

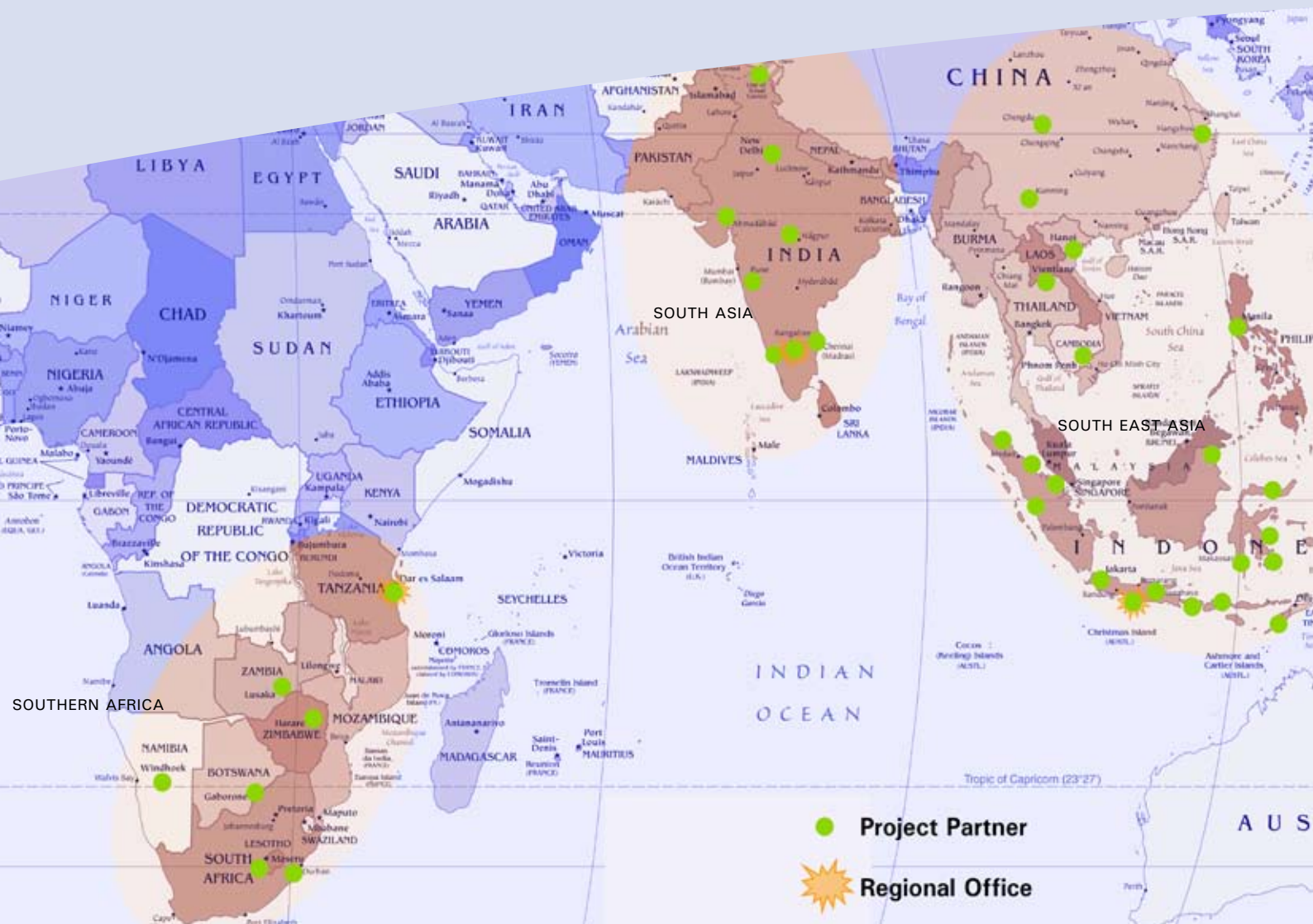


# BORDA



# Overview 2009

## Project Regions and Partners



For more than 30 years BORDA has fostered cooperation in non-profit development projects in partner countries in Africa and Asia. BORDA's developmental and political activities seek to bring together the complete spectrum of possible methods of intervention and actors.

The mission of BORDA is to improve the living conditions of disadvantaged communities and to keep the environment intact through the expansion of basic needs services in the areas of decentralised sanitation, water, and energy supply services as well as sewage and waste disposal.

Facilitating Basic Needs Services  
 „Thinking long-term, acting now!“

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# 2009 in Retrospect



Andreas Ulrich ,  
Director of BORDA.

The demand for well-functioning and affordable decentralised solutions to improve sanitation, wastewater and solid waste disposal in so-called developing and newly industrialised countries is increasing steadily.

Many poor people in the world still have to defecate in scarcely available spaces, in most cities the disposal of less than 50% of domestic waste is regulated and wastewater treatment of European standard exists only in a small number of cities. Wastewater continues to be drained away into the soil or discharged into rivers without prior treatment.

The reason for such unsustainable conditions is often the incapacity to keep pace with the general economic development in developing and newly industrialised countries. Increasing urbanisation and high population densities put immense pressure on the development of sanitation and waste disposal infrastructure. Tax revenues are low and provide a poor source for public investment and the responsible administrations often lack the expertise to plan and implement infrastructure projects independently. Furthermore, concurrently collected fees for wastewater and waste disposal are insufficient to cover the costs of installing and operating new waste disposal facilities. For most cities and communities in developing countries, high-tech disposal solutions modelled after industrialised countries are therefore not a real option.

With a track record of over 1000 successfully implemented individual projects worldwide, the decentralised basic needs services that have been developed by BORDA and its partner network constitute an essential alternative to expensive „high-tech“ and ineffective „low-tech“ solutions:

The module based design of the disposal technology for both wastewater (DEWATS) and domestic waste (DESWAM) allows adapting the solutions to varying settlements ranging from 10 to 1000 households and enables communities and residents to tailor the options to their needs.

- All technical facilities can be operated without electricity.
- Necessary capital costs can be covered by communities.
- The operation of the facilities can be managed and financed by trained residential groups.
- Health and hygiene education is integral part of project schemes.

The immensely growing demand for DEWATS and DESWAM services does, however, also challenge BORDA: How can we generate “growth”, i.e. more projects, without compromising quality? Since 2009, we particularly promote three strategies, in order to expand project measures and meet the rising demand:

- Increased training of new technical experts working for private disposal enterprises, consulting firms and development cooperation agencies.
- Developing concepts for the industrial manufacturing of pre-fabricated DEWATS plants in order to drastically reduce both, construction costs and the time and human resource intensive supervision of constructing conventionally built plants.
- Increased writing of funding proposals to international development organisations in order to raise additional funds for the realisation of projects.

## SADC / UKZN

In Southern Africa we have moved into a new regional office in Dar es Salaam and have thereby strengthened our position in Tanzania. Our project partner there is EEPCO, an NGO active in water and sanitation across the country. In collaboration with Hering, Germany's largest manufacturer of pre-fabricated toilet facilities, and the municipal administration of Durban, BORDA initiated a private-public-partnership project. It is the objective of the project to significantly improve sanitation and wastewater disposal of schools and poor settlements.

As BORDA's annual meeting of partner representatives was held in Livingstone, Zambia, in 2009, all network members embraced "Africa" to hold a special place in their hearts.

## South Asia

In South Asia, the „Centre for Advanced Sanitation Solutions“, CASS, was inaugurated in collaboration with our Indian partner in Bangalore. This institution aims to provide practical trainings and transfer professional knowledge to community administrations, waste disposal enterprises and private institutions, CASS has trained delegations from India, Botswana, Bhutan and Nepal. A mobile training unit provides on-demand training to project staff and thus supports the worldwide dissemination of DEWATS learning projects. A special monitoring and evaluation unit assesses and documents development services of other organisations.

## Southeast Asia

In Southeast Asia Laos and Cambodia were integrated into the regional project. Due to the well-structured BNS programmes and existing working instructions, experienced engineers and social workers could train their new colleagues with relative ease. Together they implemented pilot projects for "School Sanitation".

In collaboration with the Indonesian government and the Canadian development organisation IDRC, BORDA established recycling stations in poor settlements. The recycling stations improve community hygiene and create jobs in waste disposal. The revenue raised from recyclables further lowers the cost of waste collection while composting organic waste reduces harmful climate gases. Emission-based payments raised through these schemes reduce both capital and operational costs and promote the nationwide dissemination of the concept.

## Weltwaerts

Volunteers of the "Weltwaerts" programme sponsored by the BMZ worked to great satisfaction with BORDA's partner organisations. BORDA collaborated with the partners and target groups to define job duties and requirements and subsequently selected appropriate and qualified volunteers. The volunteers contributed to promote the development work of the respective partners, to strengthen the profile of German development cooperation among partners while also enhancing their own expertise.

I would like to use this opportunity to express my sincere gratitude, on behalf of our board of directors, to all colleagues at our partner organisations, all donors and sponsors of BORDA, target groups participating in the projects and stakeholders affected by it, and "last but not least" to all members of the BORDA staff: all of you have contributed to a further successful year of development cooperation.



Andreas Ulrich (Director)

# Southern Africa

## Improving Sanitation and Wastewater Disposal of Schools and Poor Settlements

### 1. OVERVIEW

#### Project Goals

It is the overall goal of the project to improve public health and conserve water resources in poor urban areas in the SADC Region.

Related project goals include the improvement of sanitation facilities and increased efficiency in treating organic wastewater within urban residential areas in selected states of the African SADC Region.

#### Target Groups

The project specifically targets residents of poor communities in densely populated urban and peri-urban areas of the SADC Region as well as users of public facilities (schools, hospitals, prisons, etc.), which lack adequate sanitation facilities and therefore pollute scarce water resources.

NGOs, private and public service providers and urban water supply and wastewater treatment utilities are considered potential multipliers and are targeted for practical trainings ("learning projects") in order to aid the impact-relevant large scale dissemination of project measures.

#### Cooperation Partner

In collaboration with the non-governmental organisation TED (Technologies for Economic Development) in Lesotho and under the management of an experienced integrated expert from CIM, a new project office was established to serve the region. Within the project period 2007-2009, BORDA collaborated with the following SADC partners:

- Rural Industries Innovation Centre (RIPCO), Gaboronne, Botswana,
- Technologies for Economic Development, TED, Maseru, Lesotho,
- Habitat Research & Development Centre (HRDC), Windhoek, Namibia,
- Environmental Engineering & Pollution Control Organization (EEPCO), Dar-Es Salaam, Tanzania
- Mvuramanzi Trust, Harare, Zimbabwe
- The Lusaka Water and Sewage Company, LWSC Ltd, Lusaka, Zambia
- Pollution Research Group of the University of KwaZulu Natal, Durban, South Africa
- Water & Sanitation Department of EtheKwini, (EWS), South Africa
- The South African Network for Training & Research on the Environment, SANTREN, Harare, Zimbabwe
- Devolution Trust Fund (DTF), Zambia
- Water and Sanitation Association of Zambia (WASAZA), Zambia

DEWATS plant in Lesotho

Construction of a DEWATS plant with Bogas in Zambia



## Outputs 2009

Major outputs achieved in 2009 include:

- The professional management of the cooperation project is based on internal and external guidelines.
- The effectiveness and efficiency of the DEWATS programme is continuously being increased.
- Decentralised services are established to secure wastewater treatment in low-income settlements of congested urban areas.

It has become evident, that the DEWATS approaches in the SADC Region greatly differ from their Asian roots. Colder temperatures, higher organic loads, few receiving waters for the discharge of treated wastewater, great demand for biogas and at least double the construction costs are the most prominent deviating factors.

The introduction of standardised planning and implementation procedures facilitated the efficient and sustainable dissemination of CBS-DEWATS measures.

In 2009, the standardisation of DEWATS plants for 6 to 100 end users in Lesotho was completed.

In Zambia standardisations were accomplished for both the design of plants (70 to 840 users) and the procedures to integrate end users into the technical planning process. A construction manual for the DEWATS module “biogas” has been compiled and applied during the construction of learning projects.

The adaptation of development and technology lead to rapid acceptance and expressions of interest that were due to the following advantages:

- provision of biogas for cooking,
- utilising treated wastewater for irrigation,
- low operating costs,
- utilisation of locally available construction material.

Due to the successful implementation of demonstration projects, the collaboration with communal water utility companies leads to a broad large-scale impact of the measures. This contributes to the strengthening of the German focus on this sector for development cooperation in countries such as Zambia and Tanzania.

School Sanitation in Tanzania

Group photo at biogas training in Zambia.



## Southern Africa

The partner organisation TED in Lesotho has established itself as a well-recognised service provider for decentralised wastewater treatment. With their demand-oriented solutions they contribute systematically to urban wastewater treatment, groundwater conservation and income generation for under-privileged sections of the population.

WASAZA is a professional association of state, semi-state and private corporations in the Zambian water sector. It has developed into the prime non-governmental organisation for capacity development in the public water and sanitation sector. WASAZA has become a member of the national water sector consulting board and chair of the NGO sanitation forum. Due to BORDA strengthening WASAZA, a crucial void has been filled in the Zambian water and sanitation sector, i.e. the existence of a government-independent centre of expertise for authorities, utility enterprises and Association for Water, Wastewater and Waste (DWA).

In Tanzania, staff of EEPCO was trained in planning DEWATS/CBS plants. DEWATS/CBS feasibility studies were conducted in 6 cities in Tanzania.

By integrating communal administrations in the planning and implementation of DEWATS demonstration projects at an early stage, the relevant authorities have been increasingly enabled to enhance the significance of DEWATS as part of urban planning in Zambia and South Africa.

In Zambia, biogas technology was introduced as a DEWATS component, which primarily constitutes great potential for income generation for small construction firms and builders, and further contributes to a reduction in the cost of living for end users.

While implementation structures are still being established in Lesotho, Zambia, South Africa and Tanzania, there is an immense demand for the project activities.

DEWATS for toilet facility at a school in Zambia

DEWATS with a planted gravel filter in Lesotho



## **Outcomes and Concluding Evaluation**

In the reported period between 2007 and 2009, the following outcomes were achieved through the regional project in the SADC Region:

- (1) A total of 33 local experts were trained and qualified for the planning and implementation of demand-oriented activities related to basic sanitation and decentralised wastewater treatment.
- (2) The community approach was introduced into the SADC Region, whereby basic sanitation and decentralised wastewater treatment are systematically provided to produce a broad impact. Relevant technical and social implementation modules have been adapted to regional conditions. This facilitated the acquisition of third party funds for construction activities of state and private institutions in the countries of Lesotho, Zambia and South Africa.
- (3) In the course of the previous funding phase, sustainable sanitation was provided for ca. 4,300 people and prepared for a further 27,100 people, both carried out in poor urban residential areas. The facilities that were constructed for decentralised wastewater treatment (DEWATS) during that phase reduce the chemical oxygen demand (COD) of the wastewater by ca. 138 tons annually.

Due to the close collaboration with communal water utility enterprises, the regional project contributed considerably to the advancement towards hygiene and public health related MDGs and also towards the conservation of scarce fresh water resources within the SADC Region during its project period.

## **2. PROJECT STEERING AND ADMINISTRATION**

### **Project Planning**

As part of project steering and administration and in coordination with the BORDA head office, the BORDA regional office carried out the following activities:

#### **Establishing a Regional Project Office for the African SADC Region**

As the project is expanding and project activities are increasingly implemented beyond Lesotho, particularly with regards to project control and capacity development, the regional project office was relocated from Maseru, Lesotho, to Dar es Salaam, Tanzania, at the end of 2009. Due to the relocation of the project office, BORDA is able to make a greater difference in Tanzania and Zambia, which have been identified as priority countries of the water sector by the German Ministry for Economic Cooperation and Development. BORDA's local presence allows building capacities to implement sustainable decentralised sanitation facilities which are rising in demand in both Tanzania and Zambia.

## **Result and Outcome Oriented Reviewing and Planning of Project Activities**

As part of annual reviewing and planning workshops, BORDA collaborated with executive staff of partner organisations to plan annual activities and budgets in view of results and outcomes. Based on the annual planning, content and finance related project steering was conducted through regular project visits and quarterly submitted finance and progress reports which are required for the release of further project funds. The proper management of financial resources was certified annually by external auditors.

## **Networking with German and International Development Organisations**

BORDA collaborated conceptually and on a project basis with the following partners:

- CIM via the assignment of integrated experts working with the project partners TED in Lesotho and WASAZA in Zambia.
- GTZ Lesotho to prepare a project for public sanitation facilities at bus stations.
- GTZ Zambia in collaboration with the DTF (Devolution Trust Fund) to prepare and implement sanitation projects in 4 Zambian cities.
- "Weltwaerts" volunteers for the partner TED in Lesotho/South Africa and WASAZA in Zambia.

## **3. RESPONDING TO EVALUATION RECOMMENDATIONS**

An internal project evaluation of the CBS-DEWATS plants constructed in Lesotho was conducted in June 2009 and provided the following results and recommendations:

- 100% of all constructed facilities satisfy the expectations and requirements of the end users and 80% fulfil the necessary treatment capacity.
- For 30% of the DEWATS plants built in Lesotho, end users consider both wastewater treatment and the utilisation of biogas as most important. The subsequently higher input of organic load results in a deterioration of discharge values.
- Recommendation: training for end users and operators as well as agricultural users of wastewater. Continued monitoring of the facilities and process modelling in order to optimise plant design.
- Treatment capacity shows seasonal fluctuations.
- Recommendation: During winter in Lesotho, the temperature of wastewater drops below required levels for the optimum capacity of anaerobic micro-organisms. An improved design for DEWATS plants is being developed.
- Long start-up periods until full treatment capacity is reached.
- Recommendation: develop adapted strategies to initiation („inoculation“) of DEWATS plants.

Evaluation recommendations have already been implemented since 2009 and have been integrated into the planning for the project period 2010-2012.

## 4. PARTNER NETWORK

The overall development of all partner organisations has continuously been positive. In collaboration with executive staff of the partner organisations TED and WASAZA country specific operational plans have been tailored to state, international and private donors.

In May 2008, a new expert was sent via CIM to work with WASAZA. The assignment has strengthened the professional capacities necessary for project implementation and has thereby facilitated the realisation of a cooperation project that had been planned in collaboration with the DTF and GTZ to be carried out in 4 cities in Zambia.

After the CIM expert assigned to work with TED in Lesotho had been promoted to BORDA regional manager in February 2009, the vacant position at TED could already be filled with a new CIM expert in December 2009.

In addition, three volunteers sent via the BMZ "Weltwaerts" programme were successfully integrated within TED and WASAZA. Due to the specific selection and training from BORDA, the volunteers supported the work of the partners efficiently.

Research projects and technology transfer resulted in cooperations between African and German universities and African and Asian BNS BORDA partners, thereby strengthening the BNS implementation network.

### Cooperation with other Donors / Acquisition of Third Party Funds

Through the cooperation with BORDA, the partners TED (Lesotho), WASAZA (Zambia) and EEPKO (Tanzania) were able to enhance their professional expertise. As a result of this cooperation, the partners now collaborate with a number of international special development associations such as GTZ and Capacity Building International, Germany (InWEnt).

Construction of a biogas dome for a DEWATS plant during the biogas training in Zambia.

Water reuse in Lesotho



DEWATS plant with an Anaerobic baffled reactor in Zambia



## TED

The cooperation partner TED is in charge of the acquisition of funds for the financing of construction costs for DEWATS projects. Within the three years, a total of 208,000 Euro was acquired from public and private donors for the realisation of DEWATS-CBS projects. By holding information seminars and talks with interested target groups, TED conveys the advantages of decentralised wastewater treatment and the improvement of sanitation facilities. Moreover, TED is planning the undertaking of feasibility studies and secures project implementation through contractual agreements. In addition, TED supports the „Weltwaerts“ programme and actively supports research activities initiated by BORDA.

## WASAZA

The cooperation partner WASAZA (Water and Sanitation Association of Zambia) contributes 50% for the funding of two staff positions, to rent and utilities of the new project office with access to an on-site seminar room and a guest house that was set up for volunteers of the „Weltwaerts“ programme.

As honorary members of WASAZA, executive staff of municipal administrations provide consulting services free of charge and actively support the demonstration measures initiated by the project in the cities of Ndola, Livingstone, Mufilera and Solvezi. In 2009, a total of ca. 32,000 Euro were acquired for the implementation of DEWATS-CBS facilities outside the P-LOCSAN Projects.

In Durban, South Africa, a cooperation agreement was ratified with the municipal administration in 2008 with the intention to implement a pilot project for communal wastewater treatment. A DEWATS container plant was tested on the university campus of the UKZN. The project was co-financed by the Senator for Environment, Construction, Traffic and Europe of the Free Hanseatic City of Bremen.

Due to the cooperation with BORDA, the partners TED (Lesotho), WASAZA (Zambia) and EEPKO (Tanzania) strengthened their professional profile and raised their influence on their respective country specific sanitation sector. The partner organisations cooperate with a number of international professional organisations, e.g. GTZ and InWent.

## Project Planning 2010

Within the regional project, the following programme components need to be further developed and strengthened:

- adapted quality management based on internal and external training activities
- systematically building a pool of experts within the partner organisations and water utility enterprises, civic society and private economy; increasing staff capacities
- establishing a strong BORDA regional team to strengthen cooperation partners

- urban sanitation and wastewater management integrating DEWATS
- increased but controlled integration of the private sector for the dissemination of DEWATS and integrated urban planning as well as operation and maintenance of DEWATS plants

In Lesotho, country-wide project activities target public institutions (schools, orphanages etc.) and small settlements; in Zambia all 12 cities of the country are supported in planning and realising DEWATS-CBS demonstration projects; in Durban, South Africa, innovative implementation concepts and DEWATS prototypes are developed and trialled in close collaboration with municipal waste disposal enterprises and researchers of the University of KwaZulu Natal (UKZN); in Tanzania demonstration projects are initiated in coordination with prime donors and ministries to be implemented in the four largest cities in the country.

The following concrete measures and activities are included in project planning:

- Adapting the CBS-DEWATS concept that has been implemented successfully in South and South-East Asia to correspond with the demand and prevalent needs of the target countries in the SADC Region.
- Technical and advanced training for staff of partner organisations and experts of public and private organisations working in the field of water and wastewater management; the trainings are carried out within country-specific demonstration and learning projects that aim to provide adequate sanitation facilities and improve wastewater treatment.
- Implementing demonstration projects in all target countries of the region.
- Conducting information seminars for private and public service providers who are working in the field of basic sanitation and wastewater treatment.
- Establishing a network of qualified professional organisations that are actively engaged in the intended regional dissemination programme of CBS-DEWATS.
- Devising a long-term project plan that is based on concrete interest and aims to disseminate CBS-DEWATS in the SADC Region.

Funding through BORDA has to be tailored to the growth potential of the partner organisations and the demand in the sector.

In Zambia, it is the aim to continue strengthening WASAZA in the development of a centre of expertise and education by expanding consulting services and professional training programmes. This will be more closely coordinated with the German development cooperation that already carries out the InWent programme WAVE with WASAZA.

Particularly in Zambia and Tanzania, the BMZ priority countries in the water sector, collaboration with the German development cooperation is expanded in order to achieve interaction and increased efficiency of the programme.

# South Asia

## Fostering Capacity Building

### 1. OVERVIEW

#### Project Aims

Training for DEWATS engineers 2009



In 2009, the South Asia branch office entered into a new project phase supported by the BMZ. In this project phase, capacity building in the form of technical and advanced training activities for diverse target groups is to further push forward the dissemination of decentralised basic needs services.

Based on project experiences gathered over the last 6 years, technical and advanced training programmes were conducted to raise regional implementation capacities in India. These allow a successful and large scale implementation of service packages for improved basic sanitation, decentralised wastewater treatment and solid waste management. In the field of decentralised rural water and energy supply, demand-oriented activities were carried out in selected mountainous provinces. It is aimed that technical and advanced training programmes will also actively generate capacities for project implementation in these provinces.

In Nepal and Pakistan only decentralised wastewater treatment and basic sanitation service packages have been realised so far. They were designed to showcase practical learning projects.

The core aim of the project is to develop technical and advanced training structures that account for all skills and expertise necessary in the entire chain of implementation processes. The delivery of knowledge utilises interdisciplinary methods and comprises elements of the following fields: environmentally friendly, resource conserving and adapted technologies for general community hygiene, decentralised wastewater and solid waste management, integrated town planning, participatory planning and implementation processes and elements of precautionary measures for health and hygiene. In the decentralised rural water and energy supply sector, further learning projects are carried out in conjunction with advanced training activities.

#### Cooperation Partners

CDD-Society (Consortium for DEWATS Dissemination Society) continues to be BORDA's main partner. The consortium currently comprises 21 member organisations from civil society (NGOs, academic institutes, private firms) and government organisations. In total, they are active in eight Indian Federal States (Tamil Nadu, Karnataka, Kerala, Pondicherry, Gujarat, Maharashtra, Delhi, Ladakh). It also includes a Nepalese and a Pakistani organisation.

Within project activities, particular attention is paid to the expansion and strengthening of the existing CDD partner network with their head office in Bangalore (network secretariat).

#### Outputs and Outcomes 2009

During the first year of this phase (2009-2011), project work focused particularly on the institutional development of the organisation from technology provider (implementing organisation) to training institution (i.e. provider of technical and advanced trainings and capacity building in the field of BNS). A core task of all activities was to develop training materials and provide regular courses and informative events. The courses and events were aimed to deliver knowledge suited to different target groups. The outputs of the knowledge transfer have already become evident after the first project year: Course materials have been developed; first training courses and informative

sessions have been carried out and were positively evaluated by all participants. Staff of the CDD network is able to conduct and supervise trainings professionally. The network has competent experts in the fields of engineering, town planning, geography and environmental management. CDD-Society has collaborated with other organisations, platforms and partners to engage in further knowledge transfer and exchange of experience and has participated actively in professional discussions at different events (exhibitions, workshops of other organisations, technical seminars). Among notable achievements are also the numerous documents by CDD-Society to inform about their work and promote their image. Very well designed materials (e.g. posters, an O&M guidebook and brochures) on target group level are available in local languages.

A systematic structure and design of technical and advanced training courses on BNS as well as regular information events for decision-makers has conveyed skills and expertise to competent, potential BNS implementation organisations and private actors. Due to BORDA project contribution, a critical number of experts and organisations are available for the "scaling-up" of BNS services.

Further success in developing the technical and advanced training structure of CDD has been the planning and establishment of CASS, a BNS training and competence centre in Bangalore.

In addition, the partners actively influenced political decision-making and lobbied for the realisation of guidelines for BNS schemes. CDD-Society and its network are well connected and recognised on government level. Decentralised options were adopted into the national guidelines for community hygiene and amendments were made to the framework regulation on sustainable urban development in favour of decentralised small-scale wastewater treatment plants modelled on DEWATS. These are decisive milestones on the path to up-scaling basic needs oriented services in India. The CDD network has been able to achieve this through its six-years experience in programme work in the field of environmental protection and poverty alleviation. Over the course of the two preceding projects, the BORDA / CDD network has implemented a total of 400 BNS schemes in urban areas. The conceptual approaches and technical options for both domestic wastewater and sanitation management, and integrated solid waste collection and recycling have been trialled successfully. Experiences gained during these project phases help to expand the approach through capacity building and enable to reach a larger number of people.

CDD-Society has introduced a new level of management and promoted a total of five members of staff who have a long history of working for CDD. They have been given new responsibilities and core tasks. CDD moved into a larger office in Mai 2009. Establishing CASS (Centre for Advanced Sanitation Solutions) in collaboration with

Quality Management (QMS)

Planted Gravel Filter

Maintenance Team at CBS plant in  
Beedi Workers Colony



O&M at Beedi Workers Colony

CBS project in Swatantra Nagar



CDD and Rajiv Gandhi Rural Housing Corporation (RGRHCL) constitutes a milestone in the long-term dissemination of DBNS in South Asia.

The recognition and popularity of the CDD network has increased considerably and the organisation receives an increasing number of requests to conduct trainings in the field of BNS:

- 97 experts have been trained in the field of decentralised basic needs services (DBNS), in particular with respect to basic sanitation and decentralised small-scale wastewater treatment systems
- Due to training activities, 28 DBNS projects could be initiated and 19 feasibility studies could be conducted.
- Hygiene conditions were improved for 40,000 people, particularly in poor areas. Moreover, people in Ladakh gained access to renewable energy, which generates new opportunities particularly for students. In addition, due to project activities over 400,000 m<sup>3</sup> of wastewater is prevented from being discharged directly into surface or underground water.
- Four DBNS training modules have been developed and trialed.
- In Bangalore, a centre of excellence is being established to develop and promote future-oriented and sustainable sanitation solutions. In addition, a meritocratic funding system has been introduced among partners in South Asia in order to increase efficiency and transparency of fund utilisation.

CDD planned a total of 159 activities, of which 100 have been successfully carried out or completed. Further 13 activities are half through completion (50%). There were delays in the implementation of nine further activities. The remaining 37 activities have not been initiated. Further developments:

- The partner organisations have actively committed to network collaboration. A network meeting was held with the management personnel of the individual partners in order to discuss strengths and weaknesses and develop a plan of action.
- New partnerships: Vigyan Vijay Foundation, Delhi, Design Collaborative, Puducherry, Tamil Nadu
- Existing partnerships that were broadened and strengthened: ENPHO in Nepal, Alchemy in Bangalore, CEPT in Ahmedabad, Gujarat
- The partnership initiated in Pakistan in 2008 could not be extended due to conflicts between India and Pakistan and related security concerns.

The partner organisations have actively committed to network collaboration. A network meeting was held with the management personnel of the individual partners in order to discuss strengths and weaknesses and develop a plan of action.

## Project Evaluation

During the preceding project phase, regular technical monitoring and evaluation of the completed DEWATS plans was put in place in 2007. Results have been systematically used for research and development with the aim to improve DEWATS capacities.

In order to evaluate the outputs and outcomes achieved in 2009, a one-week partner workshop was carried out. As the number of partners has been increasing, a more cost-efficient combination of on-site and long-distance participation (online

conference) has been tested for the first time.

It is planned to conduct an internal evaluation of the project in April 2010.

The BMZ has signalled to undertake an evaluation of its instrument "Social Structure Assistance". It is expected that this will include an evaluation of BORDA's South Asia programme at the end of 2010.

## 2. PROJECT STEERING AND ADMINISTRATION

### Project Planning

National Workshop on Wastewater and Waste Management



In the first year of the funding period, steering measures were focused on the development of training modules, the provision of first training courses and information events. Other major steering measures included the expansion and collaboration of network partners, and capacity building among partner organisations through concrete measures and collaborative action. Furthermore, the cooperation with municipal administration and communities has been strengthened in order to increase willingness to adopt DBNS into infrastructure planning and commission building contracts.

Each month, revenue and expense journals are submitted for the monitoring of fund utilisation. In order to guarantee output and outcome oriented reporting on project progress, reporting is carried out quarterly. Both the revenue and expense journals, and the progress reports submitted by the individual network partners are first assessed and commented by the BORDA-CDD office in India before they are forwarded to the BORDA head office in Bremen.

Project results are regularly scrutinised in 'Review and Planning Meetings'. The identified "Lessons Learnt" and the difficulties in implementation experienced during 2009 thus provide guidance for the further planning of project measures in 2010.

### CDD-Society, Bangalore, in Chennai, Nagpur (RCO)

CDD Annual Planning 2009



CDD-Society is the core project agency in India. Individual network partners have been specifically integrated through CDD-Society according to their working field. Projects are implemented in collaboration with the CDD network. CDD-Society has already established itself as framework organisation for the dissemination of DBNS and is instrumental in strategy development, lobbying, and marketing as well as the further technological development of BORDA approaches in India. In addition to existing collaborators, government agencies, private enterprises, and individuals were increasingly involved in the ongoing DBNS dissemination process in the current project phase. This was achieved through the CDD network as well as new NGOs that are distinguished actors in BNS in India. It has allowed a better utilisation of synergy potentials with respect to BNS experience sharing and technical implementation capacity.

The member organisations of the CDD network offer support to clients in both capacity building for DBNS and planning and implementation of DEWATS-CBS and DEWATS-SME in particular. In order to increase service capacity and offer higher client proximity, CDD-Society opened branch offices in Chennai and Nagpur at the beginning of 2008. Both offices have increasingly established themselves in the respective region and enlarged their workforce.

Internally, CDD-Society is divided into the following sections: DBNS technical unit, DBNS social services, DBNS town planning, QMS, DBNS training and research &

development, documentation, management, administration and accounting. CDD-Society has further established itself as a reputed network in the field of DBNS.

## Human Resources

At the end of 2009, CDD-Society counted 33 members of staff, of which four worked in the regional administrative office in Chennai/Tamil Nadu and five worked in the administrative office in Nagpur/ Maharashtra.

Due to the relatively low NGO salaries compared to those paid out on the free market, the project has to continuously develop attractive, specialised training opportunities and an appropriate flexible salary structure in order to counter human resource fluctuations. Two members of CDD staff hence participated in a long-distance study programme on town planning at CEPT University.

In 2009, five integrated German CIM experts and four volunteers from the BMZ funded „Weltwaerts“-Programme commenced work within the CDD network. The support of these different German experts to the CDD network resulted in a significant improvement of expertise at management level and continues to be an important factor to increase the attractiveness to work in “Sanitation” among Indian professionals (particularly engineers).

## BORDA South Asia Office

Anaerobic Baffled Reactor under construction.



The BORDA South Asia office, also located in Bangalore, carries out higher-level coordination and professional consulting on planning and implementation of individual activities in order to efficiently steer project implementation and carry out internal control. Regular subject related working groups (e-Groups) and annually organised BORDA meetings guarantee both close coordination with BORDA head office in Bremen and networking with other BORDA projects in Southeast Asia and Southern Africa. The project coordinator is actively involved in the cross-national exchange of expertise, collaborated research and development work as well as knowledge transfer. His year-long experience with the portfolio and the overall project plan in India contributes to a positive development.

Further information was gathered for future registration of the BORDA office. It is planned to apply for “Liaison Status” (relations office) in 2010. It is expected that the registration process will take over a year. With the status of liaison office, it is possible to gain a certain independence from the CDD secretariat making the German contribution to development assistance more visible. The new status will allow BORDA to employ their own staff.

## 3. RESPONDING TO EVALUATION RECOMMENDATIONS

The project strategy has taken into account the recommendations of two external evaluators for the preceding project “Improving the Living Conditions of Disadvantaged Residents in Communities without Access to Basic Infrastructure and Structurally Disadvantaged Regions in India”. This comprises an external evaluation and an impact analysis of DEWATS-CBS activities (Health Impact Assessment – both evaluations conducted April/May 2008). Particular attention was given to recommendations regarding a diversion of programme activities to focus on ‘technical and advanced training’ in the field of DBNS.

In 2009 an impact assessment was conducted on DEWATS-CBS activities which

corroborated the necessity to integrate rain water drainage ditches into sanitation measures.

#### 4. OVERALL DEVELOPMENT OF THE PARTNER NETWORK & COLLABORATION WITH OTHER DONORS



CDD at the Go Green Exhibition in Bangalore

Health and Hygiene Training



The project contributes to poverty reduction and the sustainable conservation of natural resources in urban and rural areas. It follows the objectives of German development assistant policies, the MDGs and current sector strategies of both the German Federal Government and the target countries India and Nepal.

Concerns of the Paris Declaration are met through the demand-oriented project objectives, and the close cooperation with Indian, German and international development organisations and actors of civil society. In this respect, the project particularly contributes to the implementation of the National Urban Sanitation Policy that was put in place by the Indian Central Government at the end of 2008. Implementation is achieved by advancing the decentralised, integrated participatory solutions endorsed in the policy, as well as using and further developing an instrument that was specifically devised to undertake urban hygiene planning.

In this field, BORDA works in close collaboration with the ASEM (Advisory Services in Environment Management) Programme of the GTZ and the Department for Sustainable Urban Development. BORDA collaborates with the World Bank to organise events for the Water and Sanitation Programme (WSP) and is constantly exchanging information with programme representatives. Collaborating with WSUP, BORDA realised two demonstration projects for Community Based Sanitation in Bangalore. BORDA also participated in the annual meeting of WSUP in Nairobi in order to integrate its participatory approach into WSUP's projects in Africa.

The new director of LEDeG contributed to the stabilisation and reorientation of the organisation. Due to the collaboration with the University of Applied Sciences Northwestern Switzerland (FHNW), it was possible to conduct a training for experts in the field MHEP (Micro Hydro Electro Power) and to install the first small 30 kW hydro power station. The Chief Minister of Jammu & Kashmir inaugurated the plant. His presence demonstrated the significance of such projects for the supply of basic infrastructure for the marginalised population in mountainous regions.

In Nepal, the collaboration with the partner Environment and Public Health Organisation (ENPHO) and the support of UN-Habitat has facilitated an expansion of activities to be realised in 2010. This was further made possible through the training of ENPHO experts in 2009 as well as feasibility studies for two CBS and two SME/DEWATS plants undertaken with the support of CDD.

#### Contributions by Partner Organisations

CDD partner organisations managed to increasingly acquire co-financing for project measures particularly from public providers since Indian municipal administrations and communities have pressed to support and implement infrastructure improvements for basic sanitation and wastewater treatment, and promote decentralised solutions to achieve this. The accomplishments of some partners serve as an example and are listed below.

## Indian Institute of Youth Welfare (IYW)

IYW in Nagpur, Maharashtra, has not only cooperated with CDD to implement 18 projects activities, but has also extended collaboration with the regional CDD coordination office in Nagpur. In this function, IYW has actively contributed to the development of training materials such as the module on health and hygiene for the DEWATS-CBS training. In addition, the institute devised a project proposal for the waste management of Jalgaon Municipal Corporation.

## Rural Health and Literacy Project (RLHP)

RLHP in Mysore collaborated with CDD to implement a total of 14 activities. One highlight is the development of a training module to prepare engineers and coordinators in social services. Moreover, a number of publications were translated into the local language, Kannada. This includes the Operation and Maintenance Guidebook and various other training materials. In Chamarajnagar, a one-day DEWATS-CBS seminar was conducted for decision makers.

## ExNoRa (Excellent Novel Radical) International

ExNoRa International implemented a total of 28 activities focusing on the dissemination of DESWAM, the development of training materials and the implementation of workshops to initiate pilot projects with municipal administrations. The educational activities contributed to intensive lobbying and outreach activities related to DBNS. ExNoRa implemented two DEWATS-CBS and one DEWATS-SME utilising third-party funds. Collaborating with CDD, the partner was instrumental in the planning of the town planning project in Tranquebar and supported the DBNS planning in the Tsunami affected region of Tamil Nadu.

## DHAN Foundation

The DHAN Foundation collaborated with CDD to realise seven activities including a DEWATS introductory course for engineers. After assessing its work, DHAN has published a guidebook entitled "Alternatives in Sanitation Management". The partner conducted a DEWATS information workshop for engineers working for the government.

## Alchemy Urban Systems, Bangalore

Alchemy was working on four project activities. A matrix was developed to list national and international funding sources, portfolios of potential donors and details on their funding programmes. This compilation is invaluable for the entire network. Alchemy particularly contributes to the network through its expertise in and technical know-how of town planning.

## Ladakh Ecological Development Group (LEDeG)

LEDeG was involved in 20 activities including the development of training modules for DEWAS site managers and engineers. Between September 22nd and October 2nd 2009, a training workshop on "Community-based Micro Hydro Power Units (MHPU)" was carried out successfully. On June 5, 2009, the World Environment Day, LEDeG successfully carried out an awareness campaign on DESWAM in Ladakh. The campaign involved students, various institutions and organisations as well as local



Participative planning in cooperation with the target community

Awareness campaign on the 'World Environment Day 2009' for a clean Leh.

MHPU training workshop at LEDeG

politicians. Two project proposals were prepared and submitted to the Ministry of New and Renewable Energy (MNRE).

## 5. COOPERATION WITH OTHER DONORS / ACQUISITION OF THIRD PARTY FUNDS

With the support of BORDA, the Indian network acquired third-party funds to finance DBNS infrastructure activities totalling ca. € 795,000,-.

CDD's contribution totalled ca. € 510,000, particularly through funds from:

- Water and Sanitation for the Poor (WSUP)
- Seven Hills Hospital (joint acquisition with Design Collaborative)
- Government of Tamil Nadu (joint acquisition with ExNoRa)
- Rajiv Gandhi Rural Housing Corporation (RGRHCL)

Further contributions were acquired by CDD's regional office and ENPHO. Due to the successful acquisition of third-party funds, it was possible to start establishing a Centre for Advanced Sanitation Solutions (CASS). Direct costs for the construction for DBNS infrastructure are only co-financed through the project in exceptional cases. This reduced the contribution of project funds to the total cost of planning and construction from over 70% handed out during the first project phase (2003-05) to a maximum of 10% in 2009.

Centre for Advanced Sanitation Solutions (CASS)

Opening Ceremony for CASS



By participating in other regional, national and international networks and cooperation projects, partners expand the scale and scope of project outcomes:

- CDD is part of the GTZ network „ECOSAN“, „WSP“ of the World Bank, „EcoSanRes“ of the Stockholm Environment Institute, the Institute for Sustainable Future (Australia); the Water Engineering Development Centre (WEDC), the World Toilet Organisation, the International Water Association (IWA) and the City Managers Association Karnataka (CMAK)
- EXNORA is active member in the “Asia Urbs Programme for the Revitalisation of Historic Cities”, the Global Alliance for Incineration Alternatives (GAIA), the “BASIN” network and FANSA-Freshwater Action Network South Asia.
- RLHP contributes intensively to the Indian “Campaign Against Child Labour” (CACL), the NGO network in Mysore, “MYTHRI”, the “Campaign against Child Trafficking” (CACT) and the FEVORD/K – Federation of Volunteers Organisations of Karnataka.
- IIYW is active member of PACS – Poorest Area Civil Societies, AWTC – Anganwadi Workers’ Training Centres, IDARA – Information Development and Resource Agency and the Gandhi Peace Centre
- LEDeG is member of the Solar Energy Society of India, the Future Earth Network and the Consortium of Networks for Passive Solar Housing
- ENPHO is actively involved in the NGO Forum for Urban Water and Sanitation, SuSanA – Sustainable Sanitation Alliance, the FANSA – Freshwater Action Network South Asia, the Climate Change Network Nepal and hosts the Nepal-Node for Sustainable Sanitation (NNSS).

# Southeast Asia

## Protection of Climate and Scarce Fresh Water Resources

### 1. OVERVIEW

#### Project Aims

The overall goal of the project is to improve the living conditions for residents of poor urban and rural settlements.

Project objectives include:

1. Improving communal wastewater and solid waste management
2. Improving sanitation infrastructure in densely populated areas
3. Improving decentralised water and energy supply in rural mountainous areas of the target region.

#### Target Groups

The project targets inhabitants of poor and densely populated urban and semi-urban areas, users of public institutions, such as schools and hospitals, as well as small enterprises which make illegitimate use of natural resources and generate pollution due to insufficient waste and wastewater treatment.

In poor rural mountainous areas the project targets farmers and small-scale entrepreneurs who do not have access to reliable water and energy supply and in being deprived of income opportunities and adequate sanitation services are marginalised and cut off from the general economic development.

The project particularly targets women and children, as they are affected most by the adverse effects of inadequate basic infrastructure of the aforementioned project areas. Secondary target groups include public authorities, civic and social organisations, the private sector as well as decision-makers of development cooperation programmes which support the proposed project.

#### Outputs 2009

The degree of professionalism in managing the cooperation projects was significantly heightened due to the introduction of internal and external directives. This further increases the efficiency of utilising project resources. The efficiency and effectiveness of BNS portfolio components was also continuously increased. This was achieved through the development of a quality management system (QMS) for each individual component.

Over 100 individual projects were implemented in total, resulting in improved basic sanitation services for 30,000 people. In Indonesia alone 8 new DEWATS/SME plants for schools, hospitals and small-scale agro-industries were built.

The DEWATS facilities are all managed by trained self-help groups. In the course of these projects over 500 technicians have been trained and educated. 300 of those receiving training were from Indonesia. Due to the installation of 90 new DEWATS plants, approx. 23,000 people benefit from significantly improved basic sanitation services.

In Indonesia, the Philippines, Cambodia, and Vietnam environmental pollution was drastically reduced through the realisation of DEWATS projects (in the four countries 11,000 tons of COD are kept away from surface and underground water annually). This contributed to a considerable improvement of the water quality within the catchment area of hospitals, slaughter houses, soya factories, markets and feedlots.

Continued progress was made in disseminating decentralised services for small-scale



DEWATS SBS in an Islamic school with more than 700 students in Blitar, East Java Waste is separated to recycle the resources

The toilet facilities in the girls house in an Islamic school in Blitar, East Java



DESWAM = Garbage collection and composting near Yogyakarta, Indonesia

waste management and recycling (DESWAM). Residents and municipal authorities at 7 sites actively support the DESWAM measures. Approximately 50 workers were trained to operate the 5 recycling stations. This resulted in a substantial improvement of hygiene in the living environment.

In Vietnam the construction of two DEWATS plants was completed to serve a total of 200 residents and a slaughter house. Two further plants are in the planning stage. As part of decentralised water supply services, 3 hydraulic ram pumps have been installed in response to requests from villagers and authorities. They will start operation in spring 2010. This increases the total number of hydrams installed in Vietnam by 2009 to a total of 180 systems.

The construction of the first DEWATS plant installed nationwide began after planning had been completed in December 2009. The plant connects to accommodation for 125 residents on a university campus.

Regarding decentralised services for renewable energy, 2 turbines were installed for pico-water power systems. With the operation of the systems, small-scale farming enterprises have gained access to electricity. The previous year, a pilot project had been initiated to treat water for drinking. This has now been implemented in the village of Ban Xor and is operating successfully.

On the Philippines, 4 DEWATS projects have been implemented, namely for a slaughter house, a hospital, and a market. The project activities were accompanied with workshops that introduced decision-makers to the advantages of DEWATS plants.

In China, 60 households with approx. 240 people in total were equipped with water filters. The water quality was tested and does now comply with the national standard. Survey reports by "Atmosfair" and "TÜV-Nord" confirmed the positive effect of the hydraulic ram pumps on climate protection. The resulting transfer of funds from the climate protection fund to the project was utilised to partially finance hydraulic ram pumps in 2008. The continuation of the project, however, was disrupted in 2009 due to administrative delays in project approval by Chinese authorities.

## Cooperation Partners

The non-governmental organisations BALI FOKUS, BEST, and LPTP continued to be project partners in Indonesia. On the Philippines, the partner organisation BNS is in charge of project realisation. In Vietnam, projects are collaborated with VAWR, in Laos the project partner was LIRE. In Cambodia, BORDA collaborated with COMPED and the French partner organisation GRET. YEDI and ZUT are cooperation partners in China.

Precondition: Open Toilets in a small settlement in Mojokerto, East Java

Construction of a DEWATS for a CBS/SANIMAS project in a small settlement in Mojokerto, East Java



## 2. PROJECT STEERING AND ADMINISTRATION

Intensive project steering and administration of the regional project was required for the coordination of 9 cooperation partners in 6 countries. Steering and administration has been carried out by the regional office in Yogyakarta.

In 2009, BORDA managed to strengthen all working structures necessary for the operation of a regional project and to effect an efficient implementation of the planned activities.

The integrated experts that have been sent via the Centre for International Migration Germany (CIM) since 2008, were able to further strengthen the competence of three project partners in Indonesia and Vietnam.

In the course of a regional evaluation and planning workshop carried out at the beginning of 2009, outputs of the previous year were evaluated and a detailed action and financial plan was devised for the year 2009. In addition to operational planning, the plan covered aspects of project monitoring, bookkeeping and documentation. This was carried out in close collaboration with the management and accounts departments of the partner organisations. Impact oriented planning was realised with partners on a local level. The newly established project cooperation offices in Vietnam, Cambodia and Laos were supported by the regional management and experienced local experts.

Quarterly financial and progress reports as well as calls for the release of project funds were submitted routinely to the BORDA head office. The journal was revised in correspondence to the planning structure and resulted in a further allocation of expenses to cost items according to the funding guidelines as well as to the outputs, main activities and sub-projects as documented in the project plan. A summarising project appraisal is conducted by the regional project office as part of an annual "Activity-based Costing" analysis. The examination of expense journals was coordinated by the regional project office in Indonesia and conducted by independent auditing firms.

The coordination of cooperating with individual partner organisations was undertaken by BORDA's project and business management during their quarterly business trips. At the end of 2009, a framework plan for 2010 was developed in collaboration with representatives of partner organisations. In February 2010, a one-week planning workshop was held, which elaborated on the framework plan to devise detailed planning and monitoring guidelines for the year 2010.



Construction of a DEWATS for a CBS/  
SANIMAS project in a small settlement in  
Mojokerto, East Java

SANIMAS Operator in the migrant settle-  
ment 'Segina Asri' in Denpasar, Bali

## Networking with other Development Organisations

As a result of the cooperation with CIM, three experts supported BORDA partner organisations in South-East Asia in 2009. BORDA partner organisations received further support through the Weltwaerts-Programme, which is funded by the BMZ. The programme provides young, qualified graduates from university or vocational training with the opportunity to be actively involved in development cooperation in partner countries. In 2009, 18 volunteers were working for partner organisations in Indonesia and Vietnam.

## 3. RESPONDING TO EVALUATION RECOMMENDATIONS

In the course of a scientific assessment of activities to improve small-scale agricultural water supply in mountainous regions in Zhejiang, China, it was recommended to tie the project to climate change protection programmes. The BORDA partner ZUT collaborated with the German climate protection organisation Atmosfair to prepare an application for the approved sale of certified emission reductions (CER). The payments resulting from this trade were provided to BORDA in advanced disbursement by "Atmosfair" and were used to co-finance 60 hydraulic rams.

In response to recommendations made by the evaluation expert Prof. Dr. Frank Bliss, a guidebook was developed for Vietnam to aid the implementation of small-scale agricultural irrigation projects utilising the hydraulic ram. The guidebook is to be applied in practical training courses and is to facilitate the further dissemination/introduction of the programme in the neighbouring country of Laos.

## 4. DEVELOPMENT OF THE PARTNER NETWORK

Use of Biogas of a DEWATS SME for a small tofu and tempe production in Ubung, Denpasar, Bali

Use of Biogas to cook for more than 700 students every day in a DEWATS SBS project in Blitar, East Java

The overall development of the partner network continued to be very encouraging in 2009. The partner network constitutes the largest service provider of community-responsive implementation of adapted wastewater management for low income target groups in Indonesia. Cooperation projects strengthen social structures by professionalising and upgrading professional organisations in civil society in the course of multi-stakeholder implementation schemes. With the dissemination of the DEWATS-



CBS programme and budgeting for 5000 plants in the Indonesian 5-Year Plan 2010-2014, it has become necessary to transform partners from service providers to training organisations for the implementation of DEWATS-CBS after 2010.

## Contributions by Partner Organisations / Acquisition of Third Party Funds

Evaluation 2009 and Planning 2010 in  
Yogyakarta



## Indonesia

**Bali Fokus:** The organisation supports not only the Province of Bali, but also the remote Provinces of Nusa Tenggara Barat, Nusa Tenggara Timur and South Sulawesi, with the latter being run by small project offices in Makassar (South Sulawesi) and Kupang (NTT). The proximity of the offices to the project sites guarantee the cost efficient implementation of DEWATS-CBS and DESWAM schemes. Bali Fokus works in 5 provinces and 12 districts.

Project work of the BORDA network in Indonesia was supported by the National Development Planning Agency (BAPPENAS), the Ministry of Public Works (PU), the Ministry of Environment (LH) and local government water utilities (PEMDAs), as well as the international development agencies JICA (Japan) and IDRC (Canada). Co-financing ensued from these co-operations for construction works and additional personnel totals 2.7 million Euro. It facilitated the implementation of additional activities and resulted in a significant increase of project impact.

**BEST:** The NGO runs project offices in the cities of Tangerang, Surabaya, Medan and Padang. In consultation with national ministries and provincial and municipal administrations, DEWATS and DESWAM related community activities cover 5 provinces and 33 districts. An integrated expert sent via CIM controls and assures the quality of construction and supports BEST in the consolidation of the quality management system.

**LPTP:** The cooperation between LPTP CB-Tech and the Ministry of Environment was further expanded. LPTP supports activities related to both wastewater treatment (DEWATS) and renewable energy supply (Biogas). Supported by an integrated CIM expert, LPTP improved the application of the electronic management documentation system (EMDS) and the DEWATS-QMS system has been incorporated into project implementation. In addition, CIM funding facilitated the pre-fabrication of 19 biogas septic tanks and 100 household grease traps both made of glass fibre reinforced plastics. LPTP works in 4 provinces and 21 districts.

## Philippines

**BNS Philippines Inc.:** The partner BNS steadied the number of implemented wastewater treatment systems for agro-industry (slaughter houses, cattle and wet markets) and came to cooperation agreements with 5 local governments to implement DEWATS/SME. Funding for these is provided to 100% by local governments or private developers. BNS has established itself as a recognised service provider of decentralised wastewater management on the Philippines. As a result of intensive outreach activities undertaken by BNS and BORDA, interest in DEWATS-CBS rose among Philippine authorities. This set the foundation for commencing DEWATS-CBS project activities in 2010.

## Vietnam

**VAWR:** In the course of institutional reform, the partner organisation VIWRR was upgraded to form the “Vietnamese Academy for Water Resources” and is now in charge of national research, development and demonstration projects for rural water and sanitation management. At the celebrations of its 50th anniversary since foundation, key government figures emphasised the high rank of the academy. The institute actively acquires funds from super-ordinate ministries in charge of rural development and environmental protection and uses these for the implementation of pilot projects. VAWR further supports BORDA and its staff in all required permit procedures. The trained members of staff are able to devise design and implementation plans independently and actively support site supervision. Financial resources are also increasingly acquired from additional international donors. This resulted in collaboration with the University of Cologne to establish a master’s degree programme on technology and resource management.

An expert in decentralised wastewater disposal co-financed by CIM ensures capacity building, continuity of cooperation activities and collaboration with GTZ and KfW on wastewater disposal projects.

## Laos

**LIRE:** With the inclusion of the DEWATS-CBS service package into their portfolio, LIRE has established itself as a leading provider of community responsive decentralised wastewater management. Through the project, LIRE staff received intensive training which enabled the organisation to acquire third party funds from international donors (JICA, UNEP). These are utilised to cover the costs of the infrastructure of DEWATS plants that are scheduled to be constructed in 2010.

SANIMAS/DEWATS in the poor urban settlement Ubung in Denpasar, Bali

SANIMAS/DEWATS CBS in Mojokerto, East Java





DEWATS SBS near Phnom Penh, Cambodia

## Cambodia

**COMPED:** Due to additional cooperation agreements between the BORDA branch office in Cambodia and the NGOs CfD and GRET, it was possible to acquire third party funds to realise 3 DEWATS-CBS pilot projects totalling 40,000 Euro.

## China

**ZUT:** Qualified staff at ZUT further enhanced their competence in conceptualising and planning climate relevant development projects. This was made possible through the cooperation with the German climate protection organisation “atmosfair” that was introduced to ZUT by the BORDA head office.

**YEDI:** Due to increased collaboration with BORDA and ZUT, YEDI has developed a new field of competence and activity which is to result in the realisation of climate protection measures in Yunnan Province over the medium term.

Specialists at the partner organisations YEDI and ZUT, as well as executive staff at the Yunnan Provincial Environmental Protection Agency and engineers at the Regional Energy Offices in Zhejiang provide consultancy services for the project free of charge.

Minor willingness of responsible authorities to support approvals for activities related to climate protection and poverty reduction increasingly hinders effective development cooperation in China.

## Project Aims 2010

All cooperation projects are administered according to prevalent directives. Instructions and guidelines regarding project realisation and quality control are adapted to the directives and developed for all components of the BNS portfolio. Project related knowledge management secures documentation, reporting and communication between project partners.

In Indonesia, 200 engineers, construction managers and social workers are to be trained to implement DEWATS/CBS projects. Collaborating with the Ministry for Public Works, provincial governments and districts, approx. 300 social workers, construction managers and engineers from 10 provinces are to be trained in regional seminars on planning and implementation of DEWATS-CBS projects. Approximately 80 DEWATS/CBS schemes have been realised in 60 cities and districts, thereby improving sanitation conditions for 24,000 people. The proper functioning of schemes constructed in 2009 will be evaluated.

In Vietnam, further learning projects implemented in so-called “Craft Villages” near Hanoi are to provide on-the-job training for project staff. In addition, 5 DEWATS/SME are to be constructed for hospitals, prisons and small and medium-sized agricultural enterprises. In Indonesia, 8 further DEWATS plants are to be put into operation serving hospitals, schools and small agro-businesses (slaughterhouses, feedlots, tofu factories). The responsible personnel are to be trained to carry out all required

activities. On the Philippines it is planned to realise 5 DEWATS/SME schemes for hospitals and slaughterhouses and train relevant personnel. In Cambodia and Laos further professionals receive intensive training to implement the planned DEWATS/SME in the two countries.

In Indonesia, all DESWAM related training materials are to be revised and six consultants and social workers are to be trained in this field. 10 further DESWAM projects are to be planned and realised in collaboration with municipal administrations and residents.

Decentralised services for the supply of renewable energy (DERES) are to be further expanded. In Laos, decision-makers are informed about options for project implementation of regulated rural pico-hydro systems. The activities are developed in collaboration with Vietnamese experts in the field. These activities are carried out at a minimum of 5 sites. In Yunnan Province in China, an additional technician is to be trained for biogas related activities. The operation of the plant in Qiubei County is monitored regularly. In connection with plant operation, a management and monitoring system is established with the responsible authority. Executive staff of the Regional Energy Offices are informed through workshops about project packages regarding biogas climate protection.

For services regarding decentralised services for water supply (DEWASS) in Vietnam, a total of 10 technicians are to be trained in project monitoring. A guidebook on the implementation of hydram projects is to be published and older information leaflets are to be updated. In order to improve the situation in provinces, it is planned to implement a new hydram demonstration project in collaboration with village communities and agricultural bureaus. In Laos, it is the aim to train LIRE staff by experts from VAWR in order for the partner organisation (LIRE) to implement hydraulic ram schemes. In the Chinese province of Yunnan, seminars are held to inform decision-makers and users about the supply of drinking water. In Zhejiang Province, experts at ZUT are to train staff of Rural Energy Offices (REO) in 4 counties to implement the hydram scheme according to climate protection requirements. Workshops are aimed to inform future agriculturists (ca. 200) about specific advantages of decentralised water supply systems. In addition, the proper functioning of over 65 hydrams is monitored and documented.

Comparing wastewater from two different chambers of a DEWATS plant.

Monitoring of a DEWATS plant for a market and a living area near Phnom Penh

SANIMAS/DEWATS CBS in the migrant settlement 'Segina Asri' in Denpasar, Bali



# 5. BORDA BNS Workshop in Bremen

## “Improving Emergency Sanitation”

This year’s BNS Workshop was devoted to basic sanitation in emergencies (Emergency Sanitation). The gathering of experts from four continents shows the importance and urgency of this issue. The Department for Development Cooperation of the Bremen Senate for Environment, Construction, Transport and Europe together with the Sparkasse Bremen supported the workshop, which was held at the “Bremische Bürgerschaft”, the House of the Bremen State Parliament, in Bremen on the 10th of September 2009.

### Goals

The workshop aimed to provide a platform for professional exchange and the initiation of cooperation between sanitation practitioners and organisations providing emergency sanitation. Cooperation is to result in improved basic sanitation and public health in emergencies.

At the workshop, BORDA presented their two mobile small-scale wastewater treatment plants for the first time, one being built from pre-fabricated glass-fibre reinforced plastic (GRP), the other being based on a container system.

### Experts from 11 Countries

A total of 37 decision-makers in the field of emergency sanitation hailing from 11 countries participated in the workshop (Nigeria, South Africa, Philippines, Myanmar, Indonesia, India, Vietnam, Australia, Sweden, the UK and Germany). This included experts from the London School of Hygiene and Tropical Medicine, the German Red Cross, OXFAM/GB, Malteser Int., CARE/Australia, THW and the Stockholm Environment Institute. With their presentations these experts inferred their practical experiences and concrete procedures in cases of natural disasters (floods, earthquakes etc.) and political conflicts (refugee camps).

### Impact Related Outputs

The following impact related outputs have become evident:

1. During preparation it has already become clear that within the sector there are no other solutions that are comparable to those provided by BORDA, and that there is a great interest from approached experts in GRP or container based wastewater treatment systems.
2. With 37 participants, the workshop was completely booked out. Experts from reputable organisations were present. This included representatives from the WASH clusters that are influential in the emergency sector. Lively discussions during the events and personal feedback have confirmed that both the style and content of presentations given by BORDA network members have been appreciated as practical, enriching and of high value.



For the fifth time: BNS workshop at the Bremen Parliament (Haus der Bremischen Bürgerschaft)

3. The workshop reaffirmed that BORDA's prefabricated solutions meet great interest among emergency organisations. The GRP solution was favoured over the steel container system. Both, Malteser Germany and the THW have expressed interest to collaborate on trial projects. CHS, a container producer in Bremen which was represented at the workshop, inquired about cooperation to produce a container for clients outside development cooperation. Subsequent offers have been made to CHS. In the aftermath of the workshop, BORDA was recommended and accepted to become a member of the Working Group 8 (Emergency Sanitation) of the Sustainable Sanitation Alliance ([www.susana.org](http://www.susana.org)).
4. Outcomes of the expert workshop could already be presented at the collaborative DEWATS conference held by BORDA and IWA (Int. Water Association) in Indonesia, 23.-25. March 2010.
5. With the words of welcome by Christian Bruns, director of the Department for Europe and Development Cooperation of the Senate for Environment, Construction, Transport and Europe, the BORDA workshop contributed to profiling the Free Hanseatic City of Bremen as a centre for innovation, cosmopolitanism and assuming global responsibility.

## Evaluating Project Outputs

The desired project outputs have been fully accomplished:

Relevant German and international decision-makers and practitioners from reputable emergency relief organisations working in the field of sanitation were given ample opportunity during workshop preparation and through posted conference readers to familiarise themselves with BORDA's competence and the quality of its developed emergency sanitation modules. Already, first concrete interest has been expressed in collaboratively carrying out first pilot projects. For the first time, BORDA has presented their solutions to the group of professional European organisations for emergency relief and has positioned itself well within the group. The workshop therefore successfully served to introduce BORDA and their solutions into this professional circle.

The cooperation with CHS shows that entrepreneurs from Bremen are interested in the development of finished products tailored to aid projects and that they are keen to market these amongst their existing client base.



A whole DEWATS plant is built from this container  
- standardized and transportable  
worldwide

# Education and Public Relations

## DEWATS Service Packages Distinguish the Range of DEWATS Solutions

### 5th International BNS Workshop in Bremen



This year's BNS workshop was again held in Bremen and organised by the BORDA head office. As in the past, the rooms in the "Bremische Bürgerschaft", provided a tasteful working atmosphere in midst the City of Bremen; an atmosphere that was valued by all domestic and foreign guests.

During the preparation of the workshop, sanitation experts and decision-makers of the most prominent German and European emergency relief organisations were already informed about the new basic sanitation options developed by BORDA. Information material about these BORDA options and a comprehensive conference reader documented the entire workshop including technical papers by invited speakers.

### DEWATS Service Packages



Having started this year for the first time, ten brochures of 4 pages each illustrate the DEWATS Service Packages. The brochures have been made available to all BORDA regional offices and partner organisations for their PR activities. They demonstrate that with the "DEWATS" system BORDA and the partner network provide services that stretch far beyond the technology of the DEWATS system itself. DEWATS constitutes a comprehensive concept that includes tested solutions which can be combined with other services or implemented as an individual package:

- School Based Sanitation
- Sanitations for Real Estates
- Community Based Sanitation
- Municipal Sludge Treatment Plant
- Emergency Sanitation
- Sanitation for Prisons
- Sanitation for Hospitals & Hotels
- Sanitation Mapping
- Sanitation for Agro-Industry
- Health Impact Assessment & Hygiene Education

### DEWATS Newsletter

The DEWATS Newsletter also reflects the wide range of DEWATS services in concrete project realisations. The newsletter was first published in 2008. This year it was again produced 4 times and delivered to over 4000 development specialists in Europe, Asia and Africa. The newsletter is a digital compilation of all article excerpts about DEWATS (incl. web links to the full text version) that have been published on the four BORDA websites in the past three months. In 2009, there were a total of 120 articles that were written by experts from the entire BORDA BNS network.

### Fundraising Campaign "BORDA hilft!"

As in previous years, BORDA's fundraising campaign continued to aid in improving the hygiene conditions at facilities in partner countries. The campaign "Schule darf nicht krank machen" ("School should not make sick") raised funds from Bremen's citizens and the German Asia-Pacific Business Association Bremen (OAV Bremen). The generous funds facilitated the construction of toilettes and decentralised wastewater treatment plants (DEWATS) in Cambodia. The facilities substantially improved basic sanitation and the health of students and orphans while also helping to protect the environment.



Children in the Chroy Jong Va Primary School washing their hands

At the Chroy Jong Va Primary School located in the Cambodian capital Phnom Penh a toilette block with 10 toilettes was completely renovated and equipped with a DEWATS plant. In addition, students and teachers were educated on the significance and interrelation of health and hygiene.

The Sovann Komar Orphanage is the second facility benefiting from this year's fundraising campaign. Located in the Kien Svay District of the Province Kandal, the orphanage was also equipped with a DEWATS plant. The improper functioning of the previously installed wastewater treatment plant had adversely affected the health of the children and residents of the home. The unhygienic toilette facilities had been breeding ground for numerous germs which particularly affected the health of the children.

The most recent fundraising campaign in 2010 continues to be entitled "School should not make sick" and focuses on improved basic sanitation, hygiene and security in schools in Southern Africa and Asia. In December 2009, BORDA raised awareness of this campaign through a small but spirited fundraising gala held at the Stadtwaage Bremen, entertained by a gospel choir.

## Weltwaerts

The BMZ-sponsored volunteer programme "Weltwaerts" was running the second year this year. In collaboration with the Bremen sustainability agency econTUR, BORDA gave 16 young and committed people the opportunity of a cultural exchange and work experience in development cooperation projects. With the motto "Lernen durch tatkräftiges Helfen" ("Learning by Active Helping") the volunteers use the knowledge they obtained during their degree or vocational training and support BORDA partner organisations by applying this knowledge in target countries in Southern Africa and Asia. They benefit from the great practical experience and project implementation know-how that is prevalent within the BORDA network. In exchange, the partner organisations receive an enthusiastic and professional volunteer.

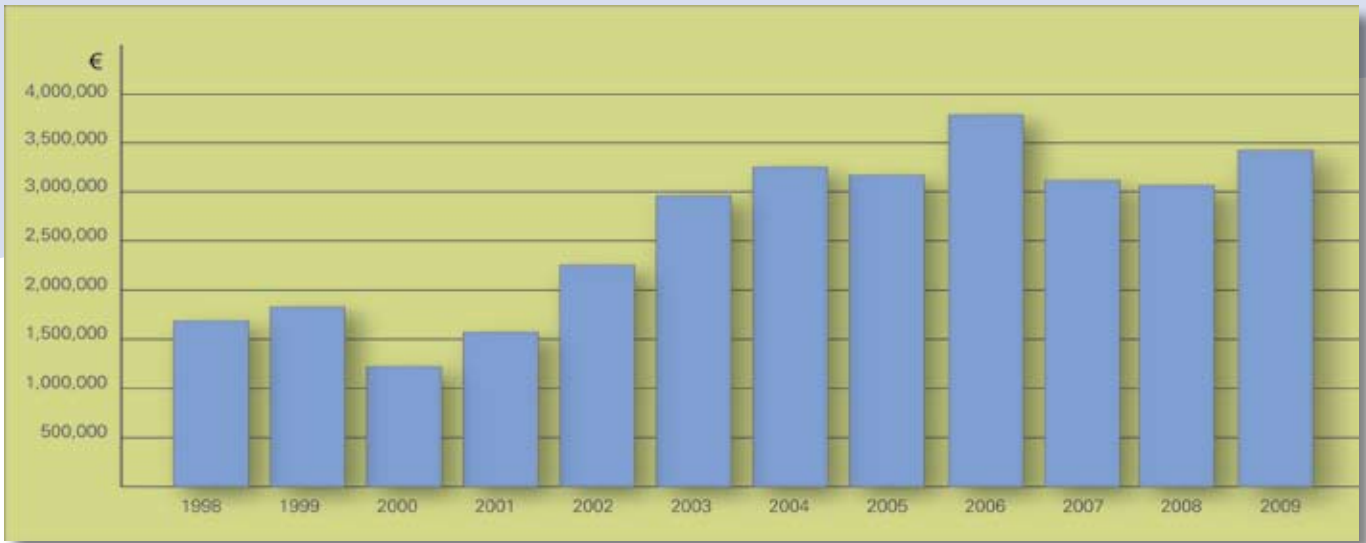
In addition to the Weltwaerts programme, the BORDA head office provided five enthusiastic high-school graduates and students the opportunity to gain work experience (internships) in the field of development cooperation.

"weltwaerts"-volunteers ready to leave for their place of action



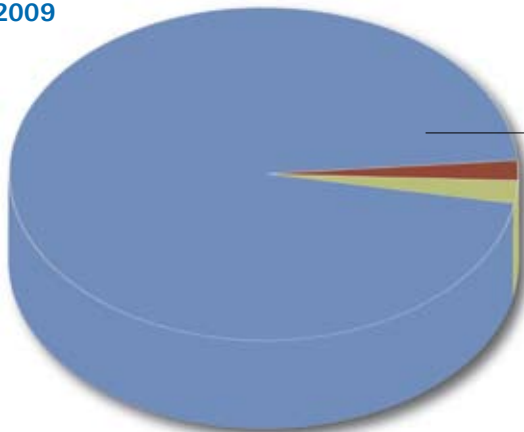
# Facts and Figures

## Change in Turnover 1998 to 2009



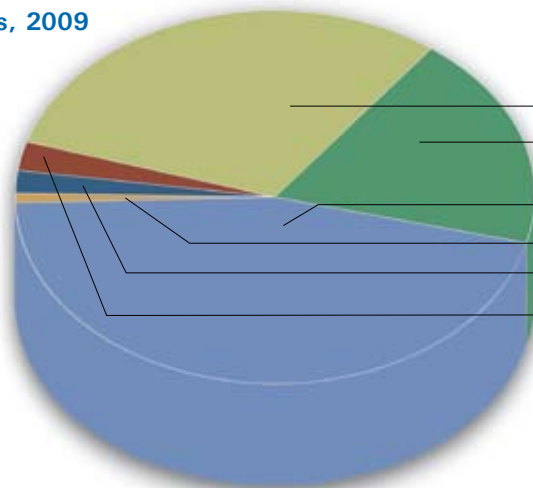
Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
in €	1,687,851	1,830,062	1,222,899	1,571,565	2,257,300	2,964,113	3,253,789	3,170,060	3,787,150	3,107,480	3,083,460	3,430,740

## Turnover by Donors, 2009



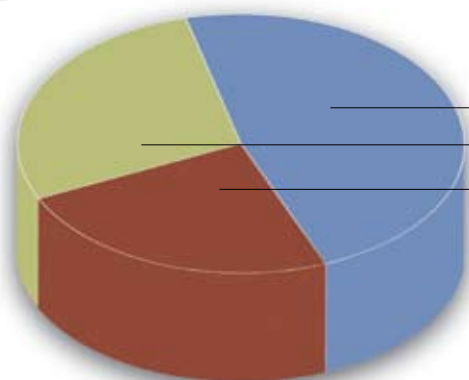
BMZ	96%
Bremen	2%
Others	2%

## Turnover by Projects, 2009



CBS India 2009-2011 (BMZ)	1,050,000
SADC 2007-2009 (BMZ)	643,290
Southeast Asia – Sustainable Resource Management 2008–2010 (BMZ)	1,564,986
Fundraising & Private Donations	22,412
Small Projects (other Donors)	64,365
Diverse Projects (SUBVE Bremen)	84,500

## Personnel in the BORDA Head Office Bremen and in the Partner Countries



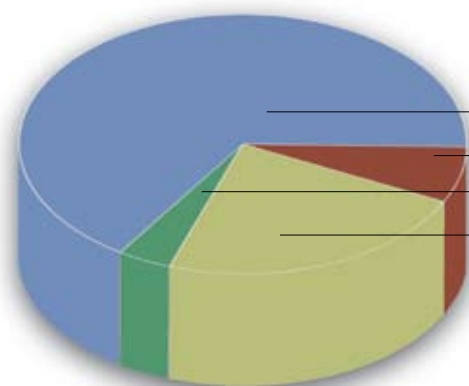
Project Management / Public Relations /  
Knowledge Management / Accountancy 48%

Technicians / Engineers 24%

Social Workers / Sociologist 28%

Number	Location	Project Management / Public Relations / Knowledge Management / Accountancy	Technicians/ Engineers	Social Workers/ Sociologists	Full-time	Part-time
16	Bremen	8	5	3	10	6
200	Partner countries	116	87	13	192	24
<b>216</b>	<b>Total</b>	<b>124</b>	<b>92</b>	<b>16</b>	<b>202</b>	<b>30</b>

## Personnel by Locations



Southeast Asia 65%

Bremen 7%

SADC 4%

South Asia 23%

Number	Locations	Project Management / Public Relations / Knowledge Management / Accountancy	Technicians/ Engineers	Social Workers/ Sociologists	Full-time	Part-time
50	South Asia	28	18	4	45	5
9	SADC	7	1	1	6	3
141	Southeast Asia	73	63	5	131	10
16	Bremen	8	5	3	10	6
<b>216</b>	<b>Total</b>	<b>116</b>	<b>87</b>	<b>13</b>	<b>192</b>	<b>24</b>

# Outlook for 2010

Due to the support of our staff and partners, BORDA's unique portfolio in the field of "Basic Needs Services" continues to develop rapidly while simultaneously being adapted to the needs of people and the conditions of diverse sponsors both at home and abroad. The job requirements for our staff and partners are accordingly high and are often only possible to achieve through commitment outside normal office hours.

Following the motto "knocking on doors is part of the business", BORDA will boost its Public Relations on German and international level. PR activities in 2010 include the support of project based media reporting, the participation in international conferences, exhibits on trade fairs, encounters with German development politicians, participation in seminars, and publications of technical papers, as well as our recurring Christmas campaign "BORDA hilft!".

With the acquisition of additional funds – proposals to the EU (Water Facility Africa, Switch-ASIA) and other international donors – our development-relevant services are to be made available to more people in Africa and Asia. This is part of our effort in contributing to the achievement of the Millennium Development Goals, even if they should be accomplished at a later time.

In our efforts to expand services we are continuously striving to guarantee the quality of our services and to further improve them through innovation. This includes systematic trainings (on-site and online), employing and fostering junior professionals, as well as research and development projects with selected German and international universities and firms.

The BMZ observes all social structure assistance projects of member organisations of the "Social Improvement Network" (AGS) and evaluates their development-relevant outcomes. This is an opportunity for BORDA to further showcase the features of our unique position that we have developed over decades based on "development cooperation from a community perspective". It is further an opportunity to distinguish ourselves at the interface of "bottom-up meets top-down" within development policy.

Promoting "Private-Public Partnership" collaborations, we plan for 2010 to present prefabricated solutions for DEWATS wastewater systems made of concrete, steel and fibre glass. Apart from their application in disaster and conflict areas, we expect the prefabricated systems to significantly increase the dissemination, quality and impact of decentralised wastewater treatment.

On behalf of BORDA, I would like to take this opportunity to thank the Federal Ministry for Economic Cooperation and Development (BMZ) and the Senate for Environment, Construction, Transport and Europe (SUBVE) of the Free Hanseatic City of Bremen for their year-long support of our activities. Without their basic funding and support our success would not have been possible.

I also would like to thank the many private donors, the Bremer Sparkasse and the German Asia-Pacific Business Association Bremen (OAV), which have both generously supported our campaign "Schule darf nicht krank machen" ("School should not make sick").

„Thinking long-term – Acting now“

Andreas Ulrich



**BORDA**

# Table of Abbreviations

<b>BALIFOKUS</b>	Bali Fokus Foundation (NGO), Indonesia	<b>KEU/CEU</b>	Kommission der Europäischen Union
<b>Bappenas</b>	National Development Planning Agency, Indonesia	<b>KfW</b>	Commission of the European Union KfW Entwicklungsbank
<b>BEST</b>	Bina Ekonomi Sosial Terpadu – Institute for Integrated Economic & Social Development (NGO), Indonesia	<b>LEDEG</b>	German Development Bank Ladakh Ecological Development Group (NGO), India
<b>BMZ</b>	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung German Federal Ministry for Economic Cooperation and Development	<b>LIRE</b>	Lao Institute for Renewable Energy
<b>BNS</b>	Basic Needs Services	<b>LPTP</b>	Lembaga Pengembangan Teknologi Pedesaan (NGO), Indonesia
<b>CASS</b>	Centre for Advanced Sanitation Solutions, India	<b>MoU</b>	Memorandum of Understanding
<b>CBS</b>	Community Based Sanitation	<b>MHPU</b>	Micro Hydro Power Unit
<b>CDD</b>	Consortium for Dissemination of DEWATS, India	<b>NGO</b>	Non-Governmental Organization
<b>CIM</b>	Center for International Migration and Development, Germany	<b>OAV</b>	Ostasiatischer Verein Bremen e.V. (German Asia-Pacific Business Association Bremen)
<b>CMAK</b>	City Managers Association of Karnataka, India	<b>O&amp;M</b>	Operation & maintenance
<b>COMPED</b>	Cambodian Education and Waste Management	<b>P-Loosan</b>	Projects on Low Cost Sanitation
<b>CSE</b>	Centre for Science and Environment, India	<b>QMS</b>	Quality Management System
<b>DBNS</b>	Decentralized Basic Needs Services	<b>RLHP</b>	Rural Health & Literacy Programme, Indonesia
<b>DESWAM</b>	Decentralized Solid Waste Management	<b>SADC</b>	Southern African Development Community
<b>DEWATS</b>	Decentralized Wastewater Treatment Systems	<b>SANIMAS</b>	Sanitation by Neighbourhoods
<b>DHAN</b>	Development of Humane Action, India	<b>SANMAP</b>	Sanitation Mapping
<b>ECOSAN</b>	Ecological Sanitation	<b>SME</b>	Small and Medium sized Entities
<b>EPCO</b>	Environmental Engineering & Pollution Control Organization, Tanzania	<b>SUBVE</b>	Senator für Umwelt, Bau, Verkehr und Europa, Bremen (The Senator for Environment, Construction, Transport and European Affairs, Bremen)
<b>ENPHO</b>	Environment and Public Health Organisation, Nepal	<b>TED</b>	Technologies for Economic Development, Lesotho
<b>ESP</b>	Environmental Services Program	<b>UNICEF</b>	United Nations International Children's Emergency Fund
<b>EXNORA</b>	Excellent Novel and Radical Ideas (NGO), India	<b>UKZN</b>	University of KwaZulu-Natal, South Afrika
<b>GTZ</b>	Deutsche Gesellschaft für Technische Zusammenarbeit GmbH	<b>USAID</b>	United States Agency for International Development
<b>HIA</b>	Health Impact Assessment	<b>VAWR</b>	Vietnam Academy for Water Resources
<b>HydRam</b>	Hydraulic Ram, Hydraulischer Widder	<b>WASAZA</b>	Water and Sanitation Association of Zambia
<b>IDRC Canada</b>	International Development Research Centre Canada	<b>WHO</b>	World Health Organization
<b>IYW</b>	Indian Institute of Youth Welfare, India	<b>WSP</b>	Water and Sanitation Program of the World Bank
<b>InWEnt</b>	Internationale Weiterbildung und Entwicklung gGmbH, Capacity Building International	<b>YEDI</b>	Yunnan Environment Development Institute, China
		<b>ZUT</b>	Zhejiang University of Technology, China

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BORDA

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**BORDA**

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