Water for All

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

WATER IN NUMBERS

ONE TEASPOON FOR BILLIONS OF PEOPLE

Water Resources are limited.

If the world's 1.4 billion cubic kilometres of water could be stored in a single five-litre bucket, the amount of drinking water available could actually fit in a single teaspoon. Fresh water makes up only 3 % of global water resources. Two thirds of this fresh water is trapped in glaciers and only one third is available in liquid form. People have direct access to only 2 % of the available third in the form of surface water in lakes and rivers. The other 98 % is groundwater and not directly accessible.

Global Demand is increasing.

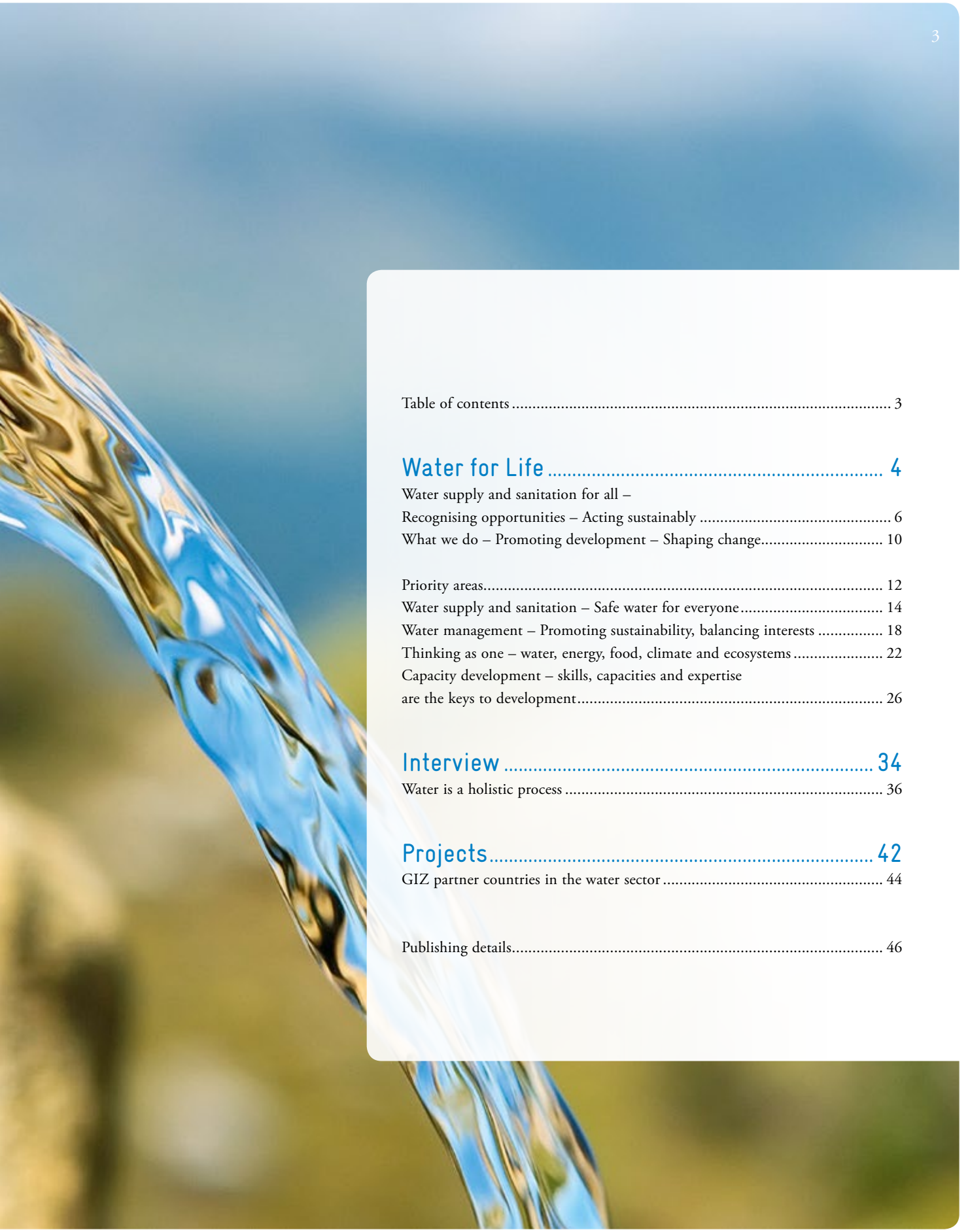
2.5 billion people still lack basic sanitation and at least 1.8 billion people do not have access to safe drinking water. Water is key to food security for humankind. Agriculture requires the most water by some margin with a share of about 70 %, followed by public water supply and industry. The Food and Agriculture Organization predicts that agricultural demand for water will increase by 40 % to 60 % by the year 2030. According to the OECD, global water consumption will see an increase of 55 % by 2050, also driven by increased demand from manufacturing industries, thermal power plants and private households. The prognoses indicate that 2.3 billion people – 40 % of the global population – will live in areas suffering from water shortages by then, especially in northern and southern Africa and southern and central Asia.

The Water Crisis is a Governance Crisis.

It is, however, misleading to say that there is a general water shortage. According to the UN, the water crisis stems from poverty, inequality and an imbalance of power. Poor governance and deficient underlying conditions in the sector are structural factors behind inadequate water supply and sanitation, the inefficient use of water resources and unresolved distribution conflicts. Fragmented responsibilities, a lack of accountability and, opportunities to participate, corruption and the absence of transparency all have negative impacts in many respects. Investments are not made efficiently, infrastructure is not adequately maintained and legal requirements pertaining to areas such as resource conservation and water quality are seldom followed. It is thus clear that resolving water issues is, first and foremost, a political task.

The Water Sector – a Success Story within Development Cooperation.

According to WHO and UNICEF, 1.9 billion people gained access to basic sanitation and more than 2.3 billion people gained access to improved drinking water sources between 1990 and 2012. Even with this, clean and safe drinking water could not reliably be ensured. Germany is among the world's largest bilateral donors in water supply, supporting programmes and projects in more than 50 countries by providing about EUR 350 million each year. About 50 % of this support is earmarked for wastewater management and sanitation. By 2014, around 24.7 million people gained improved access to drinking water and 4.5 million people gained improved access to reliable sanitation services thanks to German development cooperation, above all in sub-Saharan Africa, which is a priority region for German development cooperation in the water sector.



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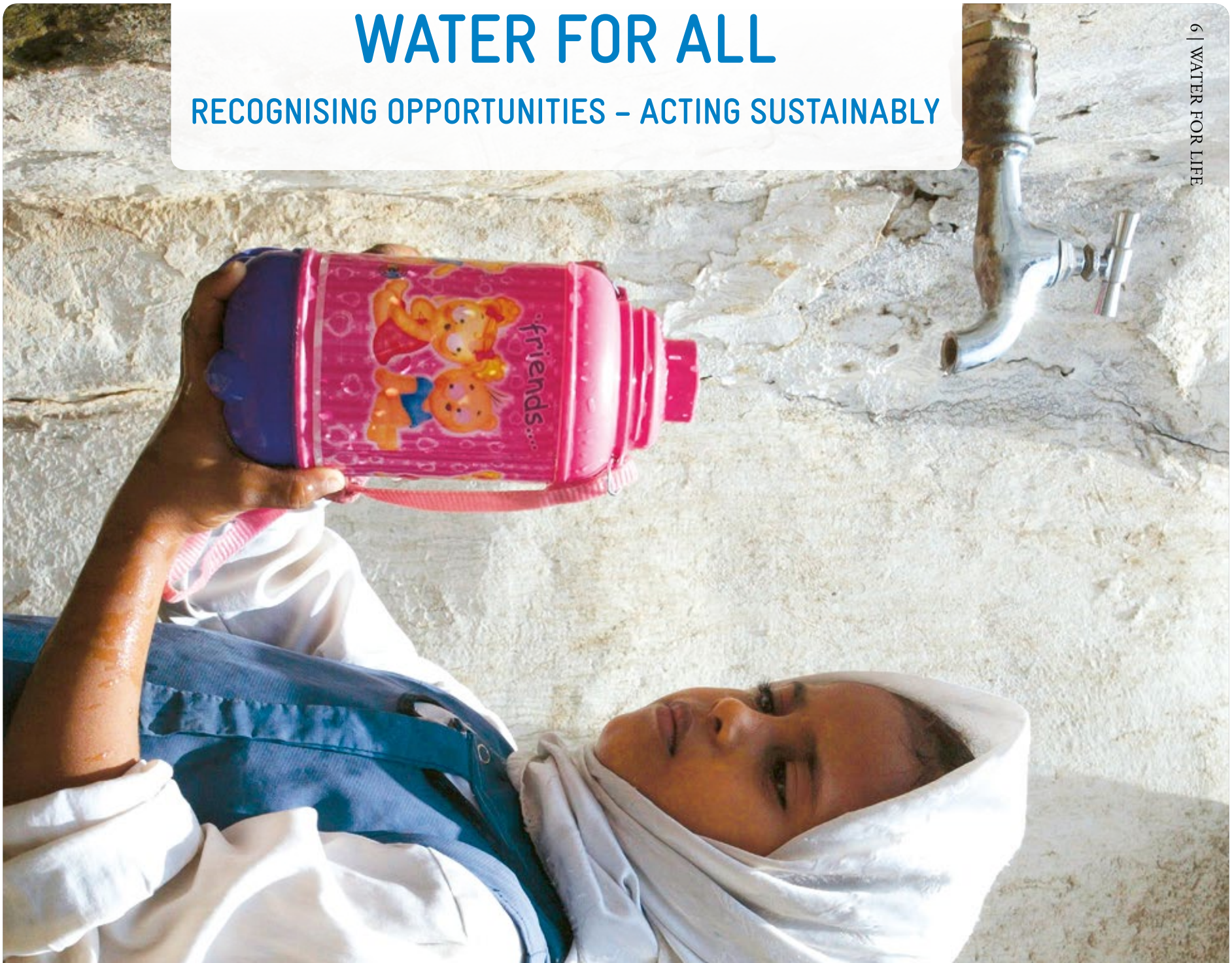
WATER FOR LIFE

WATER FOR ALL

RECOGNISING OPPORTUNITIES – ACTING SUSTAINABLY



Fresh water is a scarce resource in many regions. Population growth, urbanisation, industrial development, climate change, and shifting dietary habits are resulting in the overuse of water resources, erosion, soil degradation, and surface water and groundwater pollution in many parts of the world. Crafting efficient water policies based on the principles of integrated water resources management (IWRM) is thus extremely important.

Water is scarce in Yemen. The 2.5 million people living in its capital, Sana'a, can only dream of having a continuous supply of water. The local water utility supplies households with water twice a week, with some districts receiving water only once every fortnight.

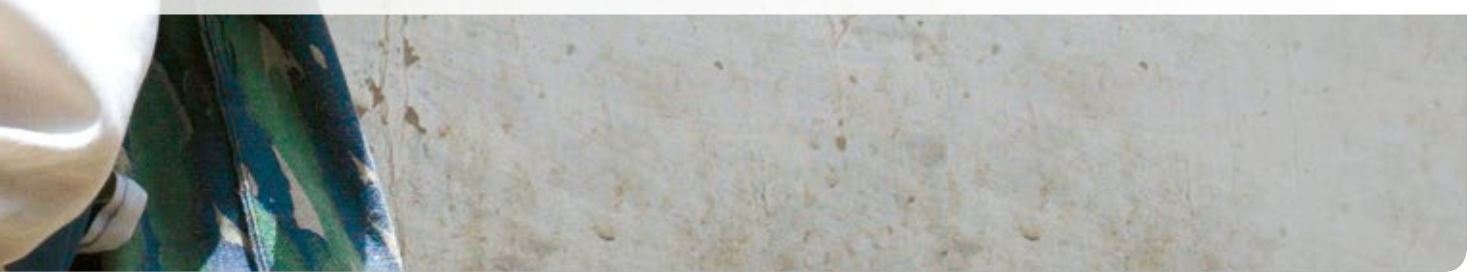
The additional water needed is brought in by tanker trucks and stored in water tanks on home roofs. People living in Sana'a need 60,000 cubic metres of water every day, but only one third of this amount is actually available. The water table in the Sana'a plateau has fallen by several metres annually in recent years. This is not a major problem for some Yemenis: they can drill wells up to 1,000 metres deep, while the majority of the country's poor have to wait in line to receive a few buckets of water to meet their everyday needs.

To prevent the supply situation in Yemen from deteriorating any further, these scarce resources have to be managed in a way that meets the needs of all interest groups as far as possible without overburdening resources.

Access to drinking water and sustainable sanitation are important pillars on the road to achieving the Millennium Development Goals. The international community is close to reaching the goal for drinking water supply. Today, nine out of ten people drink safe water, two billion people more than in 1990. In Yemen, 2.5 million people are supplied with safe drinking water and 1.75 million inhabitants have gained access to improved sanitation services with help from German development cooperation.

Around the world, many factors come together when people go thirsty and fall ill or die of diarrhoea because they have to drink contaminated water or come into contact with faecal matter. Many of the associated problems are man-made and can be solved. Safe drinking water and sanitation for all people would also have many positive impacts beyond the water sector: the incidence of illness declines, while women and girls have more time for productive work or learning since they do not have to fetch as much water.

These successes demonstrate that safe drinking water and sanitation for all is an achievable goal. Germany supports developing countries and emerging economies on this road. Financial and technical cooperation are working together actively on behalf of the German Federal Government, above all the Federal Ministry for Economic Cooperation and Development (BMZ). Financial cooperation executed by KfW Entwicklungsbank is primarily focused on low-interest loans and – in the poorest developing countries –



on subsidies that the German Government makes available to its partner country for investments in areas such as water supply networks and wastewater treatment facilities.

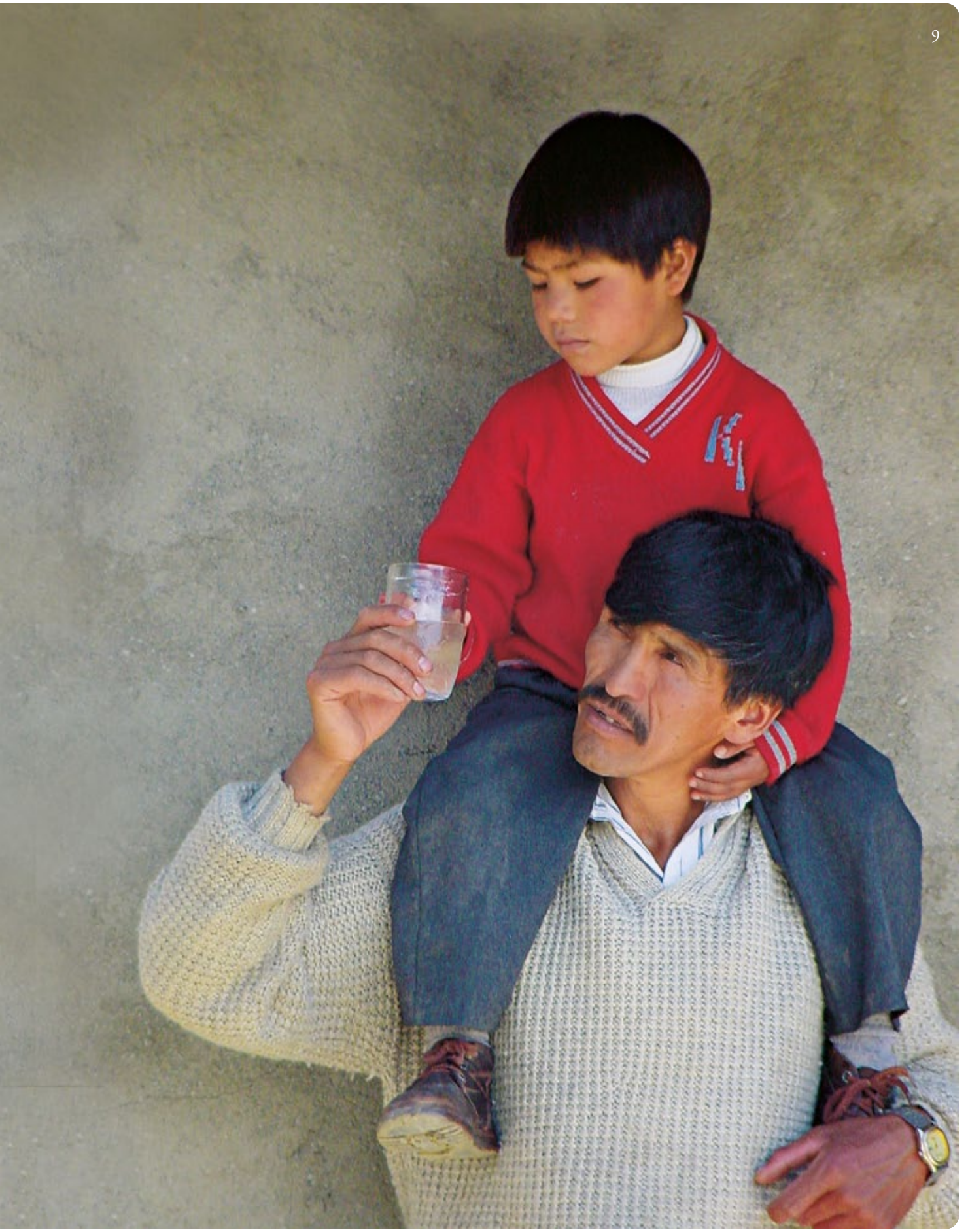
Technical cooperation, for instance through GIZ or the Federal Institute for Geosciences and Natural Resources (BGR), primarily aims to promote the capabilities of people and organisations in partner countries through advisory services and the transfer of knowledge and skills from small user groups up to government institutions. This always takes place in close cooperation with local partners in order to ensure sustainable impacts locally that extend beyond the period of German involvement. Within this process, financial and technical development cooperation interact with one another and neither can achieve success without the other.

BGR is a central technical and scientific authority within the German Federal Ministry of Economics and Technology. BGR's primary area of work in development cooperation is in the sustainable management of groundwater resources. GIZ is the primary executing agency for German technical cooperation. Working on behalf of BMZ and other commissioning parties, GIZ provides advisory services to its partners in the water sector around the world with the goal of upholding the human right to water and sanitation and meeting the Millennium Development Goals.

The concepts and strategies for sustainable drinking water supply, sanitation and integrated water resources management (IWRM) are already essentially in place. Nevertheless, knowledge about efficient technologies, economical management techniques and sustainable resource conservation still has to take root in many developing countries and emerging economies. GIZ actively pursues this goal on behalf of the German Federal Government and other partners through 82 projects in around 50 countries. *"GIZ advises about 400 water and wastewater companies around the world on improving their services. This, in combination with financial cooperation, allows more than 100 million people to benefit from improved service quality,"* says **Michael Rosenauer, head of the Competence Centre for Water** at GIZ headquarters in Eschborn, Germany.

Sustainable services can only be guaranteed in interaction with federal authorities and water utilities. Water utilities must operate profitably in the long term if they want to continuously maintain pipes, dams and pumps, connect more people to the water network, and be able to offer sanitation. GIZ therefore supports many states in reforming their water sectors in such a way that water utilities can receive the financing needed to expand and maintain their infrastructure, to operate with greater transparency and be less prone to corruption, and to have access to highly trained employees.

More than 550 GIZ staff members in the water sector draw from the model of integrated water resources management in their work. They also broaden their horizons by working with other sectors such as vocational training, energy, urban planning, agriculture, climate, biodiversity and governance.



WHAT WE DO

PROMOTING DEVELOPMENT – SHAPING CHANGE

GIZ works with governments, administrations, businesses, the research sector and civil society groups to develop sustainable solutions for water supply in its partner countries.

As one of the world's largest development organisations, GIZ is active in over 130 countries on behalf of the German Federal Government. Its commissioning parties in the water sector include the German Federal Foreign Office, the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety and, above all, the Federal Ministry for Economic Cooperation and Development.

Other donor countries also commission GIZ to conduct projects in the water sector, including the French Agency for Development (AFD), Australian Aid, the Danish International Development Agency (Danida), the European Union, UK Aid, US Aid, the World Bank, and foundations such as the Bill & Melinda Gates Foundation. Additional commissioning parties include other countries' national governments and private sector companies.

GIZ carries out water projects in around 50 different countries, acting at the municipal, national, regional, and global levels. GIZ teams often work on the ground with ministries, regulatory authorities, regional governments, water associations, and also directly with water utility companies. GIZ develops forward-looking concepts for the water sector in cooperation with UN organisations, the Federal Institute for Geosciences and Natural Resources (BGR), KfW Entwicklungsbank, and other development banks and institutions. Along with approaches aimed at sustainable water supply and sanitation, GIZ's work also includes water resources management as well as issues that cut across sectors.

GIZ is able to identify and approach the connections between water, energy and food security, and policy fields such as biodiversity and climate using the nexus perspective. The German Federal Government is frequently sought-after for international policy dialogues, which it engages in with support from GIZ. GIZ evaluates the lessons learned and creates recommendations for international water policy for this practical experience to appropriately feed into the international discourse.

Along with our employees' skills, GIZ also draws on vast experience from within Germany. German consulting companies and water utilities possess economic and technological excellence. Universities and research institutes have connections around the globe paired with wide-ranging scientific expertise.

GIZ shares this knowledge with developing countries and emerging economies and also works with partners to adjust this knowledge to each situation. Furthermore, GIZ serves as a bridge for our partners and for German companies that are seeking to invest in growing markets in Africa, Asia, Latin America, and Eastern Europe.

PRIORITY AREAS

WATER SUPPLY & SANITATION

SAFE WATER FOR EVERYONE

GIZ has many years of experience in water supply and sanitation. GIZ currently provides advisory services to 400 water and wastewater utilities in 16 countries around the world in order to improve their services. More than 100 million people enjoy better-quality services thanks to this work and financial cooperation.

In Zambia, anybody taking a sip of bad water can quickly become ill with cholera and die. Many Zambians have to live with this risk since the majority of the population does not have access to safe drinking water. However, this reality is only one side of the story: many Zambians are not exposed to this risk. 800,000 people living in urban peripheries now obtain safe drinking water from water kiosks at a price of just EUR 0.01 for 20 litres.

Water kiosks are a good solution for households that are unable to afford their own water connection. Over a thousand users can obtain safe drinking water from just a single kiosk connected to the public water supply network. *"70 % of water kiosk operators are women, often single women, who are able to make a living for themselves,"* explains **Eberhard Goll**, **the GIZ manager in charge of the water programme in Zambia**.

GIZ has been disseminating the water kiosk concept since the 1990s. Today, there are thousands of water kiosks in sub-Saharan Africa, including countries such as Burkina Faso, Uganda, Kenya, and Senegal. Some of these operators have even gone on to become new service providers for water, with users able to take showers or use toilets at many locations. Other kiosks generate biogas from faeces or generate electricity with solar panels, allowing their customers to charge their mobile phones.

Zambia started fundamentally restructuring its water sector over 20 years ago. Today, Zambians benefit from new commercially-oriented public service providers, a modernised regulatory authority, and regulatory standards geared towards business plans, transparency, and citizen participation. Another 3.9 million of Zambia's 13.5 million inhabitants now have access to safe drinking water thanks to German development cooperation.

"When it comes to safe drinking water, the glass is now half full rather than half empty in Zambia," notes Eberhard Goll. *"After all, Zambia is close to striking a balance between commercially-oriented water resources management that can cover its own running costs, and providing the poor population with affordable social tariffs."* GIZ has advised Zambia on issues of water supply and sanitation at different political and administrative levels for many years – always with the aim of viewing water policies as part of the fight against poverty.

Eradicating poverty is the central aim of German development cooperation in the area of water supply and sanitation. Sub-Saharan Africa is a priority region with an annual project volume of around EUR 300 million, making Germany the largest bilateral donor for water supply in Africa.

GIZ advises its partners in 50 countries around the world with a view to the water sector as a whole and all stakeholders. GIZ trains experts from ministries, governmental authorities and companies, disseminates knowledge, adapts technical solutions to local conditions, advises governments, and involves the community in joint measures.

This integrated approach applies to drinking water supply and sanitation alike. *"We don't give preference to a single technological system, but rather think up smaller, decentralised solutions in tandem with centrally-run wastewater systems,"* says **Christian Rieck from the Sustainable Sanitation programme**.

Another important pillar of sanitation involves raising public awareness and spreading information about all aspects of this issue. GIZ particularly wants to reach children and young people who are especially vulnerable to the impacts of poor hygiene. One example is the Philippines where two thirds of all children are infected with worms, and one in three children is underweight. The Department of Education has managed to reduce the rate of worm infections by 50 % through daily hygiene practices, such as encouraging children to wash their hands and brush their teeth together, and through semi-annual de-worming at 7,000 primary schools. GIZ supported the Department of Education in institutionalising this work. The expansion of the Fit for School approach to three other countries in South-East Asia is currently being prepared, and its replication in Africa is also under review.

The WASH United Initiative – also supported by GIZ – is moving in the same direction. Founded in 2009, WASH United is a coalition of international NGOs, national governmental authorities, local grass-roots movements, sport clubs, football stars, and tens of thousands of people from around the world. The basic idea driving the initiative is to use people's passion for football and role models like Bastian Schweinsteiger and Didier Drogba in order to make a more emotional connection to drinking water, sanitation and hygiene (WASH), and the human right to water supply and sanitation.

For GIZ, water management also means viewing water as a circular system. For instance, urine-diverting toilets can separate liquid from solid deposits, which can then be used as valuable fertilisers in agriculture. In places where hotel facilities recycle water, for instance in Jordan, wastewater can serve various purposes. Every year, 32 billion cubic metres of safe water go unused when they leak out of dilapidated pipes. Reducing these water losses allows millions more people to be supplied with drinking water without needing to tap new resources.

However, technical solutions are but one side of the coin: Many countries have to fundamentally reform their water sectors if they want to manage and use water resources efficiently. This process generally lasts several years and can succeed only when policy-makers and civil society both actively support change. Drinking water supply and sanitation is often an unprofitable business; many tariff schemes do not even cover running costs, let alone desperately needed investments.

However, more and more countries are starting to adopt business principles, effective management, and customer-oriented service. *"At the governmental level, we are strength-*

ening the state's ability to function. We are providing advice on water legislation and regulatory issues with the aim of developing effective water supply and sanitation that is also affordable for poor segments of the population," says **Ulrike Pokorski, head of GIZ's International Water Policy and Infrastructure programme**.

It is immaterial whether public or private companies supply water. *"What is important is that the state regulates the market and remains responsible for services of general interest,"* explains Ulrike Pokorski. To this end, state control must be organised in such a way that it puts more barriers in the way of corruption and nepotism. GIZ thus supports transparent structures, participatory approaches, visible codes of conduct and sustainability standards that water utility companies commit to uphold. This includes overarching reference frameworks for water resources management under which service providers, regulators, and administrations commit to achieving common goals. GIZ sets up water parliaments and citizen committees to review agreed-upon goals in order to guarantee transparency; these bodies also serve as open forums that citizens can turn to.

WATER MANAGEMENT

PROMOTING SUSTAINABILITY, BALANCING INTERESTS

Integrated water resources management (IWRM) takes into account all interests that exist in a given water catchment area. This approach aims at providing people, agriculture and industry with enough water without diminishing ecological resources.

Whether people living in the Peruvian coastal town of Piura can obtain enough drinking water depends, first and foremost, on the Andes. The ground, plants and trees in this humid high mountain range collect and store water. However, these areas are in-creasingly being utilised for agricultural purposes. Additionally, more and more wood is being chopped down in the forests. As a result, the ground can store less water, leading to more water in the rivers during spring months and too little during summer months. This situation makes it harder to provide drinking water.

Peru is not the only place where economic activities upstream come into conflict with the needs of people living downstream. Diverging interests exist in every water catchment area in the world. Scarce water resources in particular must be managed in a way that meets the needs of all interest groups without placing an excessive burden on resources. The integrated water resources management (IWRM) approach works towards precisely this goal.

IWRM is internationally considered to be a model for the water sector and serves as the basis for all of GIZ's water projects.

This integrated approach places the ecosystem and people living there at the forefront. Finding a balance between social, ecological and economic interests is crucial: one of the goals is to facilitate access to safe drinking water supply and sanitation for poor people. At the same time, the approach seeks to ensure sustainable protection for wetlands, biodiversity and water resources. Finally, it works to prevent potential for conflict from the outset. These core fundamentals of water resources management apply to national water catchment areas as well as to transboundary water catchment areas and river systems.

Water Basin Management

"Water basin management entails all of the processes and activities that promote the socially balanced and ecologically and economically sustainable management of water resources," explains **Brigitta Meier**, who coordinates GIZ's **IWRM Working Group**. As far as possible, all relevant institutions in a water catchment area and varying interest groups must be involved in the process in order to achieve this goal.

Reliable drinking water supply is also dependent on farmers not over-fertilising their soil, on industrial companies treating their wastewater, and on forestry companies reforesting the areas where they have collected wood. Water institutions therefore require concepts and instruments to ensure cooperative and sustainable management in these areas. To this end, GIZ strengthens exchange between authorities and user groups, provides instruments and rules, accompanies decision-making processes and supports the development of sustainable management strategies. *"In many cases, we have to negotiate interests and contradictory demands and find a financial balance,"* says Brigitta Meier.

Transboundary Water Management

This is especially true in transboundary watersheds and river systems. 145 countries worldwide share 276 international rivers with their neighbouring countries. Central Asia provides one such example: The republics of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan use rivers such as the Amu Darya and the Syr Darya. In one case, the Government of Tajikistan intends to build a dam on the Vakhsh River– the northern tributary of the Amu Darya – to generate electricity. The Uzbek Government, however, fears that this project will adversely affect water supply for its cotton farmers. Conflict seems inevitable. GIZ is thus working on behalf of the German Federal Foreign Office to support the joint management of water resources.

"Much has already been achieved in transboundary river systems and water basins when the countries in question consult one another about planning and exchange information about water resources. The ultimate goal, however, is for neighbouring countries to develop a level of mutual trust that will enable them to implement cooperative solutions to manage water resources and develop infrastructure," says **Malte Grossmann**, an **expert in transboundary watersheds** at GIZ.

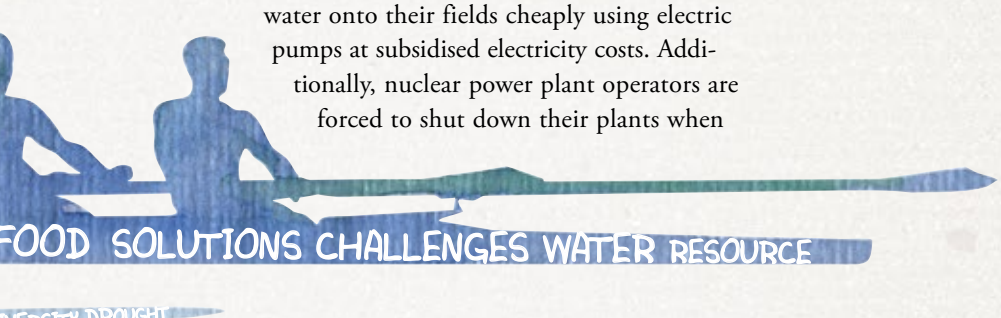
States working together to manage their water resources can use these shared resources more efficiently. This has the added effects of reducing the potential for political conflict and opening up opportunities to develop water resources. In turn, this benefits people. For instance, GIZ advises Angola and Namibia on establishing a river basin commission for a river that straddles their borders, the Kunene. The Kunene partnership allows 900,000 people living in an arid region of Namibia far away from the river to receive water via a canal originating from the Kunene in Angola. This project also makes it possible for information about approaching flood waters from Angola to be communicated in advance so that those living downstream in Namibia can take the necessary precautions.

THINKING AS ONE:

WATER, ENERGY, FOOD, CLIMATE, ECOSYSTEMS

Water is more than the basis of life. It is food, a means of transportation, a source of energy and an ecosystem – an essential economic and cultural asset.

Criticism poured in when India's power grid collapsed in June 2012, leaving 650 million people in the dark. A combination of unusual factors all came together - factors that could cause trouble for industrial nations, too. When it does not rain, tens of thousands of farmers pump groundwater onto their fields cheaply using electric pumps at subsidised electricity costs. Additionally, nuclear power plant operators are forced to shut down their plants when there is no monsoon since rivers do not provide sufficient water for cooling. At the same time, torrential rainfall in Himachal Pradesh means that two hydroelectric power plants have to be taken offline.



This example illustrates that solutions must be found that address challenges in all three of these sectors concurrently in order to guarantee the supply of water, energy and food to a growing global populace in the future. This nexus perspective is relatively new and extends beyond the integrated water resources management (IWRM) strategy and the water sector. *"We don't just look at the water sector. We will only be able to achieve many of this sector's goals if we think about them in interaction with other issues such as climate change, energy supply and food security,"* explains **Pierre Guillibert**, who is responsible for the **nexus issue** at GIZ's Competence Centre for Water.

Climate Change

Rising temperatures and sea levels, and changing patterns of precipitation are affecting the water balance in many of GIZ's partner countries. They are aggravating water shortages and increasingly causing flooding and erosion problems. In turn, this threatens human lives, living space, drinking water supplies, harvests and production.

The water sector must adapt to climate change in order to ensure that the global population will be provided with water, hydropower and food in the future. Coastal countries such as Vietnam are particularly vulnerable to the impacts of climate change on account of their geographic location. Flooding regularly damages urban infrastructure there, and fatalities sometimes occur. In times of flooding, untreated wastewater overflows out of the sewers with severe consequences for people and the environment. Poor segments of the population are especially susceptible to the impacts of climate change on the water sector. Water and wastewater management also contribute to climate change through their relatively high energy consumption and the emission of greenhouse gases. Drinking water supply and irrigation result in high water and energy losses in countries like Jordan due to aging infrastructure and energy-intensive pumps. What's more, the potential to extract energy and nutrients from wastewater is often squandered during wastewater treatment. GIZ advises its partner countries on implementing climate-sensitive water management that encompasses climate protection measures and adaption to climate change. *"The priority areas for our advisory services include issues such as climate-sensitive planning processes in the water sector, the use of eco-system services to adapt to climate change and approaches to flood risk management,"* reports **Lisa Oberkircher**, an expert in **climate issues at the Competence Centre for Water**.

Agriculture

The agricultural sector accounts for 70 to 90 % water resource usage. Grains, fruits and vegetables cannot grow without water. Food security therefore dictates that sufficient water resources are available.

But how much water is enough? Efficient irrigation techniques, customised methods for planting, and the choice of which fruits to grow can greatly reduce the demand for water. For example, salt-resistant types of rice can thrive in brackish water. In the Jordan Valley, farmers are increasingly irrigating their fields with treated wastewater with support from GIZ. This not only saves drinking water; farmers also reduce their demand for fertilisers by up to 60 % since wastewater already contains required nutrients. *"We share proven planting and irrigation techniques that are adapted to local knowledge and rules,"* says **Barbara Gerhager**, an expert in **water and agriculture** at GIZ.

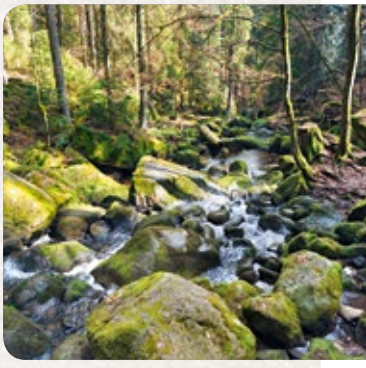
Energy

Water plays a crucial role in energy generation. For example, thermal power plants need water for cooling. Conflicts of interest arise in places where this water is needed for farming. *"It is therefore important that all of the parties involved understand the connections between water use and energy consumption. They can then seek out solutions before projects commence so that conflict does not happen in the first place,"*

notes GIZ staff member **Pierre Guillibert**. Farmers often fear the consequences of dam projects: too much or too little water. On the other hand, dams both generate power and increase protection against floods. The Zambezi River Commission is tasked with constructively balancing the different interests of neighbouring countries in the Zambezi River basin in Zambia. GIZ supports this commission in building its technical capabilities and political and social negotiation capacities.

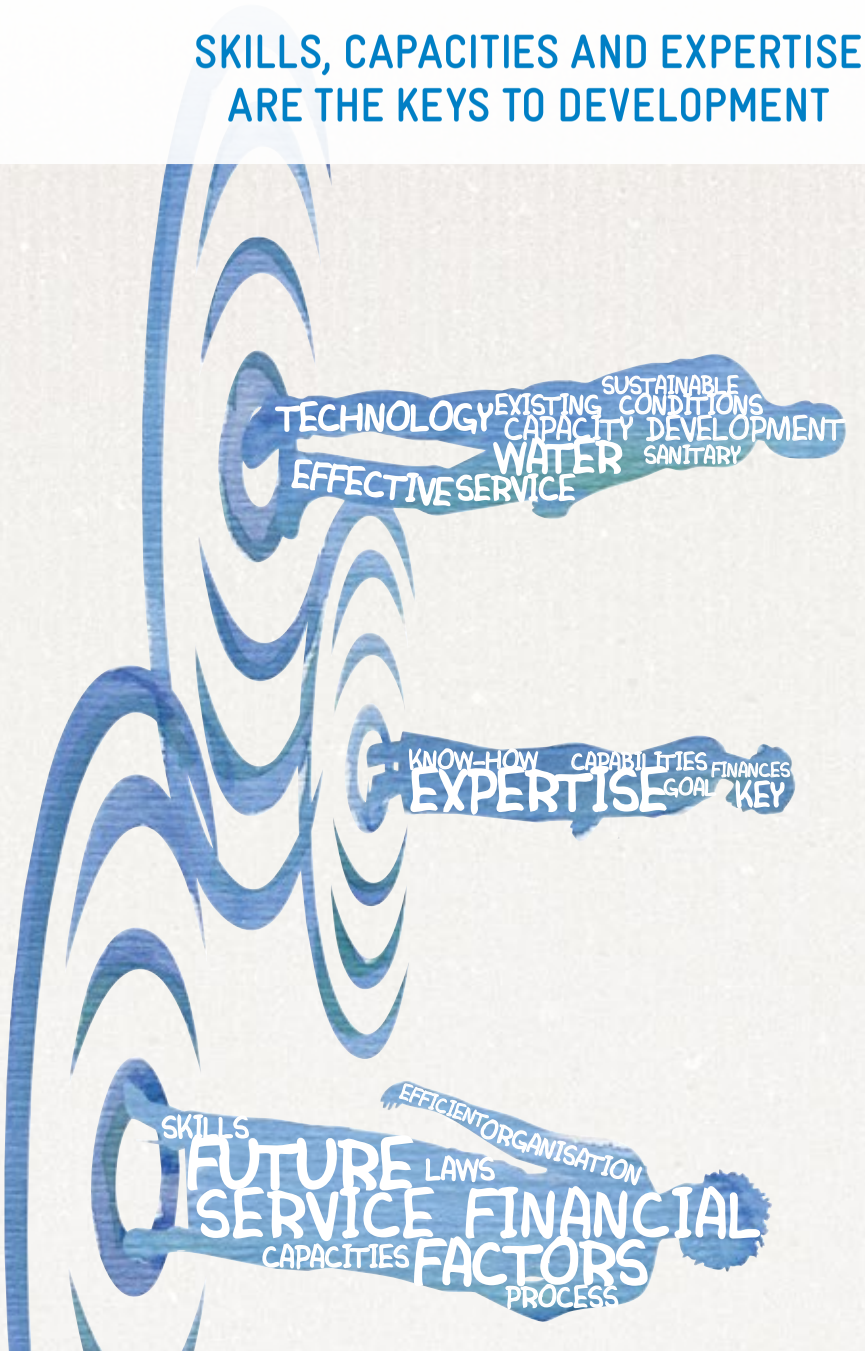
Biodiversity

Functional eco-systems play an important role in the water cycle. They store and purify water and thus help to balance water flows during times of drought and flooding. An active water policy means protecting and maintaining these eco-systems. At the same time, many eco-systems that are dependent on water, such as wetlands, are biodiversity hotspots and require sufficient amounts of safe water to maintain the great variety of species living there. GIZ is therefore increasingly taking the issue of biodiversity into account in its water projects. In this context, the Southern African Development Community is being supported in restoring wetlands on the Lesotho plateau in order to protect the headwaters of the Orange-Sengu River.



CAPACITY DEVELOPMENT

SKILLS, CAPACITIES AND EXPERTISE ARE THE KEYS TO DEVELOPMENT



Many factors – including technology, financing, and conducive parameters – must be in place in order to develop future-oriented and sustainable water supply and sanitation. However, all stakeholders must have the required expertise if public and private investments in water supply and sanitation infrastructure are to be effectively developed. GIZ therefore places *capacity development* at all levels at the centre of its work.

Future-oriented and sustainable development can only be achieved when all of a country's water sector stakeholders are able to optimally put their skills to use. Though this may seem quite obvious at first, implementation itself is a very complex process that is dependent on a variety of factors. Political decision-makers must set a foundation of laws and implementing regulations that allows water utilities to effectively and efficiently carry out their tasks. Water utilities are confronted with many additional challenges: they have to be up to date on state-of-the-art technologies, be able to operate and invest in a sustainable manner, and to deploy a sufficient number of well-qualified professionals and managers in order to be able to ensure reliable water supply and sanitation. Regulators, on the other hand, should be capable of monitoring the provided services and achieve transparency. Users must also be involved as well: they need to be informed about water supply and be able to actively participate.

Tackling these challenges can only succeed when all stakeholders have the required expertise and develop strategies for mobilising and continuously advancing their capacities and skills. Only then can customers be provided with high-quality water at affordable prices for the long term. It is this expertise that GIZ shares with its partners.

Capacity development is a holistic process for GIZ, which it promotes with the goal of enabling people, organisations, and societies to mobilise and develop their skills in order to sustainably drive forward development on their own. By adopting this three-tiered approach, GIZ not only wants to share knowledge, but also aims at enabling partners to continuously improve their skills and activities through a deep learning process.

For most countries, water shortages are not simply caused by a scarcity of water. Instead, shortages are an issue of equitable distribution. *"Many countries are actually able to provide everyone with access to drinking water supply and sanitation. That's something that makes us optimistic,"* says

Michael Rosenauer, head of the **Competence Centre for Water** at GIZ. "Our first task therefore involves supporting our partners in developing the capabilities they need to provide everyone in their country with water supply and sanitation services".

Around 550 of GIZ's water experts advise partners around the globe: this includes 100 deployed German experts, 80 development workers, 25 integrated experts, more than 300 locally employed experts on-site and around 30 people at the headquarters in Germany. All of their work centres on building capacity and skills in GIZ's partner countries. This work includes providing advisory services, establishing training and education systems, developing private and public organisations and companies, and helping to institutionalise water supply in a country so that it is affordable, efficient and self-financing in the long term.

Clear Goals – Joint Action

Many countries want to fundamentally reform their water sector. GIZ has decades of experience in guiding these complex processes.

For example Peru: Six million Peruvians do not have access to drinking water, and four out of ten do not have adequate sanitation. The reasons for this are diverse. Water utilities' professionals and managers have not received enough training to provide services. Companies are chronically underfinanced because tariffs do not typically cover running costs, causing existing infrastructure to decay. At the same time, political responsibilities in the water sector are not clearly defined, and actors compete with one another – both locally and nationally. Many challenges existed when GIZ received an order in 2003 to advise the Peruvian government on how to fundamentally reform the institutions in its water sector.

Achievements are slowly benefitting citizens. For example, 12 water utilities that took part in a programme for rapid-action measures were able to nearly double their minimum daily supply period from 8.5 to 16 hours. At the same time, utilities have increased their revenues by 40 %. 30 of the 50 water utilities have now broken away from their old customs and publish an annual report showing the progress and efforts made in improving supply to the population, also based on a series of governance indicators.

One of the foundations for this success was the advisory services that GIZ provided to the Peruvian Ministry of Water on developing laws to modernise water utilities in the context of comprehensive sector reform financed by KfW Development Bank and IDB.

"The Peruvian government is very interested in finally getting a grip on its water supply and sanitation," says **Cornelia Gerhardt**, an **expert on water** at GIZ with many years of experience. *"So it was possible to significantly improve financing for the water sector with its own investments through the national Water for All programme."*

Fundamental reforms or even an overhaul of the water sector as in South Sudan are based on trust. Ultimately, this work entails restructuring or reviewing and reorganising the sector at all levels. Many elements – water utilities, regulators, political representatives, and laws – come under

review and are subject to change. As a public enterprise in Germany, GIZ enjoys a high level of trust since it does not pursue its own commercial interests and possesses many years or even decades of experience with providing advisory services to the water sector. *"This allows us to serve as an advisor, moderator or even a mediator for and among the involved parties,"* says Cornelia Gerhardt. *"Many countries are seeking exactly that kind of partner."*

Institutional reforms require patience. GIZ focuses on developing local expertise, formulates new water laws and implementation regulations with its partners, creates strategies and plans for the sector, and establishes or strengthens education and training programmes that the water sector is able to finance on its own in the medium term.

Setting up structures that allow companies and institutions in the water sector to develop sufficient capacities and skills is essential. These structures make it possible for the water sector to finance itself and hence operate sustainably in the long run.

Modernising Enterprises – Increasing Efficiency

GIZ advises more than 400 water and wastewater utilities worldwide on how to effectively and efficiently provide people with drinking water and sanitation services.

Few companies survive without clearly defined corporate goals, efficient structures and binding job descriptions for employees. In many of GIZ's partner countries, water sector stakeholders are overwhelmed because they do not have access to modern management techniques or efficient administrative structures. Advising enterprises, local decision-makers and national actors – such as trade associations, regulatory authorities and water ministries – is therefore a priority area within GIZ's capacity development approach.

The Tanzanian water sector is one of many examples. GIZ has been advising this East African country for many years. This work has included overhauling the Energy and Water Utilities Regulatory Authority (EWURA) – a project that the Tanzanian government has decided to move forward with. Prior to this initiative, the ministry had handled regulatory tasks on its own. *"It is not a good set-up for a ministry to distribute finances and also oversee its sector services. You can't be the player and the referee at the same time,"* explains **Dirk Pauschert**, who has worked in the **East African water sector** for GIZ for many years.

Working with its Tanzanian partners, GIZ first laid the foundations for EWURA, developing operating goals and structures, introducing quality mechanisms, performance reviews, transparency surveys and accounting reports, and also drafting job descriptions and tariff systems. Besides EWURA, GIZ also works with other donors to support Tanzanian water companies in implementing effective management mechanisms and advises educational and training institutions and professional associations on professionalising their services.

An example from Egypt shows just how effective restructuring a company can be. GIZ was instrumental in reorganising a water utility there that is responsible for providing drinking water to three million people. In this case, supply security was no longer guaranteed because the local government was neglecting its responsibility for the firm. GIZ advised its Egyptian partner on restructuring the water utility under corporate law, on developing personnel and financial planning, on introducing new management techniques, on training its staff, on implementing job specifications, and on allowing water supply to be certified based on the German model.

"This process took a good five years, but it was worth it," says **Ernst Döring**, who oversees the project for GIZ: *"The new enterprise now produces water of a higher quality, it operates its facilities diligently, and it finally has a functioning business plan".* Fee collection has more than doubled. Just one third of customers used to pay their water bills, but two thirds of people now pay for the water that they consume.

Individual Support – Societal Benefits

Efficient water utilities need well-trained staff. GIZ thus organises training for its partner countries, creates new educational and training systems and promotes information-sharing among countries of the south.

South Sudan is the newest member of the international community. After many years of civil war, this young country has to rebuild its infrastructure. Water experts from Uganda that were trained by GIZ are actively involved in the water sector in South Sudan. Technicians and engineers have so far been training staff at their companies on issues such as reducing water losses, energy efficiency and sanitation concepts. Ugandan water experts are now also sharing their knowledge with counterparts in their neighbouring country. *"Our WAVEplus programme trains staff from water utilities, regulatory authorities and educational institutions across five countries in East Africa,"* says **Heiko Heidemann**, the GIZ staff member in charge of the programme. *"One of our goals is for water experts to exchange information across borders in order to create a local network and establish regional expertise."* This south-south exchange is not only taking place in East Africa but also among water utilities in the Middle East and North Africa.

The quality of professionals and managers determines whether a country can develop its water sector in a sustainable manner. One of the three pillars of GIZ's capacity development approach hence involves individual professional training for employees and multipliers at public institutions, such as ministries and authorities, and at water associations and water utilities.

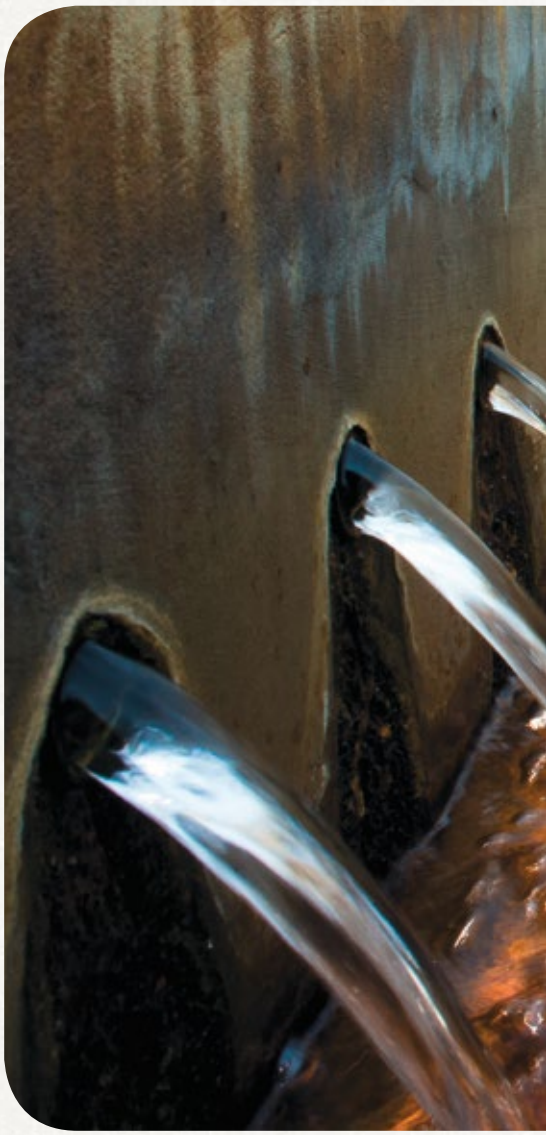
This approach is centred on establishing educational and training systems that are financially sustainable. This is the best way to ensure employee quality in the water sector into the future.

One prime example comes from Peru. Though Peruvian engineers have high educational standards, needs-based training for technicians still does not exist. Therefore, GIZ has worked with the water ministry, the water association, regulators and water utilities in creating a new industry-wide educational and training system. Funds derived from water tariffs now cover 80 % of the costs of these educational measures. *"The new training and educational system has been very successful and has greatly improved professional quality within the Peruvian water sector,"* says **Hans-Werner Theisen** from GIZ in Peru. More than 2,000 employees in the Peruvian water sector have already benefitted from the new educational and training system.

GIZ has developed a wide array of educational and training measures that are customised to the specific needs of each partner country. This work

includes direct advisory services and basic training, support for educational institutions in creating curricula, and training services for managers in German professional associations. Other measures comprise e-learning modules on integrated water resources management (IWRM) that GIZ developed in cooperation with German universities.

GIZ works with the German Association for Water, Wastewater and Waste to develop training for associations and administrative and governmental representatives. This training gives GIZ partners access to German core educational curricula for water and wastewater services that have been translated into English. Another cornerstone is the training programme on water loss reduction that GIZ developed in cooperation with German water utilities. One element of this partnership involves training trainers in GIZ partner countries who receive technical, methodological and didactic inputs. Once trained, they can develop and lead their own training programmes tailored to specific needs in their own countries, thereby locally anchoring knowledge in a sustainable manner.



INTERVIEW

WATER IS A HOLISTIC PROCESS

Michael Rosenauer is the Head of GIZ's Competence Centre for Water. The the 53-year-old has 15 years of experience working in the water sector in different South American countries and is an expert on governance issues.

Water supply and sanitation are among the greatest challenges facing development cooperation. How does GIZ aim to succeed in these areas?

Any technological or financial solution can only work if people make it their own and derive benefits from it. Change is primarily driven by people, but they require skills and capacities to make this happen. That's why GIZ makes capacity development the focus of its engagement.

How do you implement this?

Complex change processes only succeed if they are considered in their totality. GIZ therefore supports its partners in incorporating all social stakeholders in their activities. These actors include enterprises providing water, national authorities, and political decision-makers right along with consumers themselves – the populace, industry and the agricultural sector. Water resources management and providing services to the populace are intertwined with a wide variety of issues such as health services, energy, biodiversity, urban planning, and food security. In order to guarantee success, we take account of the technological, financial and institutional issues while also considering social and political impacts. It's not each solution, but the entire process that is important.

Water kiosks are one of the achievements of German development cooperation. Why has this approach been so successful?

When people obtaining water from a centralised water network don't pay their water bills, the utility will shut off their connection sooner or later. From a social point of view, this stands in conflict with one of our most important targets – implementing the human right to water supply and sanitation. Water kiosks offer an

alternative to provide drinking water to poor segments of the population in particular – since consumers can decide how and when they want to fetch water from the kiosk. They are also a cost-effective solution for fast-growing urban and peri-urban areas, two places where we are often active. Water kiosks allow us to supply a large number of people with water more quickly at socially acceptable prices. However, even this solution is only viable when combined with a strong water utility.

Why is it so difficult to achieve similar success with sanitation?

The level of suffering is obviously not as high in this area, even though poor sanitation can have fatal consequences for the health, economic and social opportunities of those affected. People cannot survive very long without drinking water. But they can survive without decent sanitation. Sanitation does not enjoy the same political or social priority as water. Centralised wastewater management systems are expensive and require orderly urban and municipal development, something that is often lacking. That's why we focus on decentralised systems that are not reliant on a centralised network like latrines. However, the sewage sludge that they generate is often the critical issue: it has to be professionally disposed of in order to avoid health risks. This presents a technical and organisational challenge for everyone involved. But this challenge has to be addressed honestly: The faster an urban area grows, the more reliant sustainable sanitation is on integrated urban planning and development.

What benefits does GIZ offer the German Federal Government as its main commissioning party?

The work we do in developing countries and emerging economies is based on the development policy goals set by the German Federal Government. Along with the financial cooperation component, primarily through KfW Development Bank, we work with BGR to pursue these goals through technical cooperation. This approach ensures the use of an integrated development approach to water resources management and to providing the population with water. To this end, we offer our commissioning party the in-depth technical expertise it needs and the capacity to manage complex projects. Additionally, BMZ and other commissioning parties can always draw on our global professional network.

What are some of the wishes and challenges that your partners come to you with?

They are as diverse as the 70 different countries that we work in. Along with drinking water and wastewater, regions such as North Africa and the Middle East that are facing mounting water stress are increasingly requesting support on water resources management. We also support regional dialogue and negotiation processes for issues like transboundary water basins in order to promote an economic, social and ecological balance of interests among countries that share rivers. Many countries seek support to reform and reorganise their water sectors. We provide advisory services to hundreds of water utilities around the globe to help them become more sustainable and customer-oriented –

a traditional request from our partners. We are witnessing increased demand for solutions to issues related to climate change.

Water is not only the most important food source; it is also an economic asset. How does German development cooperation ensure a balance between affordable tariffs for the poor on the one hand and financially sustainable water supply on the other?

Drinking water supply is a human right and part of a state's services of general interest. Social tariffs and cross-subsidies are a must from a poverty perspective. However, functioning water utility companies that are economically and financially sustainable are a crucial prerequisite. That's why our work focuses on costs and revenues. When we optimise costs, the result is often a more socially acceptable solution. In terms of revenue, we have developed many options that can make the system more sustainable on the whole, such as requiring people earning more money to pay more for services.

Does it matter whether the water sector is organised privately or publically?

The issue is not privatising water supply, but rather ensuring efficient and sustainable supply. Private enterprises can assume an important role with their expertise and investments. Essentially every model – whether private, public, or a combination – can function well. Private involvement tends to work well when the state effectively regulates the market while protecting economic, social and ecological sustainability. We are currently pursuing exciting new cooperation models with private partners that are major beverage companies, such as SAB Miller and Coca Cola. These companies wish to play a more active role in protecting water as its most important resource. They are seeking alliances with public and social partners to manage water resources in a sustainable way. We take advantage of these win-win situations in our own joint projects.

How important is the expertise of German companies, research institutes and professional associations to GIZ and its partner countries?

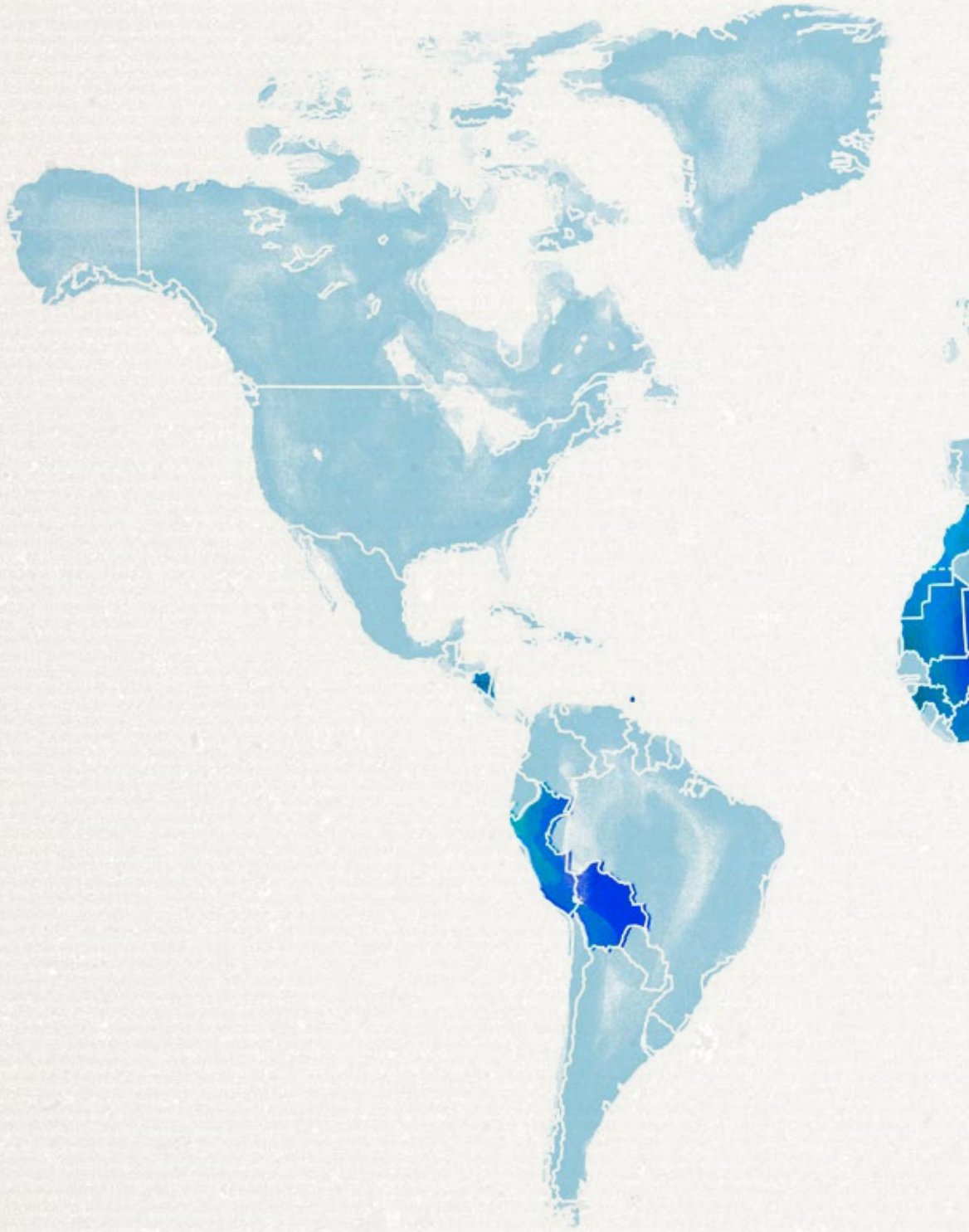
In a way, this expertise serves as the basis for our capabilities. We use it in diverse forms of cooperation, including in educational and training programmes with universities and professional associations, and in partnerships with companies on issues like water loss management and energy efficiency. We have two key partners to shape appropriate cooperation – the German Association for Water, Wastewater and Waste and the German Water Partnership.

Looking ahead, what do you think will the most important areas of activity for GIZ's Competence Centre for Water be in the years ahead?

Climate change and population growth are going to force us to focus more on the nexus between energy, food and water and also to approach these issues through the use of water resources management. After having achieved a lot of success with water supply, the unsatisfactory sanitation situation will be a second priority area in the upcoming years.

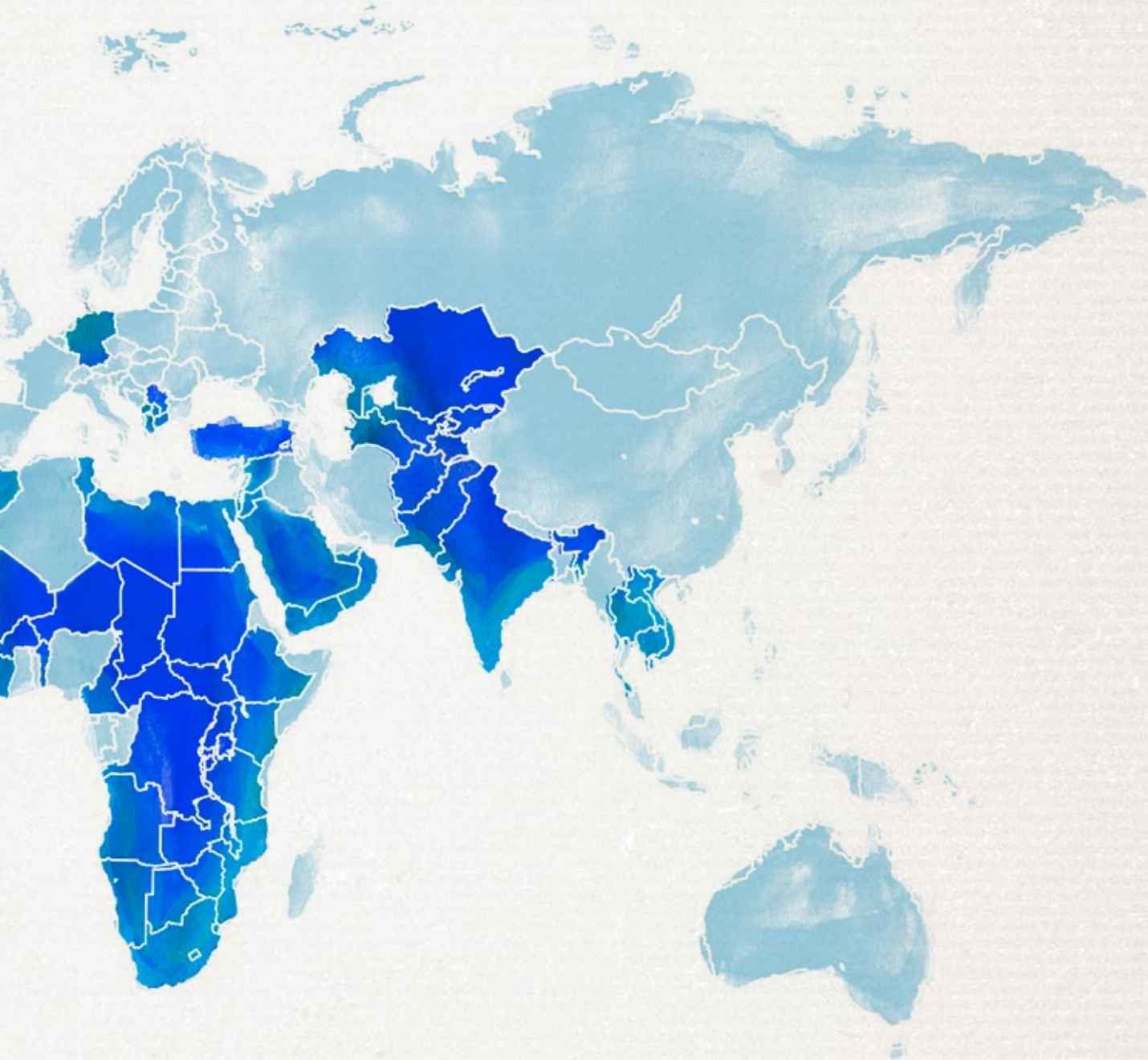
PROJECTS

PROJECTS



GIZ PARTNER COUNTRIES IN THE WATER SECTOR

73 PROJECTS IN MORE THAN 50 COUNTRIES
COMMISSION VOLUME: APPROXIMATELY EUR 495 MILLION



Afghanistan
- Water Supply Improvement Programme

Africa - Regional
- Support to Transboundary Water Cooperation in the Nile Basin
- African Water Stewardship Initiative
- Supporting the Congo Basin Commission CICOS in the Regulation of Inland Navigation and Management of Transboundary Water Resources
- Sustainable Water Management in the Chad Basin Programme
- Transboundary Water Management in the SADC
- Supporting the Autorité du bassin du Niger (ABN)

African Union
- Supporting the Water Directorate of the African Union
- Support to the African Union Commission in the Reform of the Institutional Architecture for Infrastructure Development

Albania
- Water Sector Reform Programme

Asia Regional
- Adaptation to Climate Change through Climate-Sensitive Flood Management
- Transboundary Water Management in Central Asia
- Integrated Resources Management in Asian Cities: the Urban Nexus
- Mekong River Commission: Adaptation to Climate Change through Climate-sensitive Flood Management in the Lower Mekong Basin
- Mekong River Commission: Support to the MRC Initiative on Sustainable Hydropower (ISH)
- Mekong River Commission: Support to Measures for the Adaptation to Climate Change in the Mekong Region
- Mekong River Commission: Supporting the MRC with the Implementation of its Organisational Reform

Benin
- Support of the Water, Sanitation and Hygiene Sector in Benin

Bolivia
- Programme for Sustainable Drinking Water and Sanitary Services in Sub-urban Areas

Burkina Faso
- Drinking Water and Sanitation Programme in Small and Medium-Sized Towns

Burundi
- Water Sector Programme
- Reducing the Impact of Climate Change on the Availability of Water and Land Resources

Democratic Republic of Congo
- Support to the Water Sector Reform

Egypt
- Support to Transparency and Accountability in the Egyptian irrigated Agricultural Sector
- Water Supply and Wastewater Management
- Water Resources Management Reform Programme
- Agriculture Water Productivity for Climate Change Adaptation

Germany / Global Programmes
- International Water Policy
- Sustainable Sanitation
- Strategic Alliance for Water Loss Reduction (VAG, Sewerin, Hamburg Wasser)
- Water and Wastewater Companies for Climate Mitigation (WaCCliM)

India
- Support to the National Urban Sanitation Policy

Jordan
- Management of Water Resources Programme
- Promotion of Training to Improve Efficiency in the Water and Energy Sector (TWEED)
- Decentralized Wastewater Management for Climate Change Adaptation
- Decentralized Wastewater Management in Host Communities
- Decentralized integrated Sludge Management
- Improvement of Communal Water Efficiency through Cooperation with Religious Authorities
- Support of Good Governance in the Water Sector through Installation and Implementation of a Communications Strategy
- Water Wise Plumbers in Host Communities

Kenya
- Development of the Water and Sanitation Sector Programme

Mali
- Sustainable Water Supply and Sanitation in Mali

MENA – Regional
- Adaptation to Climate Change in the Water Sector
- MENA WANT – Strengthening the MENA Water Sector through Regional Networking and Training
- MENA – Regional Cooperation in the Water Sector (OSS)
- MENA Wastewater Management (SWIM Programme)

Morocco
- Support of the Operationalization of the National Wastewater Programme for Rural Areas
- Integrated Water Resources Management (IWRM)

Nicaragua
- Improving Efficiency in the Drinking Water Supply and Sanitation Sectors

Pakistan
- Water Efficiency in the Textile Industry

Palestinian Territories
- Water Programme
- Adapting to Climate Change in the West Bank

Peru
- PROAGUA Drinking Water and Sanitation Programme
- Adaptation of Water Resource Management in Urban Areas to Climate Change with Private Sector

Saudi-Arabia
- Saudi Sahel Water Project – Phase IV
- MOWE – Deployment of Experts
- Study and Design of Utilization of Dam Water in various Regions of the Kingdom

South Sudan
- Urban Water and Sanitation Sector Development

South-East Europe – Regional
- Climate Change Adaptation in the Western Balkan
- Conservation and Sustainable Use of Biodiversity at Lakes Prespa, Ohrid and Shkodra/Skadar

Tanzania
- Development of the Water Sector

Thailand
- Extreme Event Management

Tunisia
- Agricultural Use of Sewage Sludge and Wastewater
- Rural Development – Integrated Water Resources Management (IWRM)

Uganda
- Reform of the Urban Water and Sanitation Sector

United Arab Emirates
- Consultancy Services for Artificial Recharge and Utilization of the Ground Water Resource in the Liwa Area

Vietnam
- Wastewater and Solid Waste Management for Provincial Centres
- Flood Management and Drainage of Medium-Sized Cities

Yemen
- Institutional Development of the Water Sector

Zambia
- Water Sector Reform Programme
- Integrating Climate Change in Water Resources Monitoring and Planning

Zimbabwe
-Municipal Water Supply and Sanitation

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