



People. Innovating. Sanitation.

BORDA e. V. is an expert NGO specialising in full-cycle decentralised sanitation. Together with our international network of more than 100 local partner organisations, we work in low-income communities and crisis areas worldwide to enable disadvantaged populations to access basic municipal services.

At the heart of our work stands the essential public services that are the prerequisites for creating and developing sustainable, liveable communities: water, wastewater, solid waste, basic sanitation and energy.

Supported by the



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and Development

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Needed now more than ever

As we write these lines, the world is still firmly in the grip of the coronavirus crisis. This applies in particular to the countries of the Global South in which BORDA is active. It is not yet clear how much COVID-19 has spread there and what consequences it will have. But what is clear is that this dangerous disease can only be sustainably combatted if there is a widely accessible supply of clean water and hygienic sanitation.



While this is not the only measure, it is a basic requirement for overcoming the pandemic and many other infection risks. The United Nations has laid down clean water and sanitation for all as Sustainable Development Goal 6, and this is exactly what BORDA has been working towards for many years.

How can we conserve scarce water resources and organise sanitation in low-income regions with intelligent concepts? This was the main topic of FSM5, the Fifth Conference on Faecal Sludge Management, held in January 2019 in Cape Town, South Africa. With faecal sludge treatment plants in Devanahalli and other Indian cities as well as in the Tanzanian metropolis Dar es Salaam, BORDA has done pioneering work in urban management of sanitation with local partners. So, it was only logical that BORDA was one of the organisers of this international conference with several thousand participants. During FSM5, we launched the FSM Alliance together with other major organisations such as the Bill & Melinda Gates Foundation, as an attempt to mobilise global resources for this promising approach to sanitation.

South Africa was also the focus of the German Sustainability Award 2019, which Bremen received for its cooperation with its sister city

of Durban. The long-standing municipal cooperation between the two port cities was honoured for its implementation of climate and eco-friendly projects. This work also includes our joint projects with EWS, Durban's municipal water and sanitation utility, with whom we have successfully operated a research facility for decentralised wastewater supply for more than ten years.

The full spectrum of our activities on four continents is presented in this annual report. This work was made possible not only by our institutional donors such as the Federal Ministry for Development Cooperation (BMZ), but also by private donors and companies who generously supported us in 2019. We would like to thank you all from the bottom of our heart.

2019 was a year of change for BORDA, in which we also initiated a change in management. Our long-time managing director Stefan Reuter will leave BORDA in spring 2020. We wish him all the best as he takes on new professional challenges.

After years of rapid growth, it is now about consolidating our global operations. We feel committed to this goal as new management and we are pleased that we can rely on our proven team at Bremen headquarters and in 25 countries around the world.



Judith Ringlstetter
General Manager



Thorsten Reckerzügl
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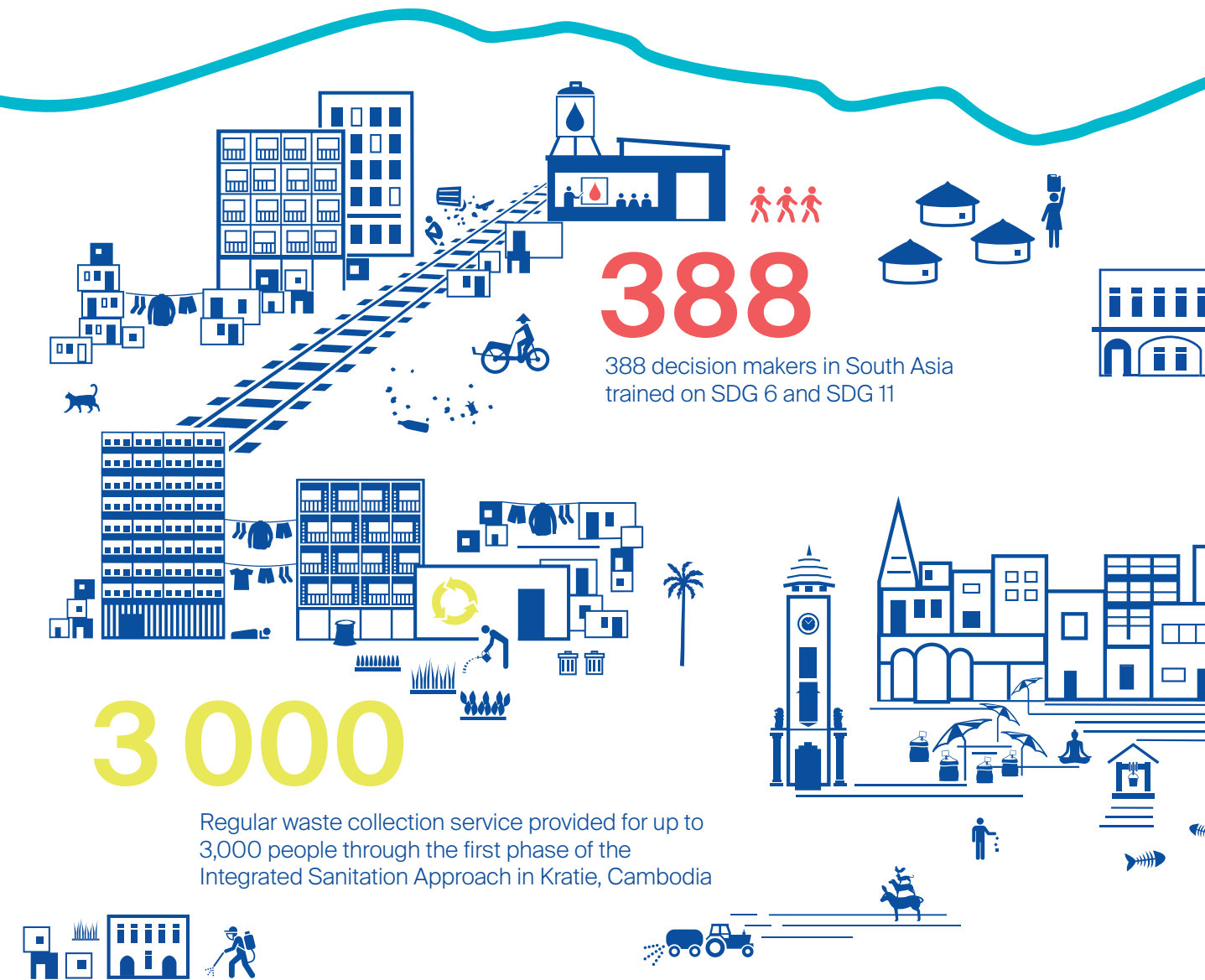
Highlights

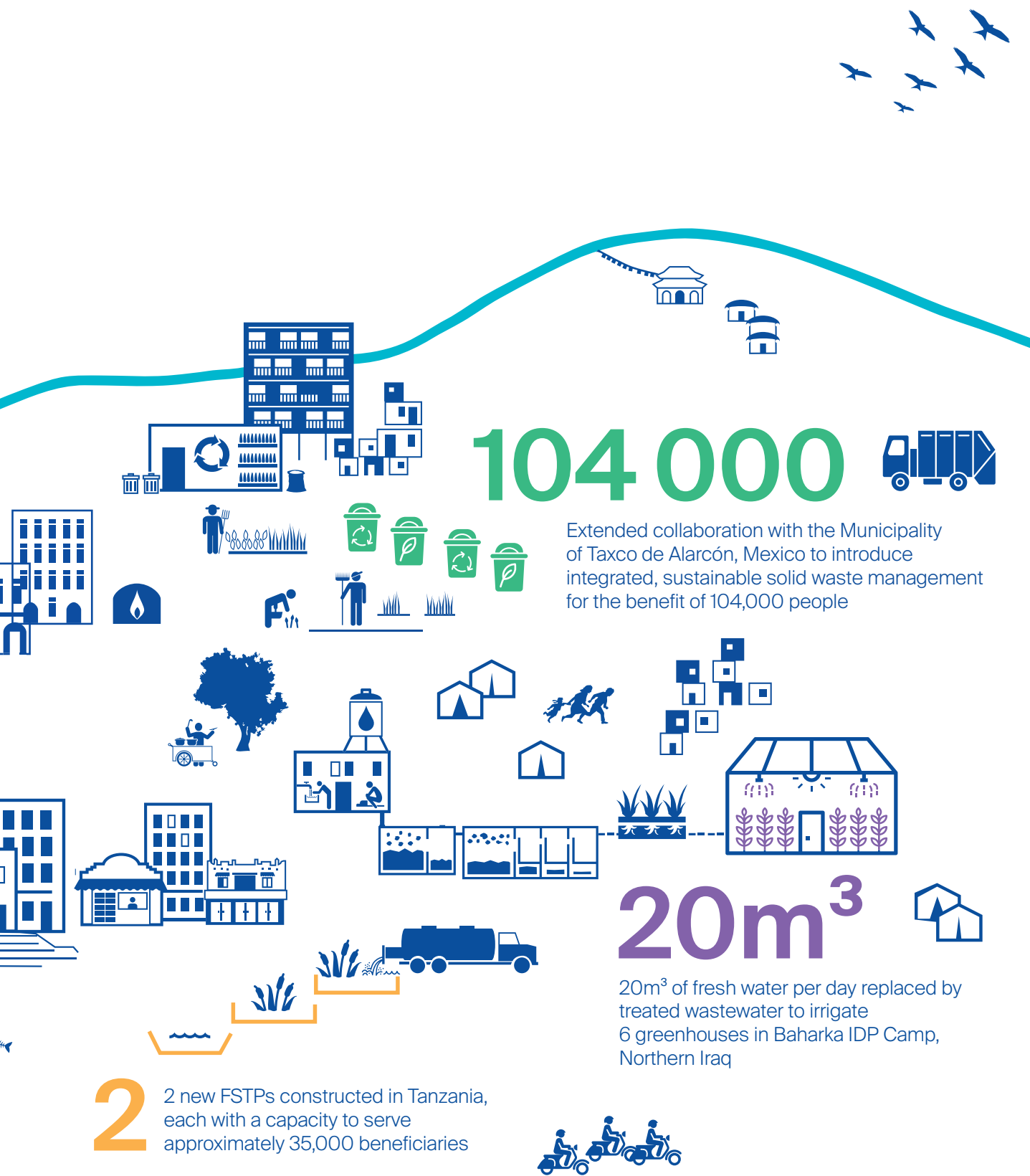
388

388 decision makers in South Asia
trained on SDG 6 and SDG 11

3 000

Regular waste collection service provided for up to
3,000 people through the first phase of the
Integrated Sanitation Approach in Kratie, Cambodia





Thank you to our donors

- ▶ Thanks to our individual and corporate donors, we were able to improve the lives of thousands of people by providing them with access to clean water and adequate sanitation.
- ▶ Your donation supports our work on the ground and helps ensure that we can continue contributing to significant change in disadvantaged communities around the world.
- ▶ We look forward to your continued support in future.
- ▶ Donate here to support our work:
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BIC: SBREDE22
- ▶ For more information and questions regarding your donation please contact donate@borda.org



Clean water in food production – with support from Henry Lamotte Food

"Everything we eat needs clean water to grow."

In summer 2019, BORDA received a generous donation from Henry Lamotte Food GmbH. Lamotte is one of the European food industry's major suppliers of fruit, pulses and fish.

"Sustainability has always been part of our company philosophy since the foundation of our family business in 1925", says Maria Lamotte, Purchaser and Sustainability Manager at the heritage-rich Bremen company. "In the future, water management in agriculture and in food processing companies will become even more of a focus, and too little attention has so far been paid to the sanitation systems used by farmers and farm workers."

Going forward, Lamotte wants to work together with BORDA to develop social projects along the value chain.



Developing Septic Bags for emergency sanitation – with your support

In emergency camps, providing sanitation systems is an immense challenge. With no time and very little resources, camps cannot provide sufficient containment, storage and treatment of faecal sludge and effluent. Conventional septic tanks take too long to deploy, and existing pre-fab solutions are too bulky for storage and rapid transport. There is currently no sustainable, affordable and feasible sanitation solution on the market for immediate deployment in emergency camps.

In cooperation with Oxfam, BORDA is developing a new type of septic tank adapted to the needs of emergency camps: an innovative pre-fabricated Septic Bag made from a foldable membrane.

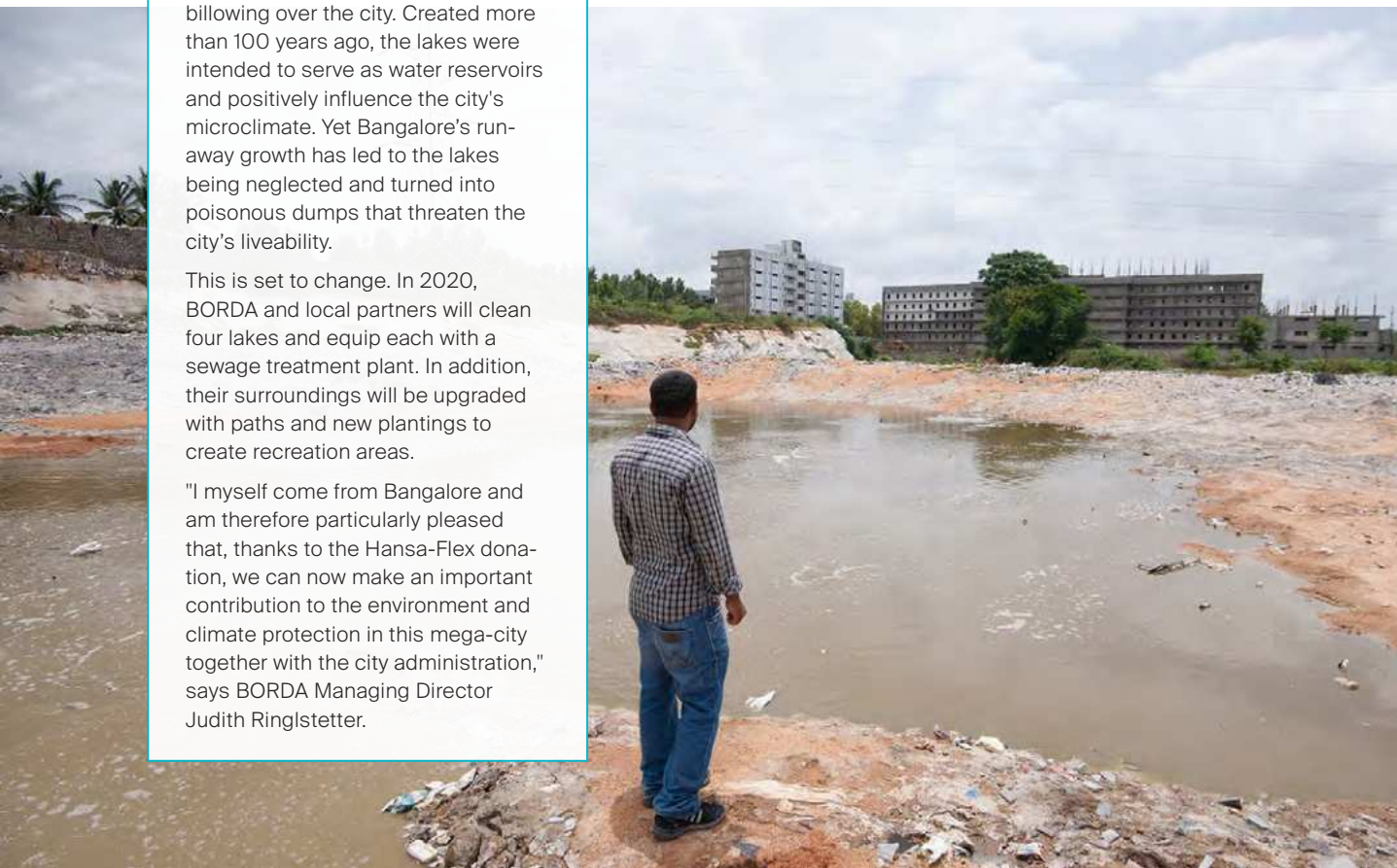
- ▶ Septic Bags can be warehoused in advance and quickly flown to emergency locations.
- ▶ Septic Bags can be set up within a day by non-specialists.
- ▶ Successful prototype: tested in October 2018 at hanseWasser, Bremen's waterworks.

Rejuvenating urban lakes in India – with support from Hansa-Flex

With a generous 2019 Christmas donation, Bremen-based Hansa-Flex again extended its support to a BORDA project, this time for rejuvenating lakes in Bangalore, India. In recent years the metropolis has made headlines worldwide as the "City of Burning Lakes", where some lakes are so polluted that they catch fire and send smoke plumes billowing over the city. Created more than 100 years ago, the lakes were intended to serve as water reservoirs and positively influence the city's microclimate. Yet Bangalore's run-away growth has led to the lakes being neglected and turned into poisonous dumps that threaten the city's liveability.

This is set to change. In 2020, BORDA and local partners will clean four lakes and equip each with a sewage treatment plant. In addition, their surroundings will be upgraded with paths and new plantings to create recreation areas.

"I myself come from Bangalore and am therefore particularly pleased that, thanks to the Hansa-Flex donation, we can now make an important contribution to the environment and climate protection in this mega-city together with the city administration," says BORDA Managing Director Judith Ringlstetter.





LAS AMÉRICAS



Water and sanitation access through training, participatory approaches & national networks

To bring WASH services to rural and urban areas in our three intervention countries, BORDA Las Américas has focused on delivering i-DELSA* training for beneficiaries, partners, students and our own technical teams; diversification of funding sources to include foundations

and municipalities; and dissemination of our approach through 12 national and international events. This has increased the visibility of our work and led to BORDA Las Américas becoming a go-to source for technical information at water and sanitation events and within sector networks. A highlight in 2019: BORDA Las Américas became the focal point of the SuSanA Latin America Chapter in Mexico.

In Cuba, the project for the development of a territorial plan for integrated, decentralised water and sanitation solutions in the Havana Bay tributary basin received a two-year extension from the Cuban government. Decision makers, beneficiaries and partners were trained on BORDA's project approach and key elements, and detailed designs for all components of our project at the Tamara Bunke farm were created.

In 2019, a series of water sector-related events were held in Havana under the CUBA-GUA umbrella. As event sponsor, conference host and exhibitor, BORDA Las Américas presented our integrated and decentralised water and sanitation approach.

In Mexico, 2019 saw the completion of various projects. At Miguel Hidalgo Elementary School in Camotepec, Puebla we delivered an integrated DEWATS (including biogas plant, anaerobic reactors and wetland) benefitting 2,402 people.



Our i-DELSA project in Taxco de Alarcón renewed its collaboration agreement with the new municipal administration, which finances projects in three communities. Data collection, surveys and guides were conducted on water, sanitation and solid waste management in 11 communities, fueling the municipality's strategic plan for sustainable water and sanitation service provision.

With Fondo para la Paz, BORDA designed and built two new community canteens at rural primary schools in El Corozal and La Concepción with MXN \$3,000,000 contributed by ALSEA foundation. The canteens benefit 1,000 residents and 160 children, who can now enjoy dining rooms with sustainable and environmentally sound basic water and sanitation services (DEWATS, rainwater collection system and modern dry toilets). Community committees have been trained to operate and maintain the canteens.

Rainwater Collection System, Drainage Network and DEWATS in Hueymatla, Mexico

As part of the integrated water and sanitation strategy in the San Juan River microbasin of Taxco de Alarcón, BORDA implemented a project to demonstrate the i-DELSA approach to the residents of the microbasin's 11 communities. Focusing on the urban center of Hueymatla, the approach integrates a rainwater collection system (430,000L/year) for consumption, cleaning and toilet flushing, and a DEWATS with a capacity of 4,000L/day that reuses treated wastewater through controlled infiltration.

Duration:
August 2019 – December 2019
Budget: 50,0000 EUR
Partners: Taxco de Alarcón Municipality, CAPAT, Pueblo Sabio



In Nicaragua, BORDA welcomed three new member organisations to the Nicaragua Water and Sanitation Network (RASNIC), and participated in the preparation of a technical-didactic training programme within the framework of Nicaragua's National Agenda for Water, Sanitation and Hygiene Universal and Permanent Access. BORDA was also a member of the technical planning commission for NicaraguaSAN 2019, the latest in a series of sanitation forums organised by RASNIC.

In León, Wiwili and San Rafael del Norte we secured the local governments' commitment to i-DELSA projects and conducted two baseline studies. As vice-coordinator of RASNIC, BORDA collaborated on these studies with two national, one regional and two German universities. BORDA's technical assistance to the municipal slaughterhouse of León, with the collaboration of the UNI's PIENSA department, continued uninterrupted.

Our collaboration with Nuestros Pequeños Hermanos (NPH) Foundation was strengthened by the preparation of a strategic plan for sustainable water and sanitation management at an NPH boarding school. This project aims to improve the children's quality of life and serve as an example of environmental conservation, based on a comprehensive management of the school's water and sanitation. With World Vision and NPH, BORDA developed a set of technical, playful guides on the care of river basins, drinking water supply, sanitation and hygiene, and held training sessions for students and staff.

In collaboration with the government, the private sector, academic institutions and communities, BORDA provided inputs on Nicaragua's national indicators for achieving SDG 6. We also coordinated two national forums, a congress on water and rural sanitation, and four technical exchanges, with a total of 1,420 participants.

* i-DELSA is a German acronym referring to integrated decentralised solutions for settlement hygiene and wastewater management



BORDA's regional network relies on tools that have facilitated the dissemination of our i-DELSA concept at national and regional levels, including sector organisation mapping, a communication and networking portal, potential allies mapping, and identification of professionals working within the network. Our participation in numerous international and regional events—including LatinoSan, NicaraguaSAN, CUBAGUA, FSM5 and World Water Week—has allowed us to promote this i-DELSA approach to wider audiences.



Baseline Study in San Rafael del Norte Municipality, Jinotega

BORDA Nicaragua in alliance with Water for People and the Municipality of San Rafael del Norte carried out a community survey of 365 homes (3,704 inhabitants) in seven neighbourhoods. These communities suffer from very inadequate sanitation, with latrines in poor condition, wastewater discharged without treatment into the environment, and authorities who do not deal with these problems. The survey generated a baseline for the formulation of a comprehensive project that will enable local communities to improve their quality of life through better hygiene and more sanitary conditions.

Duration: October 2018 – March 2019

Budget: 11,000 EUR

Partner: Water for People





AFRICA

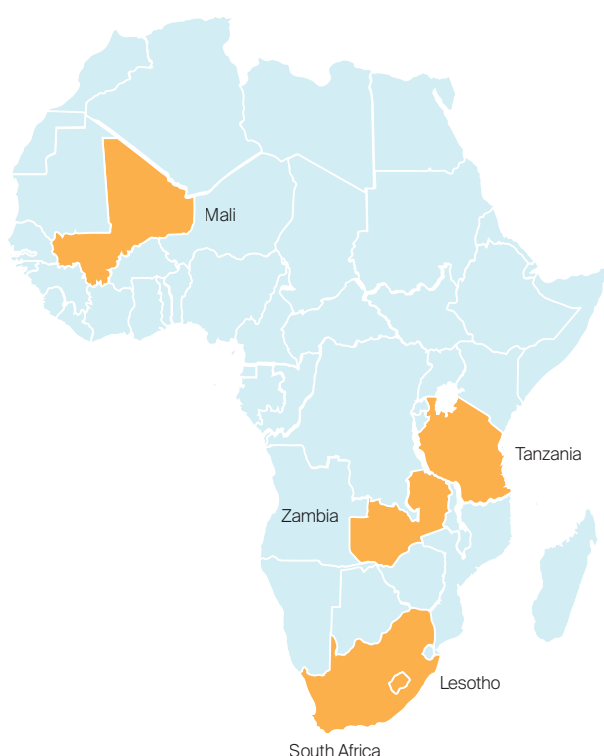
Supporting the creation of liveable cities in Africa

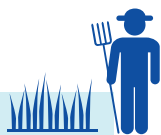
In many African cities, the majority of the population lives in informal, unplanned peri-urban areas with high population density, poor housing standards and a lack of basic public infrastructure and services. BORDA Africa's regional projects support measures for environmental and natural resource protection, adaptation to

climate change, and improvement of living conditions. In 2019, a highlight for BORDA Africa was our facilitation of pit emptying Skills Challenges at the FSM5 conference in Cape Town, South Africa and the ZAWAFE conference in Lusaka, Zambia, followed by the Skills Challenge winner's training in Lusaka.

In South Africa, BORDA supports municipalities in establishing decentralised sanitation schemes and promoting integrated sanitation solutions for peri-urban and urban areas. In 2019, we facilitated two successful Sanitation Breakfast seminars with partners from the Water Institute of Southern Africa and the University of KwaZulu-Natal, showcasing resource-oriented sanitation and South African sanitation innovation. Attendees were drawn from provincial and municipal governments, public utilities, academia, NGOs and the private sector. The Sanitation Breakfast seminar series is now known for bringing the South African sanitation sector together to discuss innovative sanitation technologies and approaches, and for promoting collaboration within the sector.

BORDA continued to operate and maintain the Newlands Mashu Demonstration and Research DEWATS in Durban in preparation for handing over the facility to eThekweni Municipality in 2020. We also supported research projects at the site related to optimising constructed wetlands for wastewater treatment and irrigation of various crops with treated effluent.





Transitional Aid for Food Security in Northern Mali

The resilience of Malians in the conflict-torn northern regions is at the centre of BORDA's newly awarded five-year programme. A lack of economic prospects fuels the disputes between different groups while climate change aggravates the conditions for agriculture. BORDA and its implementing partners are working with more than 50 local cooperatives to restore irrigation systems and create over 800 hectares of production areas for high-yield forage crops. Local seed banks, solar pumps, and access to markets help to provide more sources of income. A special component is the restitution of local and regional arbitration boards for the land conflicts that are often root causes of escalations.

Duration: 2019 – 2023

Donor: BMZ Transitional Aid

Budget: 2.9 million EUR

Partners: Association for the Development of Arid Zones (ADAZ), Harmonious Development in the Sahel (HDS), Network for Successful Decentralisation (RLD)



In Zambia, BORDA focusses on supporting strategic and sustainable structural development by providing input and validation for national sector coordination frameworks and strategic plans, and by contributing to the development and revision of national and provincial regulations for on-site sanitation (OSS), faecal sludge management (FSM) and solid waste management (SWM).

In 2019, we contributed to the development of national accredited training curricula on FSM and facilitated six trainings with about 100 participants representing local government authorities, commercial utilities, regulators and pit emptiers.

To aid in infrastructure development, BORDA Zambia completed the adjustment of engineering designs for two faecal sludge treatment plants (FSTPs) to be built in Lusaka under the Lusaka Sanitation Programme in accordance with the requirements of key stakeholders and donors. Construction is scheduled to begin in the first quarter of 2020.

In West Africa, BORDA formalised a partnership with Mali's National Directorate of Urbanism and Habitat to further facilitate technical assistance to and exchange with the Malian government on FSM and green spaces to create liveable neighbourhoods. A setback was experienced when Bamako's first-ever FSTP, designed by BORDA, couldn't be realised. With an adapted approach and new partners, we aim to implement two pilot FSTPs in 2020.

Continuing efforts focus on supporting our partner municipality in Bamako, Mali with an interactive, app-based environmental complaints and management tool that makes the response to WASH problems more efficient. We are also supporting demand-based professionalisation of Bamako's sanitation service sector through capacity development and equipment provision, targeted to the newly founded Association of Manual Latrine Emptiers.

At the 7th West African Clean Energy and Environment Conference in Ghana, BORDA held a workshop on city sanitation planning in collaboration with the Fraunhofer Institute IGB, discussing different approaches to treating wastewater and its potential for reuse.



FSTP Mburahati, Dar es Salaam.



In Tanzania, BORDA is focussed on developing an enabling environment for scaling up FSM in Dar es Salaam. Key sanitation sector stakeholders participated in BORDA-facilitated workshops, trainings and working groups, where they developed sustainable FSM solutions based on discussions of roles and responsibilities, standards, financial arrangements and technical options. Parallel to this, three FSTPs were in operation, along with emptying and transportation services, to aid in collecting data as a basis for developing sustainable, evidence-based cost recovery models.

In addition, BORDA Tanzania finalised the implementation of two more FSTPs designed to benefit 70,000 people, and set up a demo site to test the INNOQUA system of innovative wastewater treatment modules.

Beyond FSM, BORDA co-developed the ICLEI-funded INTERACT-Bio outreach programme, which aims to create general awareness of the benefits of nature in selected cities in Tanzania. An outreach team established cross-sector partnerships to set up real-scale demonstrations, including a new public garden at Nyerere Square in Dodoma that will be partially irrigated by treated greywater.

Faecal Sludge Management (FSM) Capacity Development for Dar es Salaam

BORDA Tanzania facilitated a series of workshops, trainings and working groups to support the development of an enabling environment for scaling up FSM in Dar es Salaam. The project helped to develop the basis for an inclusive and equitable approach to urban sanitation in Tanzania that recognizes the critical importance of sanitation in informal urban settlements. Representatives from public utilities, government authorities and the private sector were trained on how innovative off-grid solutions can provide affordable access to sanitation to low-income households. As part of the project, working groups were established to identify challenges and develop sustainable solutions.

Duration: January – August 2019

Donor: New Venture Fund (NVF)

Budget: 100,000.00 USD

Partners: Ifakara Health Institute (IHI), ATAWAS



WEST AND CENTRAL ASIA

Mainstreaming alternative sanitation solutions

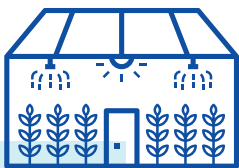
Our experience in West and Central Asia has enabled us to provide alternative sanitation services for marginalised communities across the region. We work towards making decentralised sanitation solutions a norm, which can only happen when solutions are coupled with awareness, experience, promotion and knowledge transfer.

Alternative sanitation solutions –Working hand in hand with national partners and local municipalities, groundwater contamination risks have been minimised through the implementation of sustainable sanitation solutions in both Jordan and Iraq. In Jordan, with GIZ cooperation, BORDA contributed to the design, implementation and operation of a decentralised wastewater treatment and biogas component for Feynan Ecolodge. The sustainable, low-maintenance solution developed

by BORDA uses indigenous plants and local filter material, and it ensures that the treated wastewater is safely reused to irrigate native trees at the ecolodge. In Northern Iraq, two greywater treatment systems were designed and constructed for a camp housing internal displaced persons (IDPs) and a camp for refugees. The treated wastewater replaces freshwater required to irrigate greenhouses serving the camps. Moreover, renovated WASH facilities and two DEWATS systems have benefited over 600 pupils at two schools in Shikhan, Nineveh. In 2019, over 12,000 people in Afghanistan benefited from seven new DEWATS facilities designed and implemented by BORDA in mosques, hospitals, institutional buildings and historic places. Together they have the capacity to treat more than 400m³ of wastewater per day which is reused for gardening and irrigation purposes.

Together with Swiss consulting company seecon, we have also moved closer to implementing a sustainable sanitation solution in Azraq, Jordan as part of a Swiss Agency for Development & Cooperation (SDC) funded project called Innovative Sanitation Solutions and Reuse in Arid Regions (ISSRAR). The project contributes to Jordan's National Water Strategy for minimising the country's dependency on non-renewable water resources and enhancing the efficiency of its wastewater reuse practices. The main objective of ISSRAR is to mitigate water scarcity by treating domestic wastewater and faecal sludge for safe reuse on agricultural land.





Treated greywater used for irrigating crops in IDP camp greenhouses

Greywater Treatment Solution for IDPs in Northern Iraq

In the Baharka IDP camp in Erbil, BORDA constructed a DEWATS which treats 20m³ of greywater daily from 298 caravans. The treated wastewater replaces the 20m³ of fresh water required to irrigate six existing greenhouses inside the camp on a daily basis, saving over 28,000 USD worth of trucked-in water per year. Furthermore, the treated wastewater contains important nutrients and functions as a natural fertiliser, so that no chemical fertilisers are required. The project also offers 10 IDPs employment opportunities in agriculture and vegetable production to help meet the camp's requirements for fresh food supply.

Duration: September 2018 – April 2019

Donor: German Federal Ministry of Economic Cooperation and Development (BMZ)

Budget: 85,000 USD

Partners: Baharka IDP camp management, Barzani Charity Foundation (BCF), ESD-Erbil Sewerage Directorate, National Environmental Protection Agency (NEPA)

Capacitating stakeholders – To address immense sanitation challenges in the region, BORDA has taken a key role in capacitating over 250 government engineers and water-sector practitioners in planning, designing, implementing, operating and maintaining decentralised wastewater treatment systems (DEWATS). BORDA has also developed tailor-made manuals for the construction, operation and maintenance of these systems.

In schools, BORDA has engaged with youth through WASH education and capacity building programmes. In 2019, 240 environmental engineers and students took part in capacity building programmes in Afghanistan to raise awareness of decentralised sanitation solutions and proper hygiene.

Building up regional networks and capacity – The SuSanA WANA Chapter has partnered with the Swiss NGO cewas Middle East to encourage regional water and sanitation journalism. National trainings in Lebanon and Northern Iraq exposed journalists to and built their capacity to cover water and sanitation challenges and potential solutions in these two countries. The SuSanA WANA Chapter also pioneered a

first-in-region programme to educate over 20 government engineers in using the “Shit Flow Diagram” (SFD), a tool used to monitor the sanitation service chain and identify its strengths and weaknesses—from containment to emptying, transport, treatment and safe disposal or resource recovery—to help provide adequate sanitation services in a given location.

The regional office in Jordan continued its “WE Talk: Water & Energy” series, which acts as a platform for different stakeholders (governments, NGOs, the private sector, practitioners, students) to discuss controversial topics around water and energy. During three different events, WE Talk participants discussed innovation, why water and sanitation matter, and behaviour change within the sector.

Extending our experience to more countries – Building on our past experience in Pakistan, in 2019 over 980 students and teachers from two schools in Quetta benefited from two new DEWATS facilities implemented by BORDA in their school compounds. Together these facilities have the capacity to treat 11.5m³ of wastewater per day which is then reused for garden irrigation. In addition, 91 engineers and masons in Quetta were capacitated in planning, design, implementation, and operation and maintenance of decentralised wastewater treatment systems.



Wastewater Treatment for the Presidential Palace in Kabul

DEWATS systems can be integrated with conventional treatment technologies for locations with high effluent standard requirements and low space availability (often referred to among our teams as DEWATS+). One such model is implemented at the presidential palace in Kabul, Afghanistan. In this system, the classic DEWATS models (settler, anaerobic baffle reactors and anaerobic filters) are designed for primary treatment. A secondary treatment step uses an activated sludge extended aeration system, including aeration tank, clarifier and digestion tank. For the disinfection step, a chlorination system is used. The treatment system has the capacity to treat 285m³ of wastewater per day, with the treated wastewater reused to irrigate the gardens within the palace grounds.

Duration: January 2019 – November 2019
Donor: Government of Afghanistan
Budget: 420,000 USD
Partners: Aqua Consult, Green Tech



Students during a WASH awareness session in Erbil, Northern Iraq



SOUTH ASIA



Integrated urban water management – learning as we go

With the mainstreaming of nature-based decentralised wastewater treatment solutions (DEWATS) in India and the establishment of a local organisation, the Consortium for DEWATS Dissemination (CDD Society), to move ahead with decentralised wastewater solutions, BORDA South Asia made a strategic decision to tackle other problem areas. This marked the thematic end of earlier phases of engagement and a shift in our focus.

Defining our new mission – South Asia is witnessing rapid and unplanned urbanisation. Recognising this to be an exciting and potentially impactful work area, BORDA South Asia embarked on a new mission in 2018 focussed on building the capacity of municipalities and urban local bodies to adopt and sustainably operate decentralised water and sanitation solutions. The goals of the first phase of our new mission were (a) to test the feasibility of this idea, (b) to formulate new approaches and mechanisms for working with small municipalities, and (c) to build up a network of governmental and non-governmental partners to take this mission forward. Along these lines, BORDA South Asia concluded several activities in 2019, directly and through our partners.

Trainings – As we enter a new thematic phase, we are maintaining our focus on building the competence of project teams and urban local bodies (ULBs). In 2019, we conducted 15 trainings with 388 participants including sanitation engineers and professionals, government officials, and administrators. To name one example, a training session on integrated urban water management at CDD was aimed at building CDD's internal understanding of integrated urban water management (IUWM) and learning ways to apply the concept in small towns. For this we sought the expertise of Canadian NGO CAWST. This training was an important step in shaping CDD's point of view on water protection and integrated water management.



“Learning as you go” approach to IUWM in Leh – IUWM was a new concept for Leh Municipality. We started by building a faecal sludge treatment plant, which consequently generated a larger discussion around water. Stakeholders stumbled through this unknown territory by getting their hands dirty and engaging a larger participatory group involving key decision makers, residents and experts. Multiple discussions and town halls were conducted to keep the knowledge exchange going and some practical measures—greywater management, water quality analysis, reservoir mapping, network analysis—were undertaken to get a feel for how things were actually working. This approach, rooted in ground realities and real-time discussions, has grounded BORDA's understanding of IUWM and placed it on a small yet steady platform for future application.

New approach to water source protection – In India, most drinking water sources (waterbodies and underground water aquifers) are polluted. With the aim of securing clean water, CDD was mandated to develop an approach to cleaning and preventing pollution of waterbodies through nature-based solutions, which has been BORDA's core competency. Lessons learnt were systematically organised into a new approach to waterbody rejuvenation that was initially implemented at Mahadevpura, Bangalore, where a DEWATS was set up to treat 1 million litres of wastewater per day. This approach is being replicated at seven more waterbodies across Bangalore, and will be further refined and developed as learnings from these implementations emerge.

Strategic priorities – The primary focus of this first phase was deepening our understanding of municipal functions and processes, and using this knowledge to design effective mechanisms for building municipal capacity to sustainably deliver water and sanitation services.



A Liveable, Inclusive and Resilient Himalayan City – Strengthening Capacities of the Ladakh Autonomous Hill Development Council

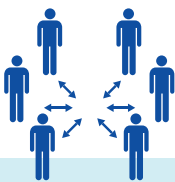
At 3,900 metres high, the Indian region of Ladakh is situated in difficult terrain for urban settlements. Like other mountainous areas, Ladakh faces magnified risks from climate change—floods, failed crops, landslides—which can decimate lives, livelihoods, infrastructure and the environment. This project strengthens capacities of the local government, and supports them in developing the cities of Leh and Kargil in more environmentally friendly ways, as symbols of resilient and sustainable urban development.



Duration: February 2018 – February 2021
Donor: European Union
Budget: 1,081,439 EUR
Partners: Ladakh Ecological Development and Environmental Group (LEDeG), CDD Society

- ▶ The knowledge gained is to be focussed on developing a portfolio of IUWM solutions—including trainings, modules, tools and expert networks—that each town can select from and put into practice.
- ▶ Bolstering this effort is the development of in-house capacity, a strategic decision to deepen our competence in a field which is relatively new and set to expand.
- ▶ In-house capacity is to be supplemented by building a formal network of partners and experts who have the same thematic alignment.
- ▶ The core of our mission is the sustainable delivery of water, sanitation and hygiene (WASH) services. This remains largely a state purview, with minimal private sector involvement. Thus, another strategic priority is to deepen operational understanding in public service delivery and develop a platform for the private sector to efficiently engage in delivery.

Waterbody rejuvenation at Mahadevpura Lake, Bangalore



Multi-Country Twinning Programme – FSM Knowledge Exchange

The aim of the twinning programme was to advance the knowledge and expertise of FSM professionals and their organisations through exposure visits to successful FSM operations in other countries. The programme also aimed to develop a platform and initiate actions to encourage knowledge-sharing within and among countries, creating opportunities for FSM professionals to network and foster development of long-term twinning relationships between organisations and utilities. As part of this project, participants from India, Bangladesh, Nepal and Indonesia completed 10 exposure visits to cities in the Philippines, Thailand and Malaysia.

Duration: February 2018 – April 2019

Donor: Bill & Melinda Gates Foundation

Budget: 899,909 USD (total project)

Partners: STANTEC, Asian Institute of Technology (AIT) Bangkok (lead), BORDA





SOUTHEAST ASIA

Sanitation service provision – an integral part of urban development

While urban development is commonly associated with high-rise buildings, estate developments or transport infrastructure, it is often forgotten how essential well-operated sanitation infrastructure and functional sanitation services are. Without a reliable waste collection system, robust stormwater drainage or an appropriate wastewater management concept, cities easily become unsustainable. Negative effects can include threats to public health, limited access to education, reduced mobility and even adverse economic development.

In six countries in Southeast Asia, BORDA and its partner network are supporting municipal governments in their efforts to establish, operate and maintain sanitation services. Activities range from technical support for sanitation infrastructure development (technology selection, design development) and capacity building for system operators and municipal decision makers to conceptual planning for urban sanitation service provision that considers technical capacities, legal frameworks and financial limitations of a specific city or district.



The PolyUrbanWaters Project

The PolyUrbanWaters project is developing and demonstrating practice-relevant tools that enable municipalities to implement polycentric approaches for urban development and integrated, cross-sectoral water management. The aim: new models for water-sensitive, sustainable and inclusive development that meet the localised needs and realities of urban areas. Through practice-oriented field study and the exchange of good practices, PolyUrbanWaters is supporting pilot cities in Southeast Asia to develop their capacities for strategic urban planning that incorporates polycentric management of urban waters.

Duration: 2018 – 2025
(2018: Inception Phase; 2019 – 2020: Definition Phase; 2021 – 2025: Research and Development Phase)
Donor: German Federal Ministry of Education and Research (BMBF)
Budget: 682,003 EUR (2018 – 2020)
Lead partners: The Habitat Unit at the Technical University of Berlin; The Institute for Technology and Resources Management in the Tropics and Subtropics at the Technical University of Cologne
Other partners: Indonesia (AKSANSI, Universitas Gajah Mada, City Alliance, Kota Kita); Cambodia (Cambodian Institute for Urban Studies, Environmental Sanitation Cambodia); Laos (Public Works and Transport Research Institute); Thailand (AIT, UNESCAP, Inc. Square Co. Ltd, Fibertech Co. Ltd); Vietnam (Vietnam Academy for Water Resources)
Partner Cities: Sam Neua, Laos; Kratié, Cambodia; Sleman, Indonesia

The principles that guide our diverse partnerships with cities across Southeast Asia are:

- ▶ **Participatory engagement:** Throughout our project phases all relevant stakeholders are involved, from beneficiaries to operators to decision makers.
- ▶ **Acknowledging complexity and fostering integration:** The establishment of sustainable sanitation services calls for the integration of planning aspects, technological solutions, management concepts and comprehensive capacity building.
- ▶ **Progressive implementation:** Long-term visions are being developed with our municipal partners, yet realistic milestones are in focus that are aligned to the financial and technical capacities of our partners.





Performance testing of prefabricated wastewater treatment products.

Establishing a new standard for performance testing to promote integrated sanitation solutions for municipal public services – On 20 February 2019, the Asian Institute of Technology (AIT) and BORDA officially launched the AIT centre for performance testing of prefabricated wastewater treatment products. The event took place at the Fifth Faecal Sludge Management Conference (FSM5) in Cape Town, South Africa. Manufacturers in Thailand and neighbouring countries have welcomed the launch of the testing centre, as clients from government-initiated projects and real estate developers have demanded proof of product performance released by an independent laboratory.

The AIT testing centre began offering its services in late 2018, with the first two products undergoing tests using a method developed by the institute. Since the official launch at FSM5, more manufacturers have expressed interest in testing their products' performance against a standard, fully occupying the testing centre by the end of 2019.

South-south knowledge exchange on financing tools and frameworks – Conducted on 17–18 January 2019 in Chon Buri, Thailand, the “Financial Working Group on Integrated Sanitation” event was organised by the People-Sanitation-Cities Alliance and supported by BORDA and UNESCAP's Sustainable Urban Development Section (SUDS). The event's objective was to introduce and exchange on innovative approaches for financing mechanisms and frameworks in the context of urban sanitation service provision. A significant outcome of this meeting was the publication of city fact sheets and case studies on financing frameworks under the SDG theme of “Sustainable Urbanisation”.

Bringing first-hand experience in SDG localisation to a forum of experts and practitioners – BORDA Southeast Asia supported and collaborated with People-Sanitation-Cities Alliance members to participate in the Asia Pacific Urban Forum 7 in Penang, Malaysia on 15–17 October 2019. Hosting the urban innovation event “Localising SDGs 6 and 11: Lessons learnt from mayors of cities in Indonesia, Lao PDR and the Philippines” and presenting at the deep-dive session on “Human-Centred System Approaches for Smart and Future-Oriented City Management” provided a platform for sharing best practices and challenges on the journey to achieving SDGs 6 and 11.

SDG Help Desk

– City fact sheets and case studies on financing frameworks for sustainable urbanisation:

sdghelpdesk.unescap.org/knowledge-hub/thematic-area/sustainable-urbanization

Bringing the SDGs home Bremen

The much-used exhortation “think global, act local” is vital for our work in Germany, where we maintain a continuous focus on raising awareness and disseminating knowledge and solutions as contributions to achieving the Sustainable Development Goals here at home.

In March 2019, BORDA hosted two workshops during the second city-partnership conference “17 Goals for a Better World” held in Bremen and Bremerhaven. Representing public authorities and civil society organisations, participants came from Bremen and Bremerhaven’s sister cities and friendly municipalities around the world.

The first workshop “Water is Life: Proposed solutions for SDG 6” aimed to foster an understanding of the links between SDG 6 (clean water and sanitation) and the other SDGs, and to exchange ideas and solutions for how these goals can be achieved in partner cities by 2030. The second workshop “Media: How can the targeted use of media contribute to the implementation of the SDGs?” familiarised participants with the concept of constructive journalism and shared methods and techniques for applying the concept successfully.

As BORDA has built up considerable expertise in reporting on water-related issues over the past few years, we have become a sought-after partner for conducting trainings on this topic.

In March 2019, BORDA conducted successful training on water and environmental issues for media and NGOs on behalf of the Central Asia Environmental Centre (CAREC) in the Uzbek capital Tashkent. Around 50 representatives from public authorities, civil society organisations and media from all over Uzbekistan participated in the training.

Since 2017, BORDA has participated in the Germany-wide One World Promoter Programme and will continue to do so in the upcoming programme phase from 2020 onwards. Supported by this programme, BORDA disseminates information on smart water management, the importance of sanitation for all, climate change adaptation and mitigation, and sustainable use of resources.



One World Promoter Programme

Water and wastewater, climate change, energy production and resource consumption: these are the focus of BORDA's engagement as One World specialist promoter. Through informational campaigns, educational projects, PR events and advocacy work, we raise awareness, build capacities and strengthen networks. The aim: strengthening German commitment to global justice and sustainable development.

Duration: 2017 – 2019

Donor: German Federal Ministry for Economic Cooperation and Development (BMZ), Free Hanseatic City of Bremen

Budget: 174,750 EUR

Partner: Bremer entwicklungspolitisches Netzwerk e. V. (BeN), Arbeitsgemeinschaft Eine-Welt-Landesnetzwerke (agl)

Development Policy: Awareness and Public Relations

In 2019, the focus of the project was on communication initiatives such as developing our new German-language website at borda.org, social media activities and participating in fairs, exhibitions and conferences. Our communication activities convey BORDA's work to a broader public and enable us to gain more supporters who can help us to contribute to SDG 6: clean water and safe sanitation for all.

Duration: 2019

Donor: Free Hanseatic City of Bremen

Budget: 35,500 EUR

Partner: Plenipotentiary of the Free Hanseatic City of Bremen for Europe and Development Cooperation



Research & Development





**INNOQUA – an innovative
bio-based sanitation system**

The INNOQUA project is to develop a modular wastewater treatment solution and bring it to market. The innovative technology relies on the purifying capacity of earthworms and other biological organisms. INNOQUA provides decentralised bio-based water sanitation systems for rural communities as well as for agricultural operations and sustainable home builders in Europe and developing countries – making it possible to bring ecological, safe and affordable sanitation systems where they are most needed. As part of the INNOQUA consortium – BORDA's first EU project – we are working with 19 partners, mainly universities and research institutes. Within the framework of this four-year project, BORDA operates two demonstration-sites in India and Tanzania and is also responsible for the communication of the entire project.

Duration: 2016 to 2020

Budget: 604,500 EUR

Donor: European Union Horizon 2020 Programme

Regional Partners: Coordination NOBATEK (France)
20 international companies, research institutions
and universities



Monitoring & Evaluation

Africa, West and Central Asia, Southeast Asia

M&E Single-System Reporting

Single-system reports were produced for 52 systems in different countries and with a multitude of modular configurations. These reports are detailed assessments and are intended to provide evidence-based recommendations for corrective action for each specific system. The beneficiaries of BORDA M&E single-system reporting are regional BORDA offices and, especially, system owners and cooperation and implementation partners.

Project type: Conventional DEWATS (masonry)

Setting: Institutional – School

Start of operation: 01/01/2013

Design capacity: 1,382 students / day

Design capacity: 35m³ / day

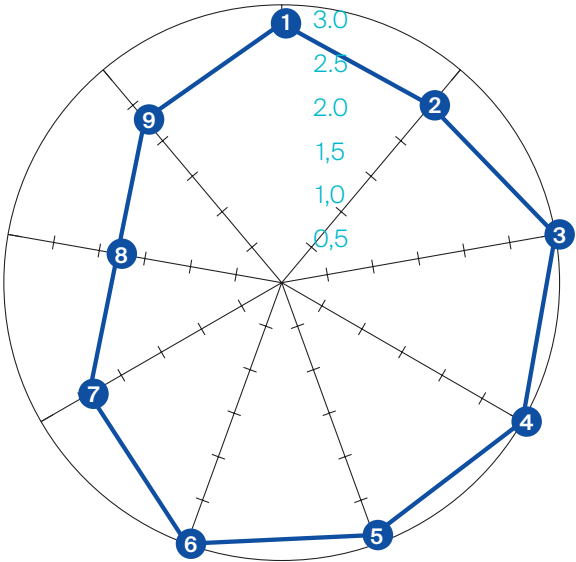
Construction costs: 2,840,100 AFG (34,000 EUR)

Exemplary single-system evaluation based on 9 SoCs (statements of change)

(Khaja Abdullah Ansari School, Afghanistan)

While the SoCs resulting in long-term impact and positive outcomes are generally well addressed, the evaluation also pointed to the fact that long-term operation requires improved sustainable financing (SoC 8).

	Statement of Change (SoC)	Score
Impact	1. Environmental health	2.8
	2. Improving living conditions	2.5
	3. Project-specific impact	3.0
Outcomes	4. Functioning technology	3.0
	5. Functioning maintenance	2.9
	6. Sustaining demand	3.0
	7. Effective management	2.4
	8. Sustainable financing	1.8
Output	9. Planning, design, construction	2.3



DEWATS performance assessment 2018 – 2019

BORDA produced its first global DEWATS performance assessment report in 2017–2018, investigating 140 systems in 11 countries. The goal was to gain an overview of BORDA's DEWATS performance from a global perspective.

The methodology used in BORDA's monitoring and evaluation (M&E) programme is based on nine statements of change (SoCs) that help us to evaluate progress towards our overarching organisational objectives: improved health and environmental protection, and increasingly, resource recovery. For DEWATS systems

to achieve these key objectives and to function well in the long term, they require adequate technical functioning & maintenance, as well as sufficient demand from users, appropriate management systems and sound financing schemes. All those factors can be evaluated for different target audiences.

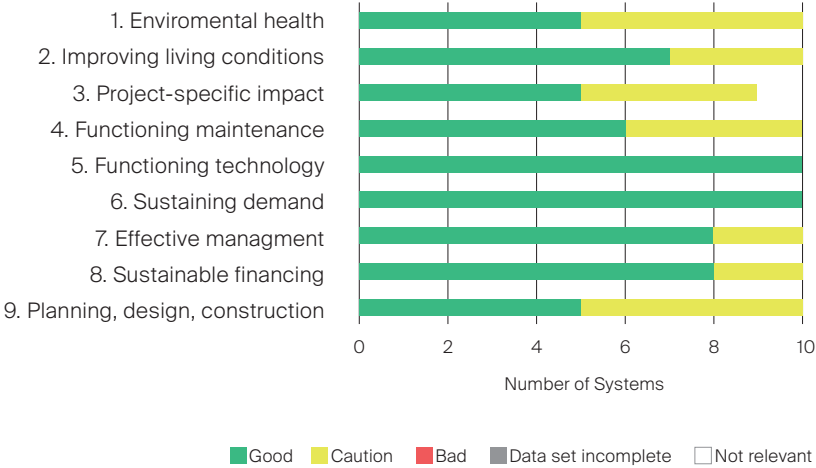
In 2018–2019, 10 countries proceeded with their M&E activities according to their regional focus. Based on these assessments, BORDA for the first time elaborated distinct M&E country and/or system reports.

M&E Country Reporting

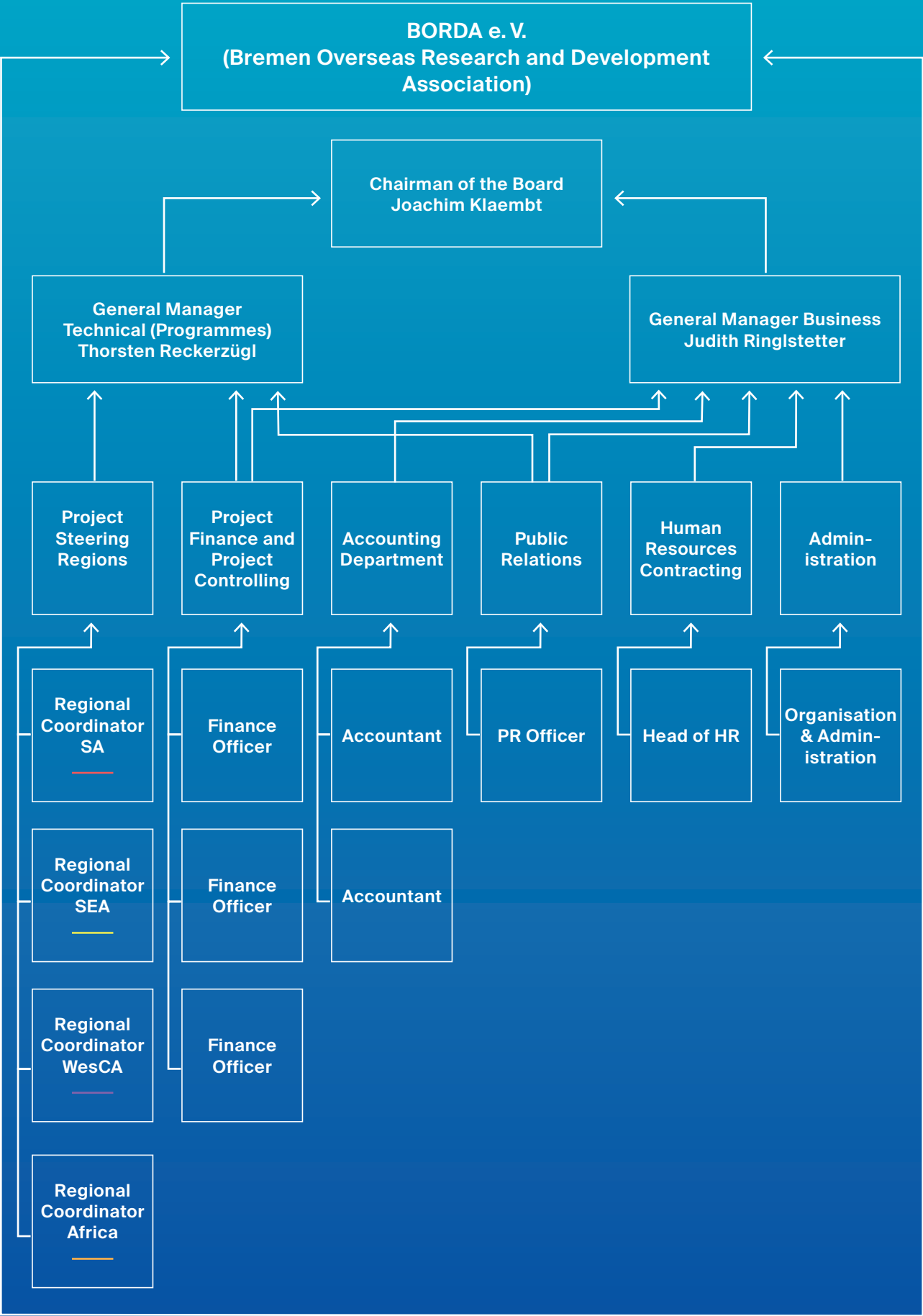
Country reports were elaborated for Afghanistan, Indonesia, Tanzania and Lesotho. The primary goal was to understand the performance of DEWATS within a country-specific context. Recommendations derived from the evaluations were either tailor-made for a certain system configuration (e.g. towards households, hospitals, institutional settings), or for specific system types or treatment modules especially relevant in a certain country. The beneficiaries of M&E country reporting are technical staff in the regional BORDA offices. Reports or sections of reports may also be forwarded to cooperation partners, donors or other external stakeholders.

Evaluation results based on 9 SoCs (statements of change) across all investigated systems (Afghanistan)

Findings indicate that SoCs either show good performance (green) or point to areas of caution where corrective action can further improve—or is required to guarantee—the long-term performance of the systems (yellow). No bad performance assessments were observed.



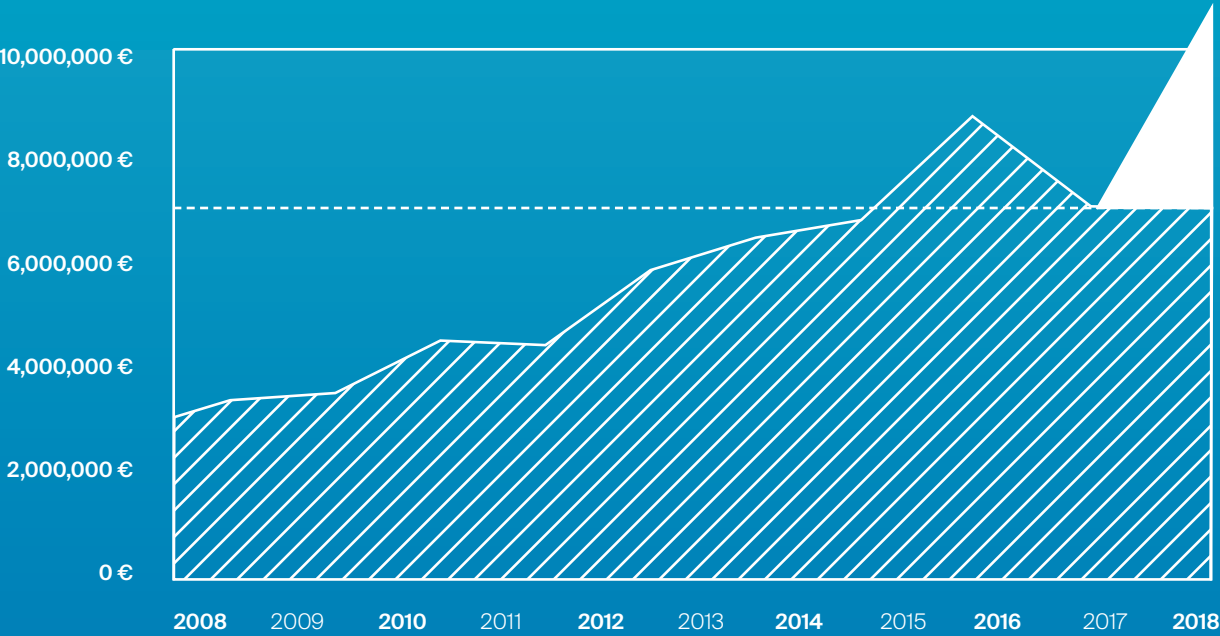
Organisational Structure International





Facts and Figures 2018

Change in Turnover 2008 – 2018



10,758,301€ ----- $\frac{2017}{2018}$ ↑ 40%

Turnover by Donor

Others



Swiss Agency for Development and Cooperation (SDC)



EU



giz



Free Hanseatic City of Bremen



The German Federal Ministry for Economic Cooperation and Development (BMZ)



Total 2018	Region
105	Southeast Asia
30	South Asia
52	West and Central Asia
55	Africa
28	Las Américas
35	Bremen
305	Total

Turnover by Location



Regional staff

Project management	Public relations	Knowledge management	Technical	Social	Support staff	City and partner liaison officers
28	2	5	31	19	10	10
6	-	-	19	-	5	-
6	1	2	17	-	26	-
11	2	1	12	8	21	-
6	-	1	12	2	7	-
8	6	3	8	0	9	1
65	11	12	99	29	78	11

Balance Sheet for 2018

Assets

	EUR	Financial Year EUR	Previous Year EUR
A Assets			
I. Intangible assets			
Advance payments		0.00	2,095.52
II. Tangible assets			
1. Land, land rights and buildings including buildings on leasehold land	41,712.00		47,676.00
2. Other plant, office furniture and business equipment	35,879.00	77,591.00	48,330.00
III. Financial assets			
Shares in affiliated companies		10.00	10.00
B Current assets			
I. Receivables and other assets			
1. Prepayments made for outstanding projects	13,091,438.45		11,606,420.59
2. Receivables from affiliated companies	34,351.90		1,870.68
3. Other assets	347,135.97	13,472,926.32	137,097.81
II. Cash in hand, cash at Bundesbank and at banks, and cheques		1,009,362.62	282,055.11
C Prepaid expenses		2,513.28	2,977.00
Deficit not covered by equity		198,287.52	0.00
	14,760,690.74	12,128,532.71	

Equity and Liabilities

A. Equity			
I. Profit carried forward		150,891.09	360,375.02
II. Net profit for the year		349,178.61-	209,483.93-
B. Provisions			
Other provisions		101,158.25	38,520.82
C. Liabilities			
1. Payments received for ongoing projects	14,266,303.56		11,490,208.20
2. Trade payables	154,555.71		52,515.76
3. Liabilities for project services for the following year – not yet billable	171,215.93		312,266.94
4. Other liabilities	67,457.29	14,659,532.49	84,129.90
Deficit not covered by equity		198,287.52	0.00
	14,760,690.74	12,128,532.71	

Income statement

	EUR	Financial Year EUR	Previous Year EUR
1. Project income		9,286,164.30	7,999,388.37
2. Other operating income		66,060.45	36,858.38
3. Expenditure on projects		7,981,509.63	6,795,575.22
4. Gross Profit		1,370,715.12	1,240,671.53
5. Personnel expenses			
a) Wages and salaries	1,085,225.97		922,168.25
b) Social security and expenses for old-age pensions and support	<u>249,960.25</u>		<u>212,063.54</u>
		1,335,186.22	1,134,231.79
6. Depreciation / amortisation of intangible assets and tangible assets		28,428.68	35,728.52
7. Other operating expenses		353,882.42	279,659.24
8. Other interest and similar income		78.00	0.49
9. Interest and similar expenses		2,474.41	536.40
10. Result of ordinary business activity		349,178.61-	209,483.93-
11. Net profit for the year		<u>349,178.61-</u>	<u>209,483.93-</u>

Project overview

Projects administered by headquarters – in chronological order	
▶	Training for small businesses in implementing decentralised basic sanitation and wastewater treatment projects
▶	Promote sustainable food security in urban and rural areas in Mali
▶	Sustainable resource management in Southeast Asia
▶	Improving basic sanitation in refugee camps and neighbouring communities in Northern Iraq
▶	Regional project South Asia – Integrated management of urban waters as core duty of public services in the general interest at local level
▶	Improving basic sanitation and supporting liveable and inclusive cities in Africa
▶	Poverty alleviation and sustainable protection of natural resources in Latin America
▶	Transitional aid for food security in Northern Mali
▶	Development policy education and public relations 2019
▶	Strengthening capacities for the implementation of SDG 6 in Durban and South Africa
▶	SEI - Stockholm Environment Institute - Subgrant "SuSanA Phase III"
▶	INNOQUA: Innovative bio-based onsite sanitation system for water and resource savings
▶	Establishing a specialised technical support and field research centre for FSM and non-sewered sanitation
▶	One World Promoter Programme – Specialist Promoter (Environment, Climate Water)
▶	Sanitation solutions for underserved communities in Jordan
▶	New Venture Fund – FSM capacity development
▶	European Pact for Water
▶	KEx knowledge exchange Zambia
▶	Media Uzbekistan
▶	engagement global Gaza / Palestine
▶	Technical consulting for planning and construction of a faecal sludge treatment plant in Bamako, Mali
▶	PolyUrbanWaters – Polycentric approaches to the management of urban water resources in Southeast Asia
▶	Introducing DEWATS for hospitals in Tajikistan
▶	giz – Support to the FSM Conference series with focus on the African continent
▶	Strengthening of global humanitarian WASH coordination structures and local capacities
▶	Building the FSM Alliance to boost momentum behind faecal sludge anagement and non-sewered sustainable sanitation
▶	Wastewater and solid waste treatment capacity building project for city environment improvement in Lao PDR

	Donor	Region / Country	Duration	Budget
	BMZ	West and Central Asia	2016 – 2018	6.7 Mill. €
	BMZ	Mali	2016 – 2021	1.6 Mill. €
	BMZ	Southeast Asia	2017 – 2019	5.4 Mill. €
	BMZ	Iraq	2017 – 2021	0.6 Mill. €
	BMZ	South Asia	2018 – 2020	3.2 Mill. €
	BMZ	Africa	2019 – 2021	2.5 Mill. €
	BMZ	Las Américas	2019 – 2021	1,950,000 €
	BMZ	Mali	2019 – 2023	2.9 Mill. €
	EZ Bremen	Germany	2019	35,500 €
	EZ Bremen	South Africa	2019	45,500 €
	SEI	Germany	2017 – 2019	121,500 €
	EU Horizon 2020 / NOBATEK	EU	2016 – 2020	0.6 Mill. €
	CDD (BMGF)	South Asia	2016 – 2019	4.0 Mill. US\$
	BeN	Germany	2017 – 2019	0.2 Mill. €
	SDC	Jordan	2017 – 2021	4.98 Mill. €
	NVF	Tanzania	2019	100,000 US\$
	giz	Europe	2018 – 2020	79,000 €
	giz	Zambia	2018 – 2019	101,642 €
	CAREC	Uzbekistan	2018 –2019	50,000 €
	engagement global	Palestine	2018 – 2020	0.5 Mill. €
	PROTOS-EU	Mali	2017 – 2019	50,000 €
	BMBF	Southeast Asia	2019 – 2021	642,223 €
	Oxfam	Tajikistan	2019 – 2020	
	giz	Africa	2019	427,842 €
	AA	Afghanistan / WESCA	2019 – 2021	95,936 €
	giz	Africa / Asia	2019 – 2021	89,119.50€
	GGGI	Laos	2019 – 2024	343,711 US\$

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