saving the cost of operating and maintaining pumps. The project gained experience at local level with the technical and organisational operation of this kind of plant. DED also raised the profile of sanitation in Mali, thereby paving the way for the development and utilisation of new wastewater treatment methods.

## **5.4 “Decentralised wastewater management in the Governorate of Kafr El Sheikh” in Egypt**

### **Context**

Since the early 1980s water and sanitation provision has been expanded in the Governorate of Kafr El Sheikh with the support of KfW Entwicklungsbank (KfW Development Bank). However, roughly 70 per cent of the Governorate’s population does not have access to centralised wastewater systems and uses its own cesspits. This wastewater causes significant contamination to groundwater and triggers disease among the population.

### **Project**

Since 2001 GTZ has been working to improve wastewater management in rural areas and to reduce water body pollution through its project “Decentralised Wastewater Management in the Governorate of Kafr El Sheikh”. The project primarily disseminates low cost solutions that are planned, implemented and maintained by the communities themselves. These decentralised project approaches should be integrated into the competent national organisations’ programmes.

### **Results**

In February 2005 the first treatment plant was installed in a pilot community with the support of GTZ. This wastewater management system is fully decentralised and is administered and maintained independently by a private small-scale entrepreneur in cooperation with the local user community. The system has worked flawlessly since it started operations. Current tariffs are just a fraction of the costs that were formerly needed to empty household pits. They cover 100 per cent of ongoing costs and largely recoup refinancing costs.

Wastewater management has significantly improved in Al Moufty Al Kobra. Therefore, the project has also attained its desired status as a model for other initiatives. Plants in two other pilot communities are at an advanced stage, as well. The Egyptian government and the World Bank have made commitments for another 20 villages.

## 5.5 “Institutional Development of the Water and Sanitation Sector” in Yemen

### Context

Yemen’s scarce water resources are being massively overexploited. Breakdowns in water supply are a repeated occurrence. Prior to the beginning of German-Yemeni cooperation, only a few households had direct access to water supply and sanitation. Wastewater backed up in city districts and contaminated beaches, as in Al Shehr.

### Project

Germany has promoted drinking water and sanitation projects in many of Yemen’s towns and cities. In Zabid and Al Shehr, for instance, KfW Development Bank is supporting a reduction in water loss, the expansion of the sewage network and the construction of pond treatment plants. Decentralised wastewater systems are being improved on the outskirts of Al Shehr.

GTZ is supporting Yemen in reforming its water sector and in decentralising and establishing autonomous water supply and wastewater utilities.

Additionally, BGR is providing advisory services relating to the development and use of geo-environmental information and groundwater monitoring. InWEnt is training Yemeni skilled workers about issues including the management of wastewater recycling. DED is supporting professional training at water and wastewater utilities.

### Results

Around one-third of Yemen’s urban population has gained access to water thanks to Germany’s involvement. Decentralised sanitation facilities and collection networks put in place with the involvement of the population are improving waste management for poor households and reducing health risks. These tailored solutions are affordable as well.

Yemen today possesses a sound water and sanitation strategy and an investment plan. The first steps have been taken towards integrated water resources management and resolving usage conflicts. Water loss is being diminished and the infiltration of wastewater into groundwater is being reduced. Treated wastewater can be reused for irrigation.

## 5.6 “Protection of Lake Victoria” in Uganda

### Context

Lake Victoria is a fresh water reservoir and bio-reserve for the riparian countries of Tanzania, Kenya and Uganda. The lake also provides the foundation for fishing, trade and tourism. Wastewater from settlements on the banks of Lake Victoria is jeopardising this unique ecosystem and thus drinking water supply, as well. The quality of life and health of people is being hampered by inadequate sanitation facilities. Population growth in the coming years will aggravate this situation further.

**Project**

The Reform of Water Supply and Waste Water Disposal Systems project aims to support Uganda's capital Kampala. Kampala is the largest city in the region with 1.3 million inhabitants. Only eight per cent of the city's population is connected to a centralised wastewater system. At the start of the project, this system was in a poor state and only served six per cent of the population. However, most inhabitants – around 70 per cent – still use latrines.

With support from KfW and GTZ, the Ugandan government developed an overall strategy to improve and expand the centralised wastewater system and also promote decentralised solutions. Local small entrepreneurs empty the on-site facilities (septic tanks and pit latrines) and deliver the faecal sludge to decentralised treatment plants where the sludge is treated for use as fertiliser. A drinking water charge finances improved services that the region enjoys as a result of centralised and decentralised management. GTZ's work strengthens institutions and the conditions for wastewater companies to operate on a sustainable basis. Furthermore, the project aims to better connect industrial water polluters to the centralised wastewater system and implement existing discharge standards. An extensive follow-up project is currently being prepared in close cooperation with the African Development Bank. This project involves plans to build two new sewage treatment plants as well as expand the centralised sanitation supply and sewer network. DED further supports small and medium-sized towns in Uganda in carrying out hygiene and public awareness measures to conserve water resources.

**Results**

The project has enabled more of Kampala's wastewater to be collected and purified better than in the past thanks to a centralised sewage treatment plant. Natural biotopes on the shores of Lake Victoria are being restored and contamination is being reduced, as well. Decentralised sludge disposal has lowered the level of pollution in the lake and improving the living conditions, especially for the poor. The population's general awareness of hygiene issues is being raised through education campaigns.

**5.7 “Municipal infrastructure” in Turkey****Context**

Turkey has made considerable improvements to its municipal infrastructure in recent decades. However, the need for investment is still great due in part to the fact that Turkish towns and cities have experienced very rapid growth in recent years. In unplanned settlements, often only a very small proportion of the population is connected to drinking water or sewage systems and waste management is dire. The poor are hardest hit by this state of affairs.

A large quantity of water is lost in the network. The majority of wastewater ends up untreated in groundwater and rivers. Only 18 of the more than 3,200 towns and cities in Turkey have modern landfill sites. Otherwise, waste is dumped in many areas.

### Projects

Since 1960 KfW Entwicklungsbank (KfW Development Bank) has supported municipal infrastructure in Turkey through Financial Cooperation programmes. Towns and cities not only receive funding, but are also supported in planning, implementing and operating water supply, wastewater management and waste disposal systems on a sustainable basis. These projects focus on environmentally vulnerable regions and those with a high need for development. KfW Entwicklungsbank is currently working together with 15 towns and cities some of which are located in Turkey's poorest provinces. Other projects are in the pipeline.

### Results

Supply is becoming more reliable and water loss is being reduced by maintaining and expanding drinking water networks. Waste and wastewater projects have improved basic sanitation for around six million people. Moreover, groundwater and surface water contamination has been substantially reduced. Untreated wastewater is no longer used for irrigation, thereby lowering health risks and improving the overall quality of life.

The health situation has been particularly severe in the city of Diyarbakir. 85 per cent of households are now connected to the sewer system and sewage treatment plants. Waterborne diseases such as typhus, dysentery, hepatitis A or diarrhoea have been cut by around 80 per cent since their peak at the end of the 1990s.

## 5.8 “Wastewater management in provincial urban centres” in Vietnam

### Context

Vietnamese provincial towns and cities are experiencing rapid economic and population growth, but also suffering the associated environmental problems. At present, water supply, wastewater treatment and waste management can no longer keep pace with this trend. Most provincial towns and cities only have sewage systems in their central areas. Elsewhere, sewage pits are used. Regulated, environmentally sound wastewater treatment does not exist yet. Waste is collected, but only a few disposal sites meet minimum standards. Groundwater and surface water is polluted as a result. Contaminated drinking water endangers the health of the population.

### Project

Wastewater and Waste Management in Provincial Towns and Cities – a project involving Financial and Technical Cooperation – includes measures in six provincial towns and cities as well as policy advice at a national level. This initiative combines KfW investment in waste management infrastructure (sewage treatment plants, sewage systems, landfill construction etc.) with organizational advice on reforming and supporting wastewater utilities from GTZ. The priorities are to improve steering capabilities at the relevant Ministry of Construction and to provide for institutional development in order to improve the sustainability of wastewater and waste management and to minimise health risks and negative environmental effects.

### Results

Wastewater businesses have carried out organisational analyses, drawn up business plans and fee systems and drafted maintenance models with support from GTZ and DED. The participatory development of business plans was well received. The poor population is benefiting from better services in particular. All operators have introduced social compatible sanitation charges.

In 2007, the Ministry of Construction unveiled a new wastewater regulation that lays down nationwide responsibilities and tariffs in cooperation with the project team. The project has thus improved the conditions for the sanitation sector, as well.

## 5.9 Dissemination of ecological sanitation strategies in India

### Context

In India 220 million people in towns and cities and 430 million people in rural areas live without access to sanitation. The vast majority of wastewater ends up untreated in watercourses or infiltrates into the ground. Wastewater and problems with latrine operation will intensify further with population growth and increasing urbanisation.

### Project

The GTZ-ecosan project helps to disseminate environmentally, economically and socially sustainable sanitation systems around the world on behalf of BMZ. Since 2005 the ecosan project has worked together with India's largest association for water engineers and waterworks (IWWA) and other local partners to support the Ministry for Rural Development in drafting strategies for the nationwide dissemination of ecosan concepts.

One local partner is the Navsarjan Trust which has dedicated itself to improving the living conditions of the Dalits (the so-called "untouchables"). Ecosan not only has a positive impact on the health of these people, but also improves the dignity, living conditions and ultimately the social status of the Dalits. The trust works in more than 1,000 villages in the state of Gujarat. Together with GTZ, closed-loop systems have also been implemented at various primary schools and at the trust's central professional training centre.

### Results

Children at one of these schools have been awarded the youth research prize from the City of Ahmedabad for their model demonstrating the functional principle of their school's urine separation toilets. After a year, excreta have been turned into a nutrient-rich material with no cause for hygiene concerns in Gujarat's dry climate. This material is now suitable for improving the fertility of the region's barren soil. After treatment, water from showers and sinks (grey-water) also helps to irrigate the school garden and green areas. This is a high priority for schools because they are located in areas where water is scarce and thus an expensive and precious commodity. Students have become real ecosan experts after familiarising themselves with hygiene, water management and the potential of closed-loop approaches.

## 5.10 Pilot project "Cross-sectoral cooperation to improve school health" in Rwanda

### Context

Diarrhoeal illnesses and intestinal worm infections can sometimes be life threatening to malnourished children, in particular, and are associated with major health problems. Providing access to clean drinking water and sanitation facilities as well as promoting individual hygiene measures are thus high priorities. There is evi-

dence to show that regularly washing hands with soap can cut diarrhoeal illnesses by up to 47 per cent. Many schools in Rwanda do not have direct access to water and most schools do not have separate sanitation blocks for girls, boys or teachers. Many of the existing sanitation facilities are not in a good hygienic state. Students' and teachers' awareness of health and hygiene measures is low, mainly due to a lack of teaching materials and training for teachers.

### **Initiative**

A school health initiative helped to improve the conditions at four primary schools and the health of school children within the context of Germany's Development Cooperation with Rwanda in the health sector. The project ran from November 2006 to July 2007 and involved funding of almost EUR 50,000. The initiative included gathering basic medical data, building urine-diversion dehydrating (UDD) toilets and hand washing facilities to improve the sanitation situation and to safeguard access to safe water. Some 2,800 school children were treated with worming medication on the basis of the test results. Where necessary, treatment for eye illnesses was also provided. All students, teachers and around 1,000 parents received training about the correct use of the facilities, purifying and treating drinking water and the health benefits of hand washing and personal hygiene in order to strengthen sustainability, participation and ownership. Students were also issued with teaching materials to support hygiene education.

### **Results**

The results of this initiative so far are promising. School directors report that medical treatment for children and worming treatment have helped to improve the health of students. The children themselves report a reduction in intestinal complaints and increased food intake after worming treatment. In turn, this led to a reduction in student absences. Newly built sanitation facilities have been well received. Water treatment using disinfection agents in particular has been permanently integrated into the school day, as well. On the whole, the project raised awareness of hygiene, food, clean drinking water and waste water treatment by educating children, teachers and parents. These issues are now discussed regularly at quarterly parent-teacher meetings. All schools have significantly upgraded hygiene and health education and these issues are now well integrated in the school's curriculum.

**Published by the**

Federal Ministry for Economic  
Cooperation and Development

**Bonn Office**

Dahlmannstraße 4  
53113 Bonn  
Germany

Phone +49 (0) 228 99 535 - 0

Fax +49 (0) 228 99 535 - 3500

**Berlin Office**

Stresemannstraße 94  
10963 Berlin  
Germany

Phone +49 (0) 30 18 535 - 0

Fax +49 (0) 30 18 535 - 2501

[poststelle@bmz.bund.de](mailto:poststelle@bmz.bund.de)

[www.bmz.de](http://www.bmz.de)

**Editors-in-chief**

Christoph Merdes

Andrea Goertler

*Division "Water; Energy; Urban Development"*

Kirsten Dölle

*GTZ; Water Section; Division "Water, Energy and Transport"*

Verena Pfeiffer

*KfW Development Bank; Sector and Policy Division - Water Resources and Solid Waste*

Stephanie Lorek

*GTZ; International Water Policy and Infrastructure Project*

Jutta Wagner

*Division "Development Education and Information"*

**Officials responsible**

Franz-Birger Marré

*Division "Water; Energy; Urban Development"*

Klaus Krämer

*Division "Development Education and Information"*

**As at**

February 2009

