



Annual Report 2012





MSABI

Dear friends,

Welcome to our 2012 Annual Report.

Despite many challenges in the global water, sanitation and hygiene sector, we are very proud of the MSABI story and pleased to have you on board. Today MSABI is one of the **largest rural WASH programs in Tanzania**. We have over 60 staff during peak season activities. Over 55,000 people have been provided with safe water and over 5,500 school children and families with improved sanitation. Our education programs have reached more than 290,000 people. In 2012 we successfully commercialised and released to market the TEMBO ceramic water filter. In addition, our team undertook 4 separate research programs and completed our first international WASH training course. We developed robust systems capable of processing our growing program in an open, transparent and efficient manner.

We have overwhelming community support and it is a challenge to meet demand. MSABI is showcasing the sustainability of demand driven and based market approaches, implemented by local businesses. We see the benefits of local ownership and affordable technologies matched to the local context. MSABI is proud to work in collaboration with like-minded WASH partners in Tanzania including iWASH, SHIPO, IDYDC, SEMA and SAWA. And regionally we are working with the Kilombero District

Government across all our activities.

We thank all our supporters, GHD and the Swiss Tropical and Public Health Institute, the United States Agency for International Development, the Novartis Foundation for Sustainable Development, the Australian Agency for International Development, the Swiss Agency for Development and Cooperation and all our individual donors.

Our constant growth and the strong community demand often creates funding challenges. Ideally, we would love to focus on what we do best – implementing WASH programs and validating new innovative solutions. If you are a philanthropist or a corporation and believe in our vision, we would love to hear from you.

We would like to thank all MSABI staff for a fantastic 2012. Together we are shaking up the establishment in a positive way. And this is perhaps the best way – organic growth through success. Looking forward, MSABI is well placed to support the growth and scale of WASH programs regionally, nationally and in the future, globally.

Warm regards,



Dale Young
Director



Niklaus Holbro
Program Manager



Table of contents

Program Overview	6
Introduction	8
Location and Development Problem	9
Organizational Structure	10
Interventions Department	11
Water points Program	12
Sanitation Program	16
Participatory Education Program	18
Ceramic Water Filters Program	22
Research Department	24
Micro-insurance and Surveillance Systems	26
WASH and Environmental Interactions	28
Impact and Efficiency of Ecosan Sanitation	30
Solar Water Pumps	31
Training Department	32
Innovation	34
Sustainability	36
Achievements	38
Our Team	46
Staff members	48
Board	50
Program Donors	51
Collaborating Institution	52
Financials	54
Future Plans	58





Program Overview



Introduction

The MSABI program is a demand-driven, replicable and expandable model for the implementation of cost-efficient community based water, sanitation and hygiene (WASH) projects. We are pioneering progressive and innovative hardware and software systems that create independence, ownership and local WASH service delivery. MSABI acts as capacity building centre and spin-off hub for local sector businesses and organizations.

A young and dynamic team enables the delivery of a highly modern and efficient program. Within the past 4 years, and through a community demand-driven approach, MSABI provided access to safe water or sanitation to an estimated 55,000 people. Community awareness meetings reached almost 300,000 people. The use of locally adapted technologies and supply chains enable MSABI to be highly cost and time efficient and interventions to be sustainable. The organization established a commercial ceramic water filter manufacturing facility in collaboration with a local women's group and promoted capacity building of several local sector businesses.

The program is complemented by training and research activities, performed in partnership with internationally recognized institutes such as the Swiss Tropical and Public Health Institute and the Ifakara Health Institute. These programs enable MSABI to develop, test, validate and promote new systems and technologies.



Location and Development Problem

Only 53 percent of the Tanzanian population has access to improved water sources, and only 10 percent to improved sanitation (World Bank development indicators, 2012). Improved access to water and sanitation is regarded as one of the most critical steps for poverty alleviation and improved community wellbeing.

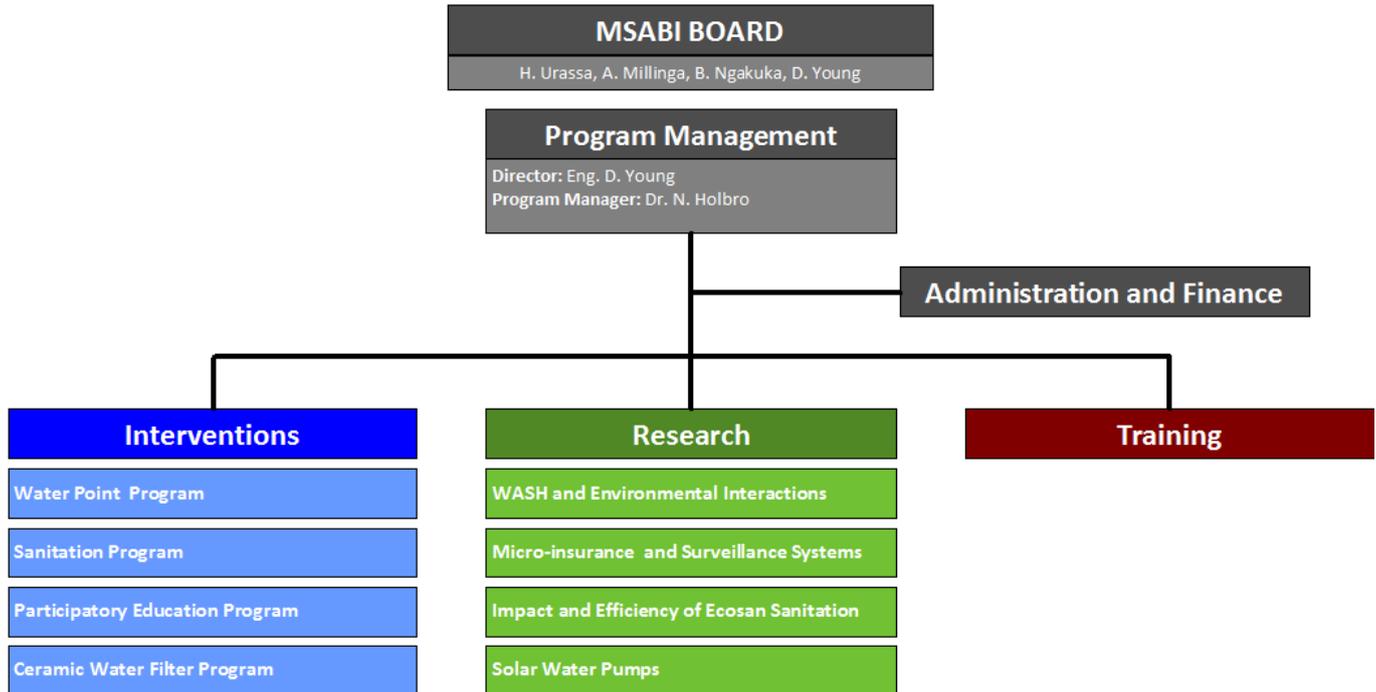
MSABI is active in the Tanzanian districts of Kilombero and Ulanga and is covering an area of approximately 40,000 km² with a population of an estimated 600,000 people. Access to safe water and sanitation is a widespread problem for

rural communities within MSABI's operational area. MSABI surveyed over 1,200 water access points in the region. Over 75 percent of water points were unsafe, being either shallow open wells (average depth 4.5m) or rivers/streams. Shallow drinking water sources are contaminated by surface pollution and sewage originating from unsafe deep pit latrines. Over 80 percent of hand pumps were not working or had operation problems. The region has a history of regular cholera, typhoid and diarrheal outbreaks due to a lack of safe water and sanitation.



Organizational Structure

MSABI is a young and rapidly evolving organization. The MSABI program structure includes interventions, research and training departments.



Intervention Department

Our integrated community focused strategy is tailored to meet the specific needs of local communities through a participatory and demand driven approach.

Technologies promoted are highly efficient and adapted to local settings. Technologies are affordable, locally manufactured or available through established and effective supply chains. Capacity building and business creation improves local ownership and sustainability. Support from local authorities improves the acceptance and impact of our community programs.

Our integrated interventions consist of:

- **Water Point Program** to improve access to safe water sources.
- **Sanitation Program** to increase access to improved sanitation.
- **Participatory Education Program** to increase local community awareness on WASH related problems and solutions.

- **Ceramic Water Filter Program** to improve access to safe water in local households.





Water Points Program

The MSABI water point program aims at improving access to safe water for communities in remote rural and peri-urban areas. Within 4 years we have installed **252 new water points** for an estimated **55,000 people**.

MSABI boreholes aim to target deep aquifer water separated from surface pollution and contaminated shallow aquifers. The target depth of 28 meters provides clean and safe water year round. Boreholes are drilled manually using a rotary percussion method called “Rota Sludge” drilling. A sanitary seal is installed, preventing polluted shallow aquifer water from reaching the safer deeper water.

Rope pumps installed on drilled boreholes offer an affordable solution to access safe water. Pumps are manufactured locally with materials available through Tanzanian supply chains. Local production stimulates local economies and ensures a local supply chain of affordable spares.

To improve our quality and management systems we have developed a streamlined 12 Point Quality Assurance (QA) program. The QA program covers all aspects of a new

water point installation and includes:

1. Community Water Point Application Forms.
2. Environmental Assessment Forms.
3. Water Point Installation Contracts.
4. MSABI – Subcontractor Contracts.
5. Manufactured Pump Inspection Forms.
6. Drilling Logs.
7. Contractor Installation Records.
8. Drilling Completion Forms.
9. Quality Inspection Forms.
10. Subcontractor Project Completion Reports.
11. Water Quality Records.
12. Project Completion Reports.

This MSABI developed QA system has been recognised as best practice by our Tanzanian partner network.

The program is demand driven – which means community clients must first decide they would like a water point and then come to the MSABI office and apply. In doing so, control over user group formation, land issues, ownership and management is decided and controlled by local community members with advice provided by MSABI.

Capital costs for a new water point are shared between the community and MSABI. Subsidy schemes are tailored to the type of beneficiary community (see table below). Costs covered by the community are approximately matched to market price for a locally constructed open well or a shallow drilled borehole. MSABI subsidizes the remaining costs through donor provided funds.



Type of Beneficiary	Cash contribution	Material contribution	Labour contribution	Additional contribution	Capital cost contribution monetized	Mico-insurance	% of capital costs covered
Community group	200 USD	Sand Bricks Gravel Water	6 persons Up to 3 weeks	Food and accommodation for MSABI drill team Up to 3 weeks	520 USD	optional	21
Semiprivate	400 USD				720 USD	optional	29
Private	2200 USD				2520 USD	optional	100
School/ Public institution	70 USD				390 USD	mandatory, 4USD/ month	15

Table showing our subsidy schemes for the different types of beneficiaries (1USD = 1,580 TZS).

Community groups and families are eligible for a subsidy if they contractually agree to share water with their community.

MSABI promotes water point privatization and creation of small scale water businesses, whereby water point owners sell water to their neighbouring community. This provides income to households in rural areas and guarantees availability of money for maintenance and repair services.

In 2012 we introduced a subscription based micro-insurance program for water points. Clients pay a monthly premium and in return MSABI will guarantee spare parts and repair of the installation. The insurance is compulsory for school water points and optional for community water points. This system offers an opportunity for sustainable financial and operational maintenance of water points (page 26).

Trained maintenance hub units are strategically distributed in target villages and are responsible for water point maintenance and repair. They visit each water point every 2-weeks providing a proactive service — as opposed to traditional reactive models. They are also on-call in case of

emergency pump failures. Spare parts are distributed through local transport supply chains to hub representatives. We have labelled this innovative initiative **“True Life Maintenance”**.

The objective of MSABI is to act as a capacity building hub for the creation and transition of sustainable, private sector water supply and maintenance services. The hand-over of the water installation service to a local spin-off drilling business will be completed by March 2013. MSABI will be responsible for ongoing monitoring to ensure high quality standards for implemented water points.





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Sanitation Program

More than 90% of sanitation facilities in the region consist of non-improved deep pit latrines. These installations contaminate underlying aquifers.

MSABI designs above ground compost and 2-stage septic irrigation systems. The objective is to initiate progressive behaviour change towards a community preference for treatment systems that protect shallow aquifers and create value-adding fertilizer. Our systems also aim at improving comfort and privacy at an affordable price. The MSABI sanitation program targets schools and private households. Within 4 years, we have provided access to improved sanitation to an estimated 5,500 people.

Identified schools without access to safe sanitation and requesting service are asked to contribute in-kind to the project and propose sustainable infrastructure management systems.

MSABI is in the first phase for the implementation of a demand driven and **market based approach** for household sanitation. The program aims at improving access to safe

sanitation on a **zero subsidy** base. A portfolio of locally matched technologies at various price points have been developed by the MSABI engineering team. These include Ecosan and VIP pour flush designs. Different models (from a “starter” to a “deluxe” model) will be offered and customers will be able to choose their preferred products with options to upgrade baseline models.

Capacity building of local private sector masons and optimized supply chain management will be paired with modern branding and marketing strategies. Our market based approach will initially focus on the selected “showcase” village of Kiberege. To date we have established an office, constructed display toilets and trained private sector masons. Focusing our energy on the successful scale-up of the program in Kiberege will allow us to learn lessons, iterate and optimise through a flexible approach, leading to the development of a robust model that we can facilitate and roll-out across the Kilombero and Ulanga Districts.



Participatory Education Program

Since 2009, MSABI has been performing community Water, Sanitation and Hygiene (WASH) education programs within the Kilombero Valley. We have performed over **2,400 meetings** in schools and communities and **reaching over 290,000 people**.

Our integrated WASH education program incorporates the following activities:

1. **Participatory community meetings**
2. **Mobilization meetings**
3. **Wow visits**
4. **Drama performances**

The current education program is the result of our combined field experiences and lessons learnt from other leading WASH practitioners. We focus on reaching disadvantaged, underserved and remote communities. We target additional attention to educating school children and providing a comfortable and private forum for women to participate in WASH discussions. Over the coming years it is our aim to reach every household in the Kilombero Valley,

and to provide simple information to empower communities on how to improve their access to safe water, sanitation and hygiene in their households.

A new initiative in 2013 will be the roll-out of hygiene clubs in schools. Hygiene clubs have been shown to be a successful way for students to create positive hygiene and sanitation behaviour changes both within the school body and their families.

The following is an overview of each activity.

1. **Participatory community meetings** are small group discussions held at the household level. The aim is to:
 - Inform households on local water, sanitation, hygiene and environmental issues. An overview of the environment and an assessment of any nearby water points and sanitation facilities is performed prior to the meeting.
 - Educate and demonstrate to participants various household water treatment solutions – including boiling water, chemical addition, and filters.

- Encourage participants about the importance of washing hands with soap at critical times.
- Inform on actions to undertake in case of acute diarrhoea. We explain the lifesaving benefits of affordable Oral Rehydration Salts (ORS) and where to buy them.

The session has a duration of approximately 10 minutes and is designed to spark lots of questions and discussion points. The 2-person education team also carry illustration cards, a small rope pump model, ceramic and tulip filters and ORS.

The methodology engages interest in WASH at the household level and allows a personal forum for participatory discussion. This personal approach also engages women who are often at home during the day.

2. **Mobilization meetings** target remote and underserved communities identified by MSABI as priority areas lacking basic water and sanitation infrastructure. Mobilization teams travel to these areas and hold large community meetings introducing the MSABI program. We present the same information as in the participatory community meetings, with a greater focus on our water point subsidy

programs and market based sanitation. These meetings are designed as an “awakening” session to inform communities of our presence and fast-track demand for safe WASH products in highly remote and underserved areas.

GPS Tracking of interventions

MSABI is recording GPS positions of all its interventions, from water points and sanitary installations to single community education meetings.

All education meetings and water sources visited by our teams are photographed and their precise geographic position is recorded.

GPS tracking allows us to monitor our progress and strategically plan future interventions. Mapping the distribution and type of all water points in our target area, allows us to identify underserved areas and therefore target communities with the biggest need of improving access to clean water.

3. **Wow visits** follow mobilization meetings. MSABI will facilitate the introduction of village representatives from an underserved area to areas that have access to improved water and sanitation installations. The visitors are able to see and test functioning rope pumps and sanitation facilities. The village hosts will explain how they managed to develop appropriate strategies for the formation of community groups, fundraising, and sustainable maintenance and management systems for their WASH assets. Wow visits have been adapted from our partner organization iWASH in Morogoro.

4. **Drama performances** are performed at schools and high-traffic public locations. Our approach is to present simple messages through short skits in a fun and comedic way. We have already visited every school in the Kilombero Valley, over 150. We are currently expanding to the Ulanga district and covering already visited schools with a new round of different themed drama performances.

Our experience to date confirms the value of an integrated education program with multiple activities aimed at a broad geographic and social coverage.





Ceramic Water Filters Program

2012 was a “break-through” year for our filter pot program. In collaboration with the Upendo Women’s Group we have successfully developed a process to manufacture high quality filters using a factory that has no reliance on (electrical or fuel) powered machinery. The process is low-tech, low-cost and uses hand tools only.

The filter is the result of a research and development effort, involving production of several hundred prototypes, collaboration with the international NGO Potters for Peace and testing of microbiological filter efficiency in the laboratory of the Ifakara Health Institute.

The filters have an average 99.8% efficiency in removing E.Coli and other bacteria from contaminated water. The product has the capacity to produce an average of 50 litres of clean drinking water per day, sufficient for supplying an entire family with safe drinking water. The filters have been branded “TEMBO filters” (from the Swahili name “Elephant” filter) and an attractive logo has been locally designed.

TEMBO filters were released to the local market in August 2012. They are sold without subsidy with the intention of

establishing a self-reliant, financially sustainable business for the women. The cost of a filter is 20,000 TZS (12.50 USD) and they are sold with a 30 litre receptacle for 30,000 TZS (18.75 USD). The Upendo women have the capacity to produce up to 300 filters per month.

MSABI acknowledges the importance of a widespread marketing and advertising campaign to promote the uptake and demand for the TEMBO filters. To date we have piloted a number of targeted initiatives including radio broadcasts, village-based distributors, partnering with local health clinics and a micro-finance organisation, restaurant display units, and adverts featuring local VIPs. A widespread social marketing and advertising campaign is planned for roll-out over the 2013 dry season.





Research Programs

To promote a progressive intervention approach and to improve global impact of our activities, we are complementing our multiple intervention program with WASH research projects. These projects aim at developing, testing and validating new technologies and approaches.

Research projects are performed in collaboration with internationally recognized institutes such as the Swiss Tropical and Public Health Institute, Engineers without Borders, London School of Hygiene and Tropical Medicine, and the Ifakara Health Institute.

Currently our research program includes:

- Micro-insurance and Surveillance Systems
- WASH and Environmental Interactions
- Impact and Efficiency of Ecosan Sanitation
- Solar Water Pumps

Together with our research partners, we aim at growing our research platform and lead to the development of Ifakara as a Centre of Excellence for WASH Research.



Micro-insurance and Surveillance Systems

Many water points are broken and abandoned due to lack of sustainable financial and management systems, use of inappropriate technologies or lack of skilled technicians for water point repair.

MSABI is currently testing a solution that allows disadvantaged communities to better manage their access to water. The solution combines a micro-insurance system with a real time GPS and SMS-mediated surveillance-response system.

The micro-insurance system aims at improving financial sustainability of water points. In exchange of a monthly premium, water point users receive spare parts and maintenance service free of charge. The premium of 4 USD per month is based on water point lifecycle costs. It is payable through mobile phone money transfer solutions and therefore is accessible to users in remote areas with no access to conventional banks.

GPS technology is used to record the location of water points.

The following scenario describes the concept:

1. A water point failure leads to an SMS report from a user representative to our headquarters. A call-in service is also currently offered.
2. Our headquarters forwards the SMS and critical water point information, including its location, contact numbers and problem information to technicians in the area. Maintenance hubs are strategically distributed within the region, forming a network that allows time and cost efficient response interventions.
3. Technicians are directed to the water point and repair the problem free of charge.
4. The system keeps track of spare parts used. Parts are replaced and sent to technicians through low-priced and regionally established supply chains.
5. Technicians are paid from our headquarters on a per job or monthly retainer basis.

Personal and registered mobile phones are used for information and money transfer. The registration process ensures that the system only accepts messages and cash transfers from identified phone numbers, resulting in a system with high levels of data accuracy and integrity.

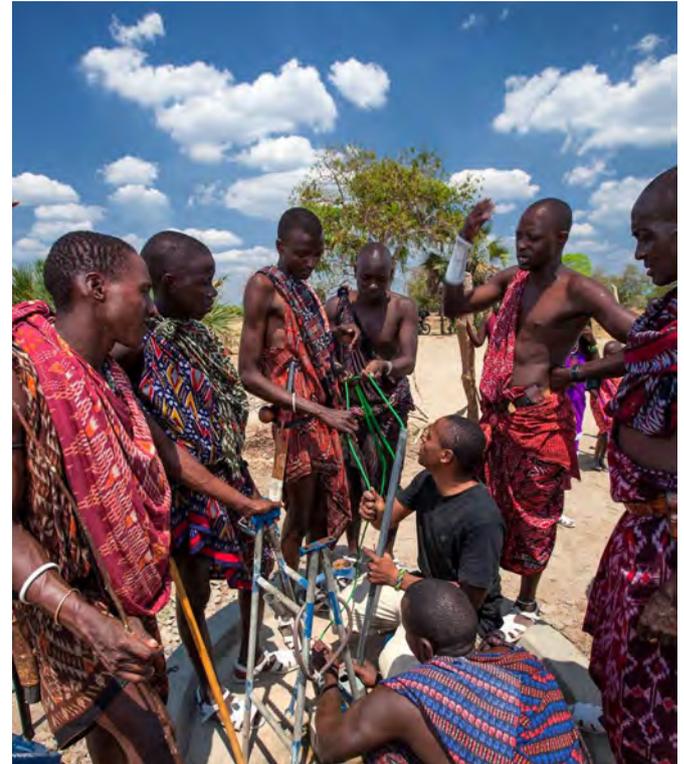
All data is stored on a central database, can be visualized on maps and used to coordinate maintenance interventions and manage spare part supply chains.

We recently added proactive maintenance in addition to reactive maintenance for water points subscribed to the

insurance scheme. MSABI is testing the system with 43 water points and aims at scaling the pilot to more than 100 water points within 2013.



Mobile phones are ubiquitously distributed.



WASH and Environmental Interactions

To analyse interactions between the environment, sanitation technologies and water sources, MSABI is performing an in-depth monitoring study in one of our target villages.

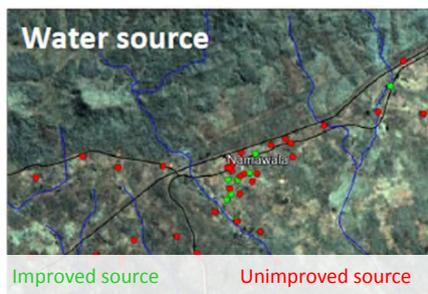
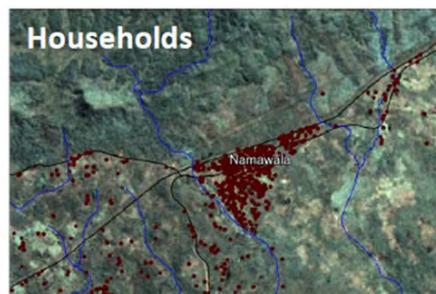
We GPS-mapped households, sanitation infrastructure and water sources. Field observations characterized WASH related infrastructure and behaviour.

Water quality was sampled at 90 village water sources. Preliminary data indicates that water points with a hand pump installed on a borehole are several orders of magnitude less contaminated (faecal contamination; mean E.coli: 9 cfu.100/ mL) compared to open wells (mean E.coli: 4380 cfu/ 100 mL). No significant difference was found

between water points with a rope pump on a borehole and water points with another type of pump. Converted open wells (covered wells with a hand pump) have an intermediate level of contamination (731 cfu/ 100 mL).

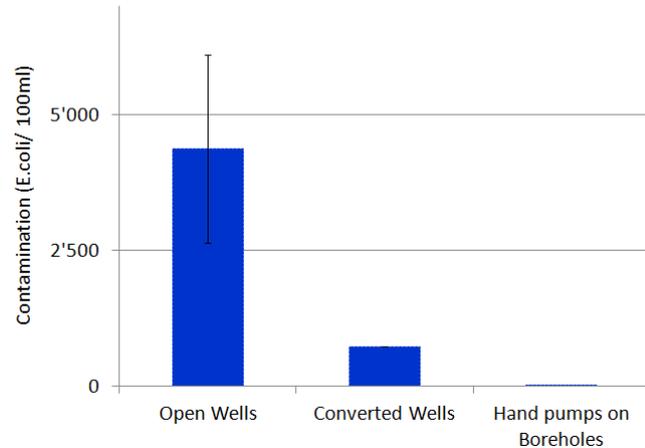
Water with E.coli above 100 cfu/ 100 mL represents a high risk for diarrhoea and outbreaks of water borne disease (World Health Organization and United National Children's Fund, 2006).

Samples were taken during the dry season. We will repeat sampling and analysis in the wet season to identify seasonal effects.



All data will be modelled and water quality results and surveys will be correlated with proximity to sanitation infrastructure and other pollution sources. This will help identify the most significant sources of contamination for water points and potential differences between sanitation technologies.

Based on these findings the community can be advised on the safest ground water extraction methods/locations and sanitation options which will ultimately reduce the risk of diarrheal disease and waterborne disease outbreaks.



Average contamination for different water point types.



Impact and Efficiency of Ecosan Sanitation

When MSABI first decided to undertake a pilot compost sanitation program for rural households in 2010 we knew we would have a lot to learn from the adopter communities. We took a flexible approach, and over the last 3 years we have monitored their use and performance. We have learnt many lessons that we would like to share with other organisations and communities considering the use of “Ecosan” or composting toilets. To this extent MSABI has produced a case study paper that documents our findings. This case study paper can be downloaded from our website at: www.msabi.org/downloads#!downloads/cmm5

More than 18 recommendations and 3 major design innovations have so far come from our work. This study continues, with MSABI undertaking scientific research of compost sterility and stability. Based on our results to date we are confident that this technology is suitable for the region in which we work. This is despite the fact that users are not adapting to the traditionally prescribed Ecosan practices. Our latest designs account for Tanzanian user behaviours and affordability factors. We are expanding our Ecosan program with already more than 20 new family units built.



Solar Water Pumps

Solar technology has large potential to improve access to energy for rural populations, especially in Africa. Products are becoming affordable and supply chains are more easily accessible through online markets.

Over 2012 MSABI undertook research for the Rural Energy Agency (REA) of Tanzania. MSABI tested solar energy powered submersible water pumps to evaluate the suitability of imported low-cost Chinese technology for small scale rural irrigation and water supply. A total of 5 manufacturers and 12 solar pump systems were imported, tested and evaluated for reliability and performance. 3 manufactures (Qingdao Powerworld, Wenling JT, Xejiang Xinya) were found to provide products that met specifications. System prices ranged from 800 to 1,875 USD, with flow rates between 600 and 2,500 L/hour. The pumps were paired with a drip irrigation system in the field. Our results concluded that Wenling JT pumps provided the best performance, quality and value. From this study MSABI is of the belief that affordable solar systems are likely to transform rural Africa within the next decade.





Training Programs

International Training Courses

The first MSABI water, sanitation and hygiene training course was successfully conducted in Ifakara between the 4th and the 18th of August 2012. The objective was to provide an in-depth field course in rural Tanzania for young professionals and students. The course combined engineering and health aspects of modern WASH approaches in developing countries. It combined classroom lectures with targeted field visits.

The course brought together participants from Europe and East Africa with teaching staff from MSABI, Swiss TPH, London School of Hygiene and Tropical Medicine, Glows/iWASH and WaterAid.

MSABI, Engineers without Borders UK (EWB-UK) and the Tanzanian Training Centre for International Health (TTCIH) co-organized the training.

National Training Courses and Partner Meetings

MSABI is participating in regular training and organizational meetings with like minded WASH partners in Tanzania, including iWASH, SHIPO, IDYDC, SEMA, SAWA, and Desk and Chairs.

Courses and workshops are aimed at sharing innovations and new findings, building internal and national capacity and standardizing approaches and technologies.

This network of organisations working together is unique and a powerful mechanism for creating scale of rural WASH programs throughout Tanzania.

WASH Consultancy

MSABI is offering consultancy services to national and international organizations. These services are available for the private sector, government and non-profit organisations. They include engineering and technical advice, training, research, monitoring and evaluation and administration/management systems.



Innovation

MSABI aims at setting a high benchmark for innovation. The unique and innovative aspects of the MSABI model are:

1. We implement context specific integrated interventions designed to provide holistic (social, economic, environmental) responses to improve access to water and sanitation.
2. Through our demand driven and participatory approaches, we empower local communities to take action themselves.
3. We create community demand for improved WASH services, through focused social marketing strategies and participatory community meetings.
4. We establish independent and financially sustainable local WASH service delivery businesses to improve local ownership and sustainable outcomes.
5. We promote the creation of small scale water businesses whereby water point owners sell water to their neighbouring community, therefore improving regular cash flow and availability of financial resources to cover running

costs.

6. We explore new systems such as micro-insurance and surveillance-response tools (page 26) to guarantee long term functionality of created assets.
7. We use modern technology such as GPS mapping, tablet based data entry and computational analysis to improve our monitoring and evaluation efforts. This helps us to more efficiently coordinate and target our intervention program and increase our impact in the field.

Our solutions are context specific and tailored to match the local environmental, social, and engineering requirements. We take a flexible approach to active problem solving and learning. We constantly iterate and aim to improve the performance and delivery of our interventions and ensure they cross-link to provide a holistic WASH program.

Sustainability

A large percentage of WASH installations in developing countries are broken and abandoned. MSABI assessed more than 1,200 water points in the Kilombero Valley and found that more than 30 percent of water pumps installed by international NGOs, the government or local businesses are broken. More than 80 percent have operational problems.

MSABI aims at creating sustainable WASH services through a multilayered and multidisciplinary approach. By increasing local capacity, creating new and strengthening existing local service delivery businesses, we aim to improve and stimulate local economies and empower communities to create and maintain their own WASH assets—self reliance.

We support and promote market based approaches. We prefer technologies that are locally manufactured or available through established and efficient supply chains.

The use of available and affordable technologies allows owners to sustainably maintain and repair their assets. For water points, our largest investment is in provision of a quality borehole, which is designed to last more than 50 years. The rope pump, like any pump, will break. The key

advantage of this pump is that it is easy to repair— and is supported by local manufacturers and spare part supply chain. The cost of locally made rope pumps is 100 USD, compared to more than 2,000 USD for standard pumps used in rural Tanzania (Tanira and Afridev).

Promotion of water point privatization and small scale water businesses enables owners to generate a reliable source of income – and when the pump needs repair the owner has an added financial incentive to get it back working as fast as possible! Selling 50 x 20L buckets per day at TZS 50 TZS (0.03 USD) per bucket equates to 45 USD revenue per month. Thus, in theory the water point asset can be repaid within 12 months for a community group.

Our “True Life Maintenance” micro-insurance service combined with our surveillance-response system (page 26), aims at promoting attractive systems to achieve financial and operational sustainability of water points.

At present the capital investment for new water points is partially subsidized from an international network of donors. The community contributes between 20 and 100% of the costs (table page 14). We are currently lobbying government to cover subsidy costs and make the program independent on international aid.

For household based sanitation and TEMBO ceramic water filters, we aim at promoting a zero subsidy market based approach, making our interventions fully financially sustainable.

To improve environmental sustainability, MSABI is closely working with the local government, community and research institutes. Our community and school sensitization programs have reached almost 300,000 people (page 18). Our sanitation program promotes improved technologies that protect shallow aquifers from contamination (page 16). For every borehole an environmental assessment form is completed prior to commencement of work. This information helps to position a water point in relation to pollution sources and predominant groundwater flow paths, and also locate the

appropriate minimum depth for an aquifer protecting sanitary seal (page 13). In addition, our research programs are incorporating environmental impact studies that feedback into our intervention program.

In summary, our approaches are layering in multiple technical processes, social models and environmental solutions to develop interwoven, holistic solutions, that aim at creating long-term sustainability and independence.





Achievements



In 2012 we further focused on improving and strengthening our management capacity, and internal organisational polices and structure. We developed transparent and accountable administrative and financial systems. We are one of very few organisations that publish online our financial reports every quarter.

MSABI has grown at a remarkable pace since inception in 2009. During peak dry season activities in 2012 we employed 62 staff working across 11 program activities. We were actively working in over 50 villages, covering distances of more than 200km using local transport. The program still does not own a vehicle!

It is with pride and a strong sense of responsibility that we report that **MSABI is the largest rural WASH program in Tanzania** moving forward into 2013.

Water Points Program

Our water point program is currently in a transitional phase. We aim at handing over full management of our drilling and pump installation activities to a local spin-off business. MSABI will be responsible for quality control and monitoring and evaluation.

To further improve quality of our water points, we developed a comprehensive 12-point QA system (page 13). Our efforts aim at benchmarking implementation standards and producing high quality water points and boreholes that provide sustainable access to safe water for decades. We hope that this will become an industry standard.

A total of **73 new water points** were created in 2012, providing water to an estimated **13,587 people**. We installed 53 community, 11 semi-private, 4 school and 5 private water points.



Sanitation Program

To improve access to improved sanitation we further strengthened our sanitation team and developed our school and community programs. In 2012 we evaluated existing installations and focussed on monitoring, evaluating and further developing sanitation technologies and approaches.

In 2012 we installed a total of **3 school wastewater treatment systems**. These installations provide access to safe sanitation to an estimated **1,693 school children**. We also installed 2 private and 4 public, pay-per-use latrines.

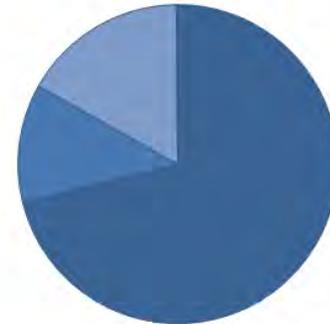
For one school installation, the government provided approximately 25% of the installation cost, a good start in engaging government to financially contribute towards our community benefiting activities.

We improved our school sanitation management systems, involving local government, beneficiary communities and MSABI into organized and structured planning and implementation meetings. We also established sanitation and hygiene clubs in schools that are responsible to promote hygiene and maintain WASH infrastructure on a daily basis.

Participatory Education Programs

In 2012 we further developed our education programs. We improved and simplified our messages.

We performed a total of **911 meetings and reached 95,466 people**.



- School drama 71.0%
- Community Drama 12.1%
- Community Participatory and Mobilization Meetings 16.7%
- Wow visits 0.2%

Ceramic Water Filter Program

After 3 years of research and development in 2012 we had a breakthrough in our local ceramic filter production project. After several hundred prototypes, we achieved consistent production of highly efficient filters. Filters have a 99.8% average efficiency in removing bacteria from contaminated water. The organization Potters for Peace was critical to our success. Potters for Peace visited our facility and identified critical steps for improving production and filter efficiency.

On the 8th of August 2012 (“Farmer’s Day”) we officially inaugurated our filter pot facility in the presence of local government officials, the local community, friends and supporters. Filter retail sales started on the same day. In the absence of major marketing activities, in 2012 we released a total of **164 water filters**, mostly through a **zero-subsidy** market approach.

Micro-insurance and Water Access Surveillance System

Currently the system is being piloted with **43 subscribed water points** (a total of **14,850 beneficiaries**). These water points benefited from reactive on-call repairs.

During the last 12 months, **84%** of water point user representatives regularly paid the premium. Premium payments were however not always on time and reminder SMS messages, phone calls or visits to customers were required.

Mobile premium payment solutions have been incentivized to decrease administrative costs. Most user representatives currently pay the premium through mobile phone mediated money transfer (**94%**) and only a small number pay through conventional bank transfer or money handover at our headquarters (6%).

Most clients use our call-in service to report water point problems and SMS is used by the minority of people. We are currently incentivizing the use of SMS to increase scalability and decrease administrative costs of our system.

Maintenance was performed by 5 trained technicians, strategically distributed in villages across our target region. Through our decentralized network of technicians, we are able to meet **response times to within 24 hours**, making water access very reliable for enrolled water points.

WASH and Environmental Interactions

To improve the efficacy of our interventions we are characterizing the impact of the environment and sanitation technologies on water quality at the source.

Preliminary data indicates that **water quality strongly differs between open and closed sources**. This data will be used to advise the community and provide valuable programmatic feedback. Data modelling will provide further information on environmental interactions and differences between technologies.

Solar Water Pumps

We tested a total of 12 submersible water pumps to evaluate the suitability of this technology for small scale farmers. We identified the **Wenling, JS3 0.9-3.2 pump** as the most suitable for the area and will further explore options for its deployment and development of supply chains.

A full report is available on our website.



Prizes and Awards

MSABI was a finalist for the following prizes:

- The 3rd Kyoto World Water Grand Prize.
- 2012 Stone Prize for Innovation and Entrepreneurship in Water

MSABI team members received the following awards:

- Assistant Program Manager, Ms Naomi Ng'Endo received a full scholarship to attend the Nuffic Program in the Hague, Netherlands, for a Decentralisation, Democracy and Development course .
- Assistant Program Manager, Ms Naomi Ng'Endo received a tuition waiver for a Master's Program in International Development and Policy with Duke University.
- Chief Finance Manager Mr Hija Choyo was selected for being part of the Tanzanian national mission for the "Copenhagen Global Citizenship Multilateral Discussion on Serious Problems Facing Mankind"



Summary of Direct Achievements 2009 — 2012

- We installed 252 water points for local communities and schools, giving access to water to an estimated 55,000 people.
- Installed 30 environmentally sound sanitary installations for schools, private and public people. The installations provide access to safe sanitation to several thousand people.
- Conducted 2,400 water, sanitation and hygiene education meetings with almost 300,000 attendants.
- Established a production facility for highly efficient ceramic water filters. Filters are currently promoted and sold through a zero-subsidy approach.
- Created multiple local, WASH sector related businesses. Businesses are responsible for asset creation, maintenance and service provision.





Our Team



Staff Members

Program Management

Dale Young	<i>Director</i>
Dr Niklaus Holbro	<i>Program Manager</i>
Naomi Ng'endo	<i>Assistant Program Manager/ Sanitation Program Manager</i>

Finance and Administration

Hija Choyo	<i>Chief Finance Manager</i>
Bernard Mwingira	<i>Accountant</i>
Samson Chitalika	<i>Administrator</i>
Penina Liseki	<i>Secretary</i>
Ramadhani Sumka	<i>Guard</i>
Askinia Liambal	<i>Administration Intern</i>
Nico Schefer	<i>Volunteer</i>

Water Point Program

Hashimu Mtoi	<i>Water Points Program Manager</i>
Maurusi Sambakali	<i>Procurement Manager</i>
Shamte Kiyao	<i>Hydrologist</i>
Ngila Chalanda	<i>Driller</i>
Elasto Zuberi	<i>Driller</i>
Hermani Chalanda	<i>Driller</i>

Thomas Ngwasi	<i>Driller</i>
Petro Mhagama	<i>Driller</i>
Cletus Mapunda	<i>Driller</i>
Nasibu Sege	<i>Driller</i>
Haji Lukila	<i>Driller</i>
Octavian Tulutulu	<i>Driller</i>
Silyvester Njapuke	<i>Drilling Apprentice</i>
Shaweji Mkeyenge	<i>Drilling Apprentice</i>
Nasoro Moha	<i>Drilling Apprentice</i>
Issa Magombeka	<i>Drilling Apprentice</i>
Kiran Gowda	<i>Volunteer</i>

Sanitation Program

Sarah Msoffe	<i>Assistant Sanitation Program Manager</i>
Stanslaus Nyangasi	<i>Head Sanitation Mason</i>
Benedict Mgbuke	<i>Sanitation Field Officer</i>

Community Education Program

Selemani Kinana	<i>Education Program Manager</i>
Salmin Ungando	<i>Assistant Education Program Manager</i>
Crecencia Dominic	<i>Education Program Team Member</i>
Agnes Mweta	<i>Education Program Team Member</i>

Sebastian Njaku	<i>Education Program Team Member</i>
Sauda Habibu	<i>Education Program Team Member</i>
Emmanuel Ujji	<i>Education Program Team Member</i>
Alan Mkanda	<i>Education Program Team Member</i>
Calista Mkalula	<i>Education Program Team Member</i>
Winnie Mhako	<i>Education Program Team Member</i>
Jasmini Kinjala	<i>Education Program Team Member</i>
Christian Bakatu	<i>Education Program Team Member</i>
Brown Kalebela	<i>Education Program Team Member</i>
Mussa Sikilo	<i>Education Program Team Member</i>
Zuhura Matola	<i>Education Program Team Member</i>
Abdon Mfala	<i>Education Program Team Member</i>
Edward Aulely	<i>Education Program Team Member</i>
Aktaria Mpemba	<i>Education Program Team Member</i>
Matherina Ngoroki	<i>Education Program Team Member</i>
Selemani Muheteri	<i>Education Program Team Member</i>
Hydari Swedi	<i>Education Program Team Member</i>
Nikola Allgayer	<i>Volunteer</i>

Ceramic Water Filters Program

Bruno Sanga	<i>Water Filter Program Manager</i>
Peregia Chuma	<i>Water Filter Production Team Member</i>
Zai Mayanda	<i>Water Filter Production Team Member</i>
Adelina Ndandika	<i>Water Filter Production Team Member</i>

Marry Makonyola	<i>Water Filter Production Team Member</i>
Modesta Chamwali	<i>Water Filter Production Team Member</i>
Angela Kitowelo	<i>Water Filter Production Team Member</i>

WASH and Environmental Interactions

Novatus Mwangeta	<i>Research Field Officer</i>
Fatuma Matwewe	<i>Laboratory Technician</i>
Marie Kelly	<i>Volunteer</i>
Dr Jacque Thomas	<i>Volunteer</i>

Solar Water Pumps

Brendan Sherry	<i>Volunteer</i>
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Board Members

Honorathy Urassa, Chair of the Board and Public Health Professional

Honorathy Urassa was Branch Leader and is currently Institutional Program Manager for the Ifakara Health Institute. He obtained his MSc in Microbiology from the University of London in 1999. Urassa also worked as a consultant and was involved in the development and implementation of several health care programs for CARE , UNICEF, UNFPA, ISHI, and the Ministry of Health Zanzibar.

Bededict Ngakuka, Public Health and Community Development Professional

Bededict Ngakuka was vice- Chairman of the Kilombero District Health Board. He obtained a Diploma in health education in developing countries from the Leeds Polytechnic in 1999. He is a Member of the Tanzanian Public Health Association and worked closely with UNICEF and WHO on programs such as Universal Child Immunization, Child Survival and Development and AIDS. He has been Chairman of the Ifakara Health Centre Ethical Committee.

Altemius Millinga, Finance Professional

Altemius Millinga has 25 years experience in the Microfinance, Banking, and Microenterprise sector. He is currently managing the Youth Self Employment Foundation. He is Chairman of Board of Directors of Mbinga Community Bank PLC, the Tanzanian Microfinance Institutions Association and a member of the Advisory Board of SWISSAID Tanzania.

Dale Young, Managing Director and Water and Sanitation Engineer

Dale Young is an engineer with 12 years experience in water and wastewater engineering. He has a broad range of program management experience and worked on water sanitation and hygiene programs in Indonesia, Vietnam, Papua New Guinea, Torres Straight Islands, Solomon Islands and Tanzania. He also worked as a consultant for different international NGOs.

Program Donors

Core Partners

Swiss Tropical and Public Health Institute
GHD

Program Donors

United States Agency for International Development
Australian Agency for International Development
Novartis Foundation for Sustainable Development
Tanzania Rural Energy Agency
Swiss Agency for Development and Cooperation
Rotary Club Basel-Spalen (Switzerland)
Florida International University
Kilombero District Government

Private Donors

Young Family, Caloundra
GHD Young Professionals
Chris Hertle's 50th family and friends
Luke Koutsos and Halyie Marchant
GHD SE QLD Water Group - Staff Christmas Collection
GHD Birtinya Office-Sunshine Coast golf day
Green Gem Foundation

Zachary Clark
Brett Goebel
Pip Ochre
Craig and Julie Russel
Chris Hertle
Pip Ochre
Trevor Monson
Madeleine Page
Coyle Family, Brisbane
Clinton Doak
Jeanette Caroll
Jerome Gill
Naomi Torondel Lopez



Collaborating Institutions

Swiss Tropical and Public Health Institute - Strategic core partner



The Swiss Tropical and Public Health Institute (SwissTPH) is an internationally recognized research and training institute. Its mandate is to contribute to the improvement of the health of populations through excellence in research, services and teaching and training.

The Swiss TPH is one of MSABI's strategic partners. In addition to providing core funding for general program management, the organization acts as scientific and public health advisor. Swiss TPH also collaborated with MSABI and the Ifakara Health Institute in measuring health impact of the water, sanitation and hygiene intervention programs.

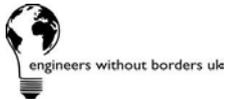
GHD - Strategic core partner



GHD is an multinational water and sanitation consultancy based in Australia. GHD is a network of engineers, architects and environmental scientists serving clients in the global markets of water, energy and resources, environment, property and buildings, and transportation.

GHD is one of MSABI's strategic partners. GHD provided seed funding for the start of the MSABI program. Since 2009, GHD is involved in supporting our integrated program. In addition to providing funding for general program management, the organization acts as technical advisor.

Engineers without Borders UK - Training Partner



Engineers Without Borders UK (EWB) is an international development organisation that removes barriers to development through engineering.

EWB collaborated with MSABI in organizing our first international WASH training course. EWB is also involved in engineering research programs, helping us developing and improving our WASH technologies.

Global Development Group - Finance Review Partner



Global Development Group (GDG) is an Australian charity organisation carrying out humanitarian projects with approved partners and providing aid to relieve poverty in a tangible way.

GDG is providing third party and independent review of our finance and accounting. All donations processed through GDG are tax deductible in Australia and in the United States.

Ifakara Health Institute - Research and Logistics Partner



Ifakara Health Institute (IHI) is an institute whose mission is to develop and sustain health research and resource capable of generating new knowledge for policy and action.

The IHI is collaborating with MSABI in promoting the local WASH research platform. We are using the IHI lab facilities and the organizations is providing logistic support to MSABI.

Tanzanian Training Center for International Health - Training Partner



The Tanzanian Training Centre for International Health (TTCIH) provides quality training facilities and services for the strengthening of human resources in Tanzania and in the international health sector.

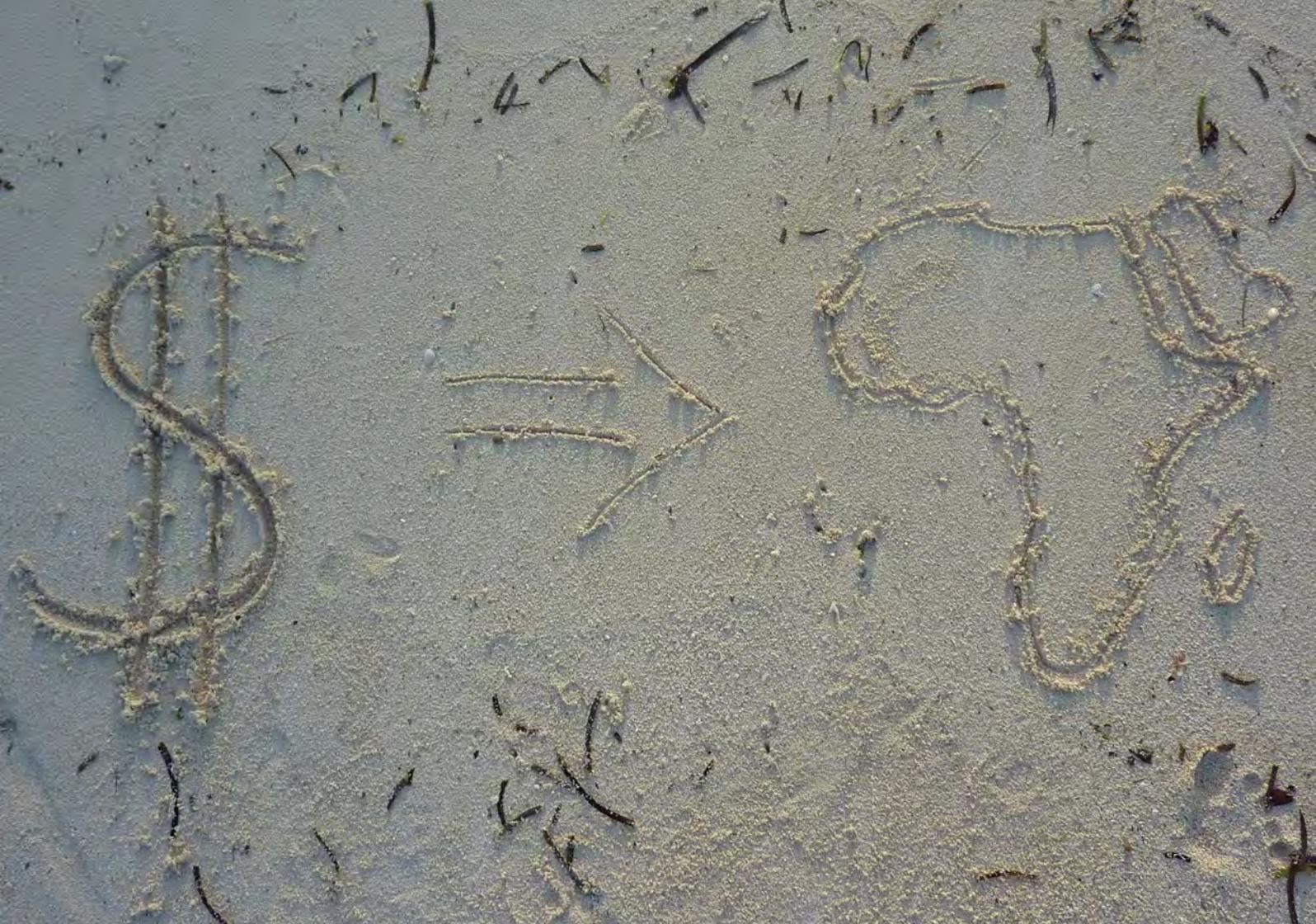
TTCIH helped MSABI in organizing our first international WASH training course. TTCIH was involved in providing logistic support and facilities for our training course.

Potters for Peace - Research and Development Partner



Potters for Peace (PFP) is a non-profit organization that has created a network of potters and relevant parties to improve quality of life and preserve tradition using local skills and materials to improve access to clean water.

PFP helped us developing our ceramic water filter facility and assisted us in improving critical steps in our filter production. With the help of PFP we could market release a highly efficient product in mid 2012.



SAND



SEA

Financials



Financial Summary 2012

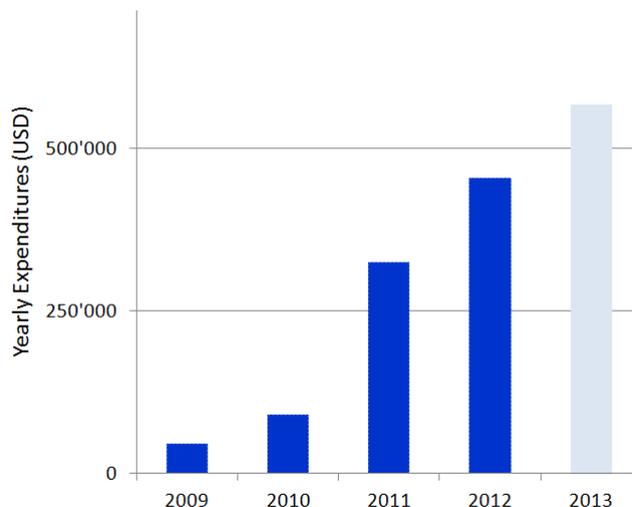
Total income 2012	USD	497'784.99
Total expenditures 2012	USD	454'297.41

Between 2011 and 2012 MSABI's annual operational budget increased in the order of 40%. This is due to investments in improved management systems and expansion of our intervention, research and training programs.

Over the next 3-years we forecast our operational budget will need to grow 25% per annum to meet continued programmatic growth and community demand for services.

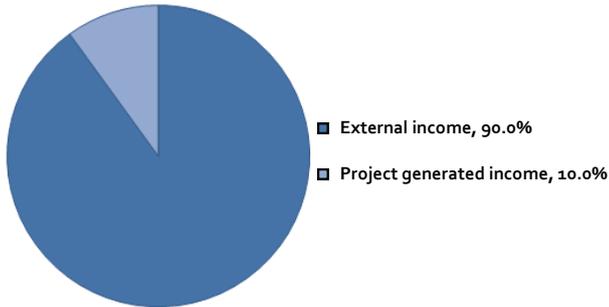
MSABI's financial reports are externally reviewed by Global Development Group.

Our detailed financial statements are open source. Detailed reports can be downloaded on our website www.msabi.org.

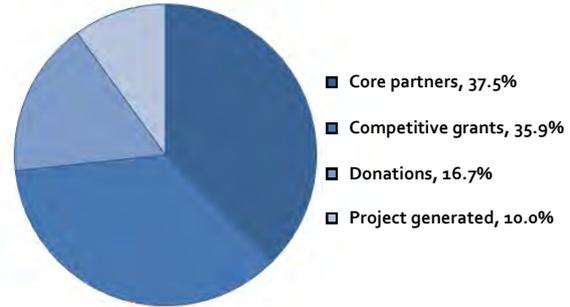


Income and Expenditure Analysis

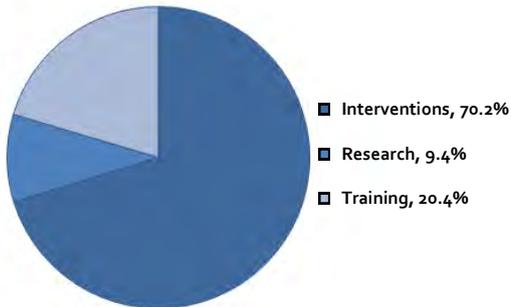
Income grouped by source



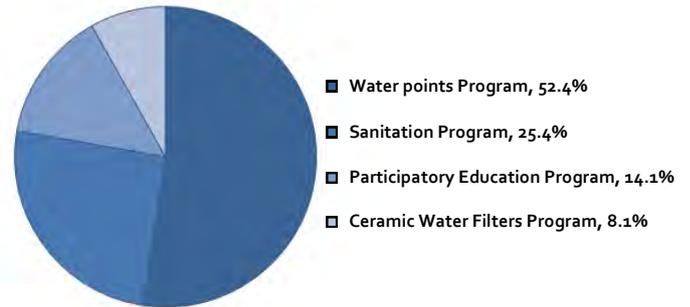
Income grouped by source type



Expenditures grouped by department



Intervention expenditures grouped by program





Future Plans



In the coming years we aim to meet community demand for services and at the same time continue to improve the impact of our integrated WASH program. We have identified the following strategic priorities:

1. Regionally expand our project with a focus on underserved areas.

We have the capacity to reach places up to 200 Km from our headquarters. We have experience installing water points and sanitation infrastructure in remote and marginalised communities located more than 30km from serviced roads. We continue to prioritise and target communities that are most in need—in particular areas with poor access and no history of government or NGO assistance. We will focus our efforts on these areas and promote our approach through targeted mobilization and wow meetings (page 20,21).

We will expand our area of action through establishing field offices and store rooms in strategic areas. Our maintenance hubs (page 26) will be able to service all water points in an area of approximately 40,000 Km².

2. Handover established activities to Tanzanian management or spin-off businesses.

We aim at handing over established interventions to Tanzanian businesses.

We are currently in the process of handing over the water point drilling and pump installation activities to a MSABI spin-off business (MDC, msabi drilling company). MSABI is currently responsible for quality assurance and fundraising. All field activities are managed and coordinated by the spin-off. Together we will further explore the potential of involving the national and local government in getting more involved and providing support for our water point program. This with the aim of ultimately becoming independent on international donor support and aid programs.

We are also planning to handover the ceramic filter facility to a local spin-off business within the coming 2 years. Once the market for the product will be established, MSABI or the Ifakara Health Institute will be responsible for regular quality control.

3. Develop, test and validate new technologies and approaches.

We will test new approaches and technologies and see if they are applicable and sustainable in Tanzania or beyond.

In 2013 we will further develop our market based approach for sanitation and test if a zero subsidy approach is applicable in our region and potentially scalable. We will promote demand and supply systems for improved sanitation and in parallel develop a portfolio of attractive technologies with modern social marketing and branding.

We will also test the viability of a privatised water kiosk in Ifakara. The installation will deliver bottled water at wholesale rates to the community. The initiative will also provide free water to a local school. The installation will be equipped with a Skyhydrant filtration unit (skyjuice.com) to produce ultra-pure water to be sold to the community and will be run as a water business by local entrepreneurs.

4. Further improve quality assurance and monitoring and evaluation systems.

One of the largest challenges of the international WASH sector is poor sustainability of interventions.

To face this challenge we will constantly improve our quality assurance (QA) and monitoring and evaluation (ME) systems. We see advanced QA and ME systems as key for developing more sustainable approaches for the sector. MSABI aims at benchmarking QA and ME systems to help improving cost-efficiency and impact of interventions in the WASH sector- nationally and internationally.

5. Promote our approach within a network of partner organizations.

We will work with selected members of the Tanzanian Water and Sanitation Network to promote our program. We believe our approach has potential for national scale-up and several organizations have already replicated elements of our intervention programs

We will also have regular meetings with partners such as iWash and SHIPO to standardize approaches and adopt innovations developed by others.

To promote our approach we will also publish findings in openly available journals and forums.



In 2013 we will make our work accessible to everyone, everywhere.

To show our impact in the most possible transparent and efficient way, we will collaborate with **VisibleImpact.org**.

VisibleImpact.org is a cloud based project management platform that enables us to directly connect with donors and supporters and show our impact in real time through regular and highly transparent updates from the field.

The platform is currently being tested and is expected to launch in late 2013.

For more information visit:

www.visibleimpact.org



MSABI — Maji Safi kwa Afya Bora Ifakara
Safe Water for Better Health Ifakara

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