

Sustainable Utility Partnerships



German Water
Partnership

Solutions you can trust.

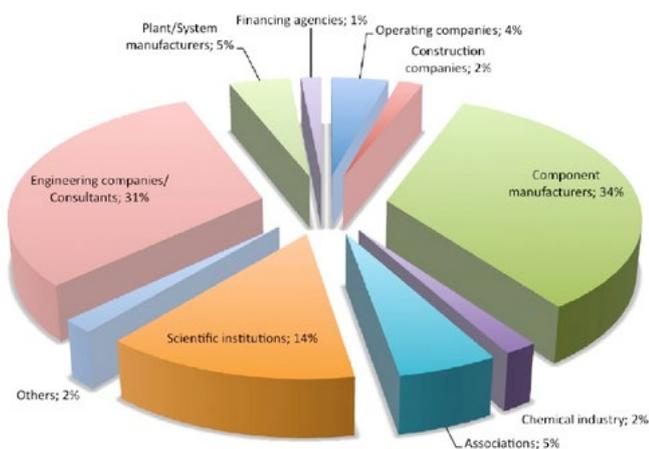
German Water Partnership

German Water Partnership (GWP) is a joint initiative of the German private and public sector. The network includes:

- › Commercial enterprises
- › Governmental organizations
- › Non-governmental organizations
- › Scientific institutions
- › Water-related associations
- › Water utilities

GWP is supported by five federal ministries. It is the central coordination and contact office of the German water sector. It makes German operational engineering know-how and experience in the water sector available to partners all over the world. GWP consists of regional sections and working groups. For more information: www.germanwaterpartnership.de

Members of GWP as of 2017



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Foreword

In 2050 around 90 % of the global population will be living in urban areas. Cities are important actors for sustainable development. Yet their utilities often cannot provide the sound infrastructure services that are required. This brochure introduces the concept of “Sustainable Utility Partnerships” (SUP).

SUPs use the know-how of German utilities – organized mostly as public institutions – to support local utilities in Africa, Asia and Latin America. Addressed to decision makers, utilities and the interested public alike, this brochure highlights examples of SUPs and provides an overview of the opportunities and challenges associated with the issue.

“No investment without qualification” is a leading principle of the German Capacity Development Strategy¹ developed by five federal ministries and German Water Partnership. This principle is true in general and for utilities in particular. Many utilities struggle with providing and maintaining infrastructure: they lack the knowledge and/or personnel to build up sufficient organizational structures, use water efficiently, treat and return it adequately, communicate properly with customers – the challenges faced are manifold. Through Sustainable Utility Partnerships, German Water Partnership wants to make a contribution to coping with these challenges.

German Water Partnership is a strong private-public network supporting the Sustainable Development Goals. It is organized in regional sections and working groups to coordinate technology and know-how transfer with partner countries. With Sustainable Utility Partnerships, GWP aims to contribute to a more sustainable development, taking into account the specific strengths and competences of the German model of municipal services.

Julia Braune, Managing Director GWP



¹ Together with its partner ministries, German Water Partnership has formulated a cross-divisional strategy for capacity development in the water sector. Its aim is to achieve coordinated action in planning and executing measures and thus produce significant added value for all involved. For more information: www.germanwaterpartnership.de › Informationen › Publikationen › Entwicklung braucht Wasser

1. Sustainable Utility Partnerships – background and aim of this brochure

This brochure emphasizes that water utilities² are key in ensuring sustainable development, especially in developing or emerging countries. It illustrates the GWP working group's approach to sustainable utility development and raises awareness for the need of new ways of financing sustainable utility partnerships.

Ensuring efficient operation is essential for sustainability ...

Merely setting up water infrastructure and making financial investments are not what drives sustainable development. It's ensuring that water utilities can perform well that is most vital. Furthermore, it's important for health, environment, food production and agriculture as well as for economies and industrial development that water utilities provide quality services in an affordable and ecologically sustainable manner and have sufficient and predictable resources.

... and for improving living conditions

We need to bundle our strengths and expertise to improve living conditions in partner countries – above all supporting local decision makers to improve water infrastructure. With this brochure we would like to underline the importance of partnerships between utilities to reach these goals. German Water Partnership has developed an approach of “Sustainable Utility Partnerships” that cooperates and aligns with other German and international initiatives to strengthen utility development worldwide.

Enabling the environment

Supporting water utilities as central actors for sustainable operation of water infrastructure and reliable service delivery is the key to success. As an international organization, the Global Water Operators Partnership Alliance (GWOPA) supports and enables utility partnerships around the world. Donor agencies supporting the Water Operators Partnerships' practice (WOP) include USAID, OFID, World Bank, and IADB.

These and others supported WOPs with an estimated 47 million USD in the last few years. The EU also supports strengthening water utilities. Under the 10th EDF ACP-EU water facility, 23 million euros were allocated to capacity development partnerships in the ACP water and sanitation sector. Of the 32 approved projects, 23 focused on water operators partnerships. Sustainable water utilities are also important actors within the portfolio of the German Federal Ministry for Economic Development and Cooperation (BMZ): Nearly 280 water utilities in 20 countries have been supported by German technical cooperation since 2004.

How to get involved as an international partner utility?

The first step is to build interest and support within your utility, especially support of the management. The GWP working group “Operation and Capacity Development” can assist you with information material and presentations to raise awareness about SUPs.

² The term 'water utility' includes both water and/or sanitation utilities.

³ www.gwopa.org

2. The working group “Operation and Capacity Development”...

... envisages high-quality operation of water utility infrastructure worldwide through effective capacity development and know-how transfer. Members of the GWP working group develop methods, projects and implementation models for sustainable utility development. Thereby partner utilities can benefit from the longstanding expertise of German public and private utilities in sustainable operation.

Moreover the working group supports German utilities⁴ to engage in know-how transfer. Additionally, it facilitates expert dialogues within the German water sector and with international organizations. Last but not least, working group members implement sustainable utility partnership approaches and other capacity development projects individually.

Three areas of action for the working group:

1. Setting up and supporting SUPs from the cradle to the grave is the core activity. SUPs are characterized by long-term peer-to-peer support amongst utilities. They deal with all kinds of issues in the daily life of a utility: technical questions like non-revenue-water, political questions like tariff development, questions of bookkeeping and human resources development.
2. Engaging and involving private sector partners at the point where their know-how, technological innovation and engagement are needed
3. Getting more German utilities on board to let partners benefit from their specialized know-how. The ultimate goal is to build a growing pool of German utilities, with their know-how and experts to be included in SUPs.

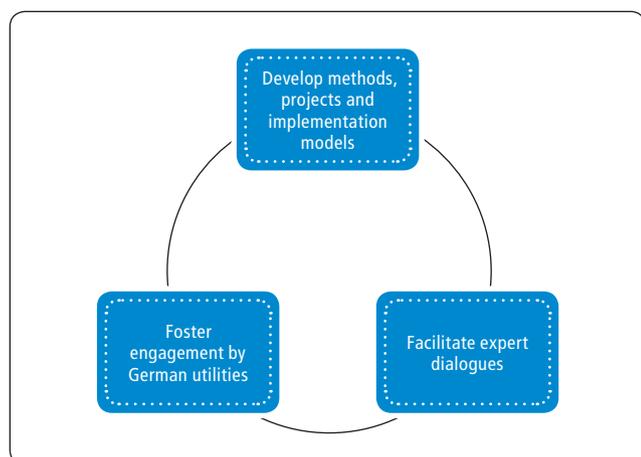


Figure 1: Tasks of the GWP working group “Operation and Capacity Development”

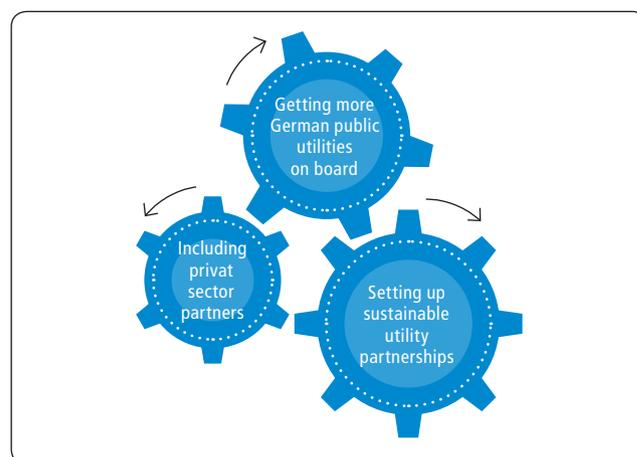


Figure 2: Areas of action of the GWP working group “Operation and Capacity Development”

⁴ In this brochure the term ‘utility’ is used for public and private utilities as well as for operating companies in the water sector.

3. How SUPs work

Sustainable utility partnerships envisage high-quality operation of water utility infrastructure through effective capacity development and know-how transfer on a peer-to-peer basis.

Principles

1. Knowledge exchange, know-how transfer and personnel development → leading to mutual benefit
2. Peer-to-peer collaboration
3. Long-term focus
4. Linking technical and non-technical aspects
5. Commitment of involved partners
6. Respect, confidence, acceptance and interest for water utilities in other contexts

What is special about the concept? SUPs:

- › Harness the skills and knowledge within a German utility to build the capacity of a partner utility that is interested in assistance or guidance
- › Bring together skilled utility experts from German and local partners (engineers, business men, craftsmen, operators ...) who know what they're talking about from practical experience → this is a core purpose of SUPs
- › Assist partner utilities in coherent decision-making related to human and financial resources and technical issues
- › SUPs are well suited to accompany investment measures in the water sector.
- › Target towards safe, long-lasting and sustainable operation and maintenance of utilities infrastructure
- › Consider water utilities as a holistic system – a single aspect such as non-revenue water reduction cannot be regarded as a standalone process
- › Allow for integration of different infrastructure sectors besides water such as energy, wastewater, telecommunications, waste ... (see figure 4)
- › Promote the Sustainable Development Goals (SDGs), in particular SDGs 6, 11 and 13 (see figure 5)

Examples for interventions

SUP interventions can be either on a technical or non-technical level, e.g. commercial utility management, human resources, or organizational management.

Technical areas of application:

- › Energy efficiency and pumps
- › Asset management and GIS
- › Hydraulic modelling
- › Technical water loss reduction and leak detection
- › O&M process optimization (preventative maintenance, longer lifetimes ...)
- › Water quality (laboratories, quality management systems ...)
- › Water treatment optimization and chemical reduction
- › Optimization of existing sanitation systems and wastewater treatment plants

Non-technical scopes of action:

- › Commercial water loss reduction
- › Human resource management
- › Organizational and institutional accompaniment
- › Billing efficiency and customer management

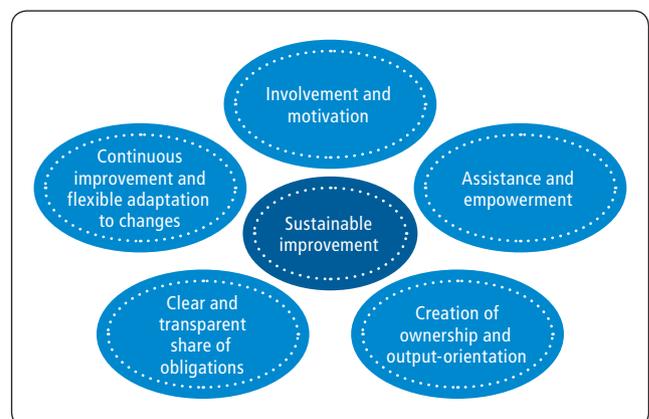


Figure 3: Aspects of SUP implementation

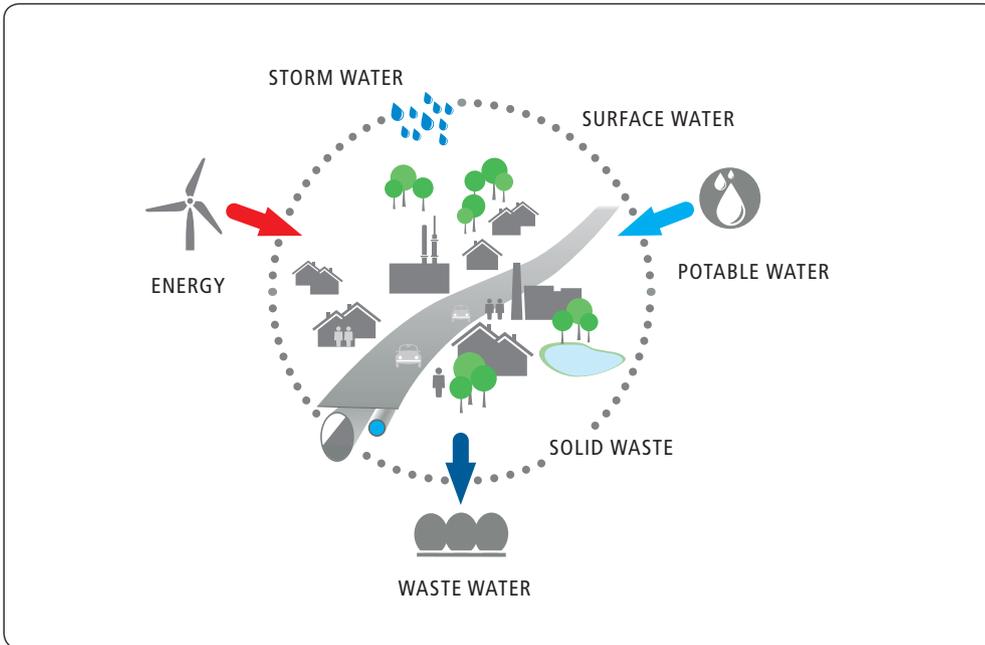


Figure 4:
Integration of additional
infrastructure sectors

The SUP approach is adapted to the needs of each partner utility, depending on the local circumstances. The approach includes elements such as:

- › Hands-on capacity development through direct on-the-job training
- › Study trips and job-shadowings
- › Coaching and mentoring
- › Theoretical training sessions
- › Defined performance indicators for which implementation teams are responsible

Close collaboration between teams of experts

An SUP project may include establishment of teams with experts from German and local partner utilities that are responsible for their intervention field:

- › Through training workshops and on-the-job training during short-term missions involving German utility experts
- › Through backstopping and peer-to-peer coaching via Skype, WhatsApp, email, etc.
- › Through creation of ownership for the initiatives at all levels of the local utility

6 CLEAN WATER AND SANITATION



Ensure availability and sustainable management of water and sanitation for all.

11 SUSTAINABLE CITIES AND COMMUNITIES



Make cities and human settlements inclusive, safe, resilient and sustainable.

13 CLIMATE ACTION



Take urgent action to combat climate change and its impacts.

These SDGs are only achievable if municipalities, local government authorities and their communal actors, such as the water service providers (utilities) are enforced!

Figure 5: SDGs fostered by the SUP approach

4. Examples for SUP approaches

"Let's unlock the hidden treasure of longstanding know-how in German utilities for international projects. In our projects we see the impacts: with transfer of operational experience, effluent standards could be met to a degree of >95%."

Christian Günner, Director for Systems Development, HAMBURG WASSER

Operational assistance for improved and sustainable performance of wastewater services

Jordan

Namibia

Technical support, operational optimization and know-how transfer for municipal employees on a highly developed WWTP

A sustainable concept has been created and implemented for the reuse of treated wastewater for agricultural purposes in a small village.

"Local processes, resources and experiences – that's what we are good at because we are familiar with it from our home utility. Whether it's leak detection or other issues in the life of a utility – we face the challenges as they arise."

Jürgen Wummel, Managing Director, Sachsen Wasser GmbH

Assistance for improved service delivery – Advice, coaching and training

Georgia

South Africa and India

Supporting development of young people in the areas of urban water management/ wastewater treatment and environmental protection

"We 'live' the German CD strategy in the water sector: 'No investment without qualification.' In Bremen we train and support decision makers from our partner countries and thus the next generation of water experts."
Peter Fahsing, Sewage Department, hanseWasser Bremen GmbH

"Infrastructure does not work without utilities. Cities depend heavily on utilities that provide quality services – in terms of better health, environment and economies."

Eberhard Oehler, Managing Director, Stadtwerke Ettlingen GmbH

First aid measures for rehabilitation of water supply systems, ½ year after 9/11

Afghanistan

Vietnam

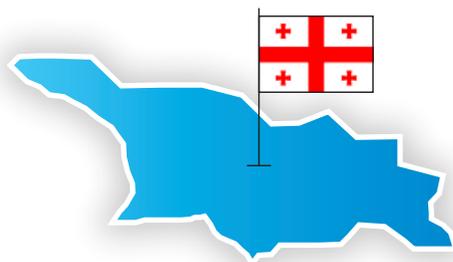
Vocational training for professionals in the wastewater sector

"Our aim is to implement hands-on projects. We developed the 'specialist in wastewater technology' – with stable employment opportunities in the local job market. That's a step forward to ensuring that water utilities perform well with trained staff."
Gunda Röstel, Managing Director, Stadtentwässerung Dresden

Assistance for improved service delivery: Advice, coaching and training

Tiflis, Georgia ↔ Leipzig, Germany

United Water Supply Company of Georgia LLC ↔ Sachsen Wasser GmbH



United Water Supply Company of Georgia (UWSCG) is one of three water and wastewater utilities in Georgia and supplies water and sanitation services to 50% of the population. Through the partnership under a management contract frame, UWSCG aimed to strengthen its management and operating efficiency.

Qualified and experienced functional specialists assisted UWSCG for improved service delivery in the following key areas:

- › Operational services: water production, water transport, distribution, leak reduction
- › Commercial services including billing, income collection
- › Customer services, customer complaints, customer satisfaction
- › Institutional re-engineering, change management, internal accountability mechanisms and organizational effectiveness
- › Financial management, accounts, revenue and expenditure management & business planning
- › Information management, analysis and control, key performance measurement and benchmarking, computer-based benchmarking tool providing management information of key performance indicators (KPIs)
- › Human resources management, instituting rewards, incentives and performance appraisal systems

Activities included the development of standard operating procedures, on-the-job and practical training as well as implementation support for adopted procedures and change processes:

- › About 100 training events were held throughout the country
- › 43 standard operating procedures were developed and introduced
- › An institutional restructuring plan was developed to introduce organizational change
- › An asset management system was introduced and integrated into the existing IT
- › A benchmarking system was introduced comparing performance levels of more than 50 water utilities covering 31 KPIs
- › International accounting and reporting standards were introduced
- › Non-revenue water actions were performed providing additional income, i.e. in Borjomi with 165 TGEL per year

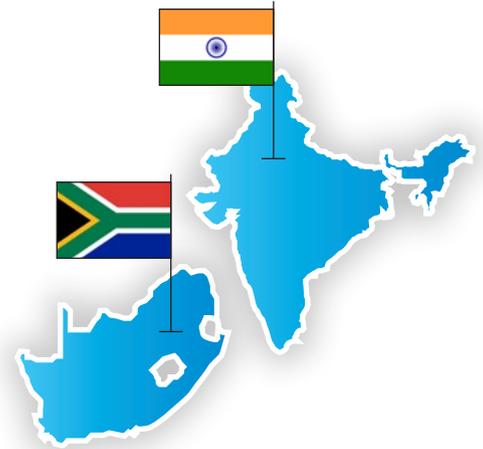
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Supporting development of young people in the areas of urban water management/wastewater treatment and environmental protection

Durban, South Africa; Shimla & Bangalore, India ↔ Bremen, Germany
Municipal Water Service providers of the cities ↔ hanseWasser Bremen GmbH



hanseWasser Bremen GmbH has been involved in international partnerships since 2010. The utility offers training for young employees from Germany, other countries and partner cities of Bremen in cooperation with:

- › Borda – Bremen overseas research and development association
- › econetur – a non-governmental organization for sustainable projects
- › Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

Furthermore, hanseWasser provides training to participants and guests invited by the German Federal Ministry for Economic Cooperation and Development, focusing on the exchange of know-how in the fields of sewer systems and wastewater treatment. In particular the issues of efficiency, reorganization and decentralized wastewater treatment systems are discussed. The extension of wastewater systems in the context of growing urban settlement areas is part of the training program.

In this context employees of hanseWasser have also been invited to discuss their experiences with their colleagues in Durban and to present a special trainee program for staff of control centers and an energy efficiency concept to minimize energy demand of wastewater treatment plants. In return, delegations from Shimla, Windhoek (Namibia) and Durban have visited the city of Bremen and the utility itself.

Examples for the exchange activities are:

- › A visit from colleagues from eThekwin Water and Sanitation, Durban
- › A period of training for an employee from hanseWasser working for eThekwin Water and Sanitation, Durban
- › An exchange of know-how and experience through several visits from eThekwin Water and Sanitation, Durban
- › A period of training at hanseWasser for a civil engineer from Bangalore
- › A delegation from Shimla received an insight into the transport and treatment of urban wastewater in Bremen.
- › A delegation from Windhoek visited hanseWasser and took part in discussions about wastewater treatment systems for industrial areas.



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Operational assistance for improved and sustainable performance of wastewater services of the YWC

Greater Irbid, Jordan ↔ Hamburg, Germany

Yarmouk Water Company (YWC) ↔ HAMBURG WASSER/CONSULAQUA (CAH)

The Yarmouk Water Company (YWC) provides its water and wastewater services to four governorates in the northern region of the Hashemite Kingdom of Jordan (Irbid, Mafrq, Ajloun and Jarash), supplying water services to around 300,000 and wastewater services to around 100,000 subscribers. Since the beginning of 2016, HAMBURG WASSER/CONSULAQUA has been engaged in supporting the YWC in the operation of their wastewater infrastructure.

After the first year of operation of the Wastewater Treatment Plant (WWTP) Wadi Shallalah, the knowledge transfer to YWC and the empowerment to run the plant independently showed major shortcomings. CAH was assigned by Kreditanstalt für Wiederaufbau (KfW) to conduct a fact-finding mission in order to assess the operational situation as well as prepare different scenarios for future O&M of the plant after termination of the private management contract. The analysis included among others a SWOT analysis of operational procedures (technical/non-technical), training needs assessment and workflow standards.

The outcomes and findings of this fact-finding mission have been used as basis for subsequent operational assistance at the WWTP Wadi Shallala – supported by GIZ. For this assignment, the consultant was permanently present on-site alongside an experienced senior WWTP operation expert. Further input was provided by utility experts from HAMBURG WASSER (e.g. SCADA), following a practical peer-

to-peer approach. Individual steps and main outcomes included:

- › Facilitation of transition period focusing on gradual and step-wise handover to future staff i.e. transfer of know-how to >15 on-site staff through on-the-job training
- › Jordanian effluent standards could be met to a degree of >95%.
- › Effective and efficient operation of the entire sludge line (digester, sludge dewatering)
- › Extensive training to operate combined heat and power generation (CHP) units efficiently
- › Preparation and update of a manual to be used by the operational staff to manage, operate and maintain the plant

Currently, the assistance to YWC has been further increased by KfW, and CAH is involved in the operation and maintenance for two other WWTPs in Greater Irbid - Central Irbid and Wadi Arab plants.



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First aid measures for rehabilitation of water supply systems, ½ year after 9/11

Kabul, Herat, Masar, Kundus & Faisabad, Afghanistan ↔ Ettlingen, Germany
Municipal water service providers of the cities ↔ Stadtwerke Ettlingen GmbH



This project was initially founded by the German financing agency KfW and was implemented with personnel of water service providers of the cities of Kabul and Herat. It was implemented from 2002 to 2006. Afterwards the World Bank provided funding for a follow-up project that also included the regions of Masar, Kundus and Faisabad. The scope of the second project involved not only water supply but also reorganization of the national electricity supply company.

Craftsmen and management personnel of the water service provider of Ettlingen worked with colleagues of the local water service providers in Afghanistan for periods of up to three months each.

The main focus areas of the cooperation were:

- › Rehabilitation of the existing pumping stations, storage tanks and transportation network (design, construction and commissioning)
- › Training of operating personnel of water service providers for operation and maintenance of pumping stations (generators, pumps) and leak detection. During the cooperation between Herat and Ettlingen the water

losses were reduced from 70% to 20%, in Kabul they were reduced from 70% to 50%.

- › Reorganization of the structures of a unit for Commercialization of Afghanistan Water and Sanitation Activity (CAWSA) including installation of a company-owned training center
- › Assistance and accompaniment for public relations activities in the field of water usage and hygiene according to personal health situation

Even though currently no funding is available, the colleagues from Ettlingen are in contact and exchange with partners from Kabul and Herat in order to discuss technical issues and investment decisions.

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Vocational training for professionals in the wastewater sector

Hanoi, Vietnam ↔ Dresden, Germany

Vietnam Water Supply and Sewerage Association ↔ Dresdner Stadtentwässerung

Vietnam is one of the leading regions of Asia, showing vast economic, technical and social structural changes, significant economic growth and development successes in recent years. Vietnam aims to further develop the water sector including the qualification of personnel.

In this context a pilot vocational training program for specialists in wastewater technology has been established with various partners in Vietnam and Germany (especially GOPA). The utility Dresdner Stadtentwässerung is very engaged in the project:

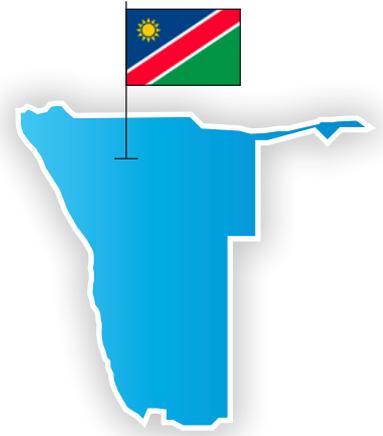
- › The project established a standard curriculum for specialists in wastewater technology and the vocational training program related to it. Meanwhile the Vietnamese government has acknowledged the 'specialist in wastewater technology' as an official job profile in the water sector.
- › Training-of-trainers and coaching for college teachers, company trainers and involved management personnel has taken place. Around 15 experts received this specialized training.
- › 11 trainers from VWSA were educated in wastewater technology courses.

- › A model for cooperative education (both practical and theoretical) was set up.
- › Certificates and control standards are under development. Several activities have been conducted to improve the societal acceptance of the vocational training model, e.g. an image campaign for vocational training in the area of water/wastewater.
- › The cooperation between the vocational school and the wastewater utility is enforced and teaching and training materials have been developed and tested.



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Technical support, operational optimization and know-how transfer for municipal employees on a highly developed wastewater treatment plant (WWTP)

Outapi, Namibia ↔ Essen, Germany

Outapi Town Council ↔ Emschergenossenschaft and Lippeverband

Darmstadt University together with the German Institute for social-economic research has created and implemented a sustainable concept for the reuse of treated wastewater for agricultural purposes in Outapi, a small village in the North of Namibia close to the Angolan border. The University is still taking care of the project. It contains a vacuum drainage system as well as a modern WWTP designed to clean the wastewater of 2200 inhabitants with an anaerobic reactor, a rotating biological immersion contactor, a micro-strainer and UV disinfection.

Emschergenossenschaft and Lippeverband support the Outapi Town Council (OTC) in the sustainable operation of the installed plant and systems. Their employees typically go to Namibia for 6 to 8 weeks and are chosen depending on the currently needed skills in Outapi. Most wanted is technical support/maintenance training, operational optimization and mainly know-how transfer in WWTP operation.

Upcoming next steps are the advanced training of the OTC employees and the establishment of WWTP neighborhoods that enable the local operating personnel to exchange their experiences and improvements.

Results:

- › The digester gas production rate was increased to 150%.
- › An electric generator was repaired.
- › The drainage-system connecting the municipal wash-house to the WWTP was repaired.
- › This enabled the WWTP to raise its capacity for 200 additional population equivalents.
- › The sewage lab was repaired and the operating staff was trained in microscopy.

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Abbreviations:

ACP	African, Caribbean and Pacific Group of States
BMZ	German Federal Ministry for Economic Cooperation and Development
BORDA	Bremen overseas research and development association
CAH	CONSULAQUA Hamburg GmbH
CD	Capacity Development
EDF	European Development Fund
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH
GWOPA	Global Water Operators Partnership Alliance
GWP	German Water Partnership
HW	HAMBURG WASSER
IADB	Inter-American Development Bank
KfW	Kreditanstalt für Wiederaufbau
NGO	Non-governmental organization
OFID	OPEC Fund for International Development
O&M	Operation and maintenance
ONEA	Office national de l'eau et de l'assainissement
OTC	Outapi Town Council
SDG	Sustainable Development Goal
SUP	Sustainable Utility Partnership
USAID	United States Agency for International Development
WOP	Water Operator Partnership
WWTP	Wastewater Treatment Plant



German Water Partnership

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