

Editorial

Dear members, dear friends and supporters of Technology without Borders,

The year is once again drawing to a close and first of all the Board would like to thank all members for their successful cooperation. This now includes members from five country groups. Besides Germany, there are regional groups in Ghana, Cameroon, Brazil and Uganda. More details about the structure and the organization of the country groups can be found in Jannik Mechau's article.

Furthermore, in this newsletter we have the pleasure to present two projects at hospitals in the Ruvuma Region in Tanzania. On one hand, there was an incinerator project for health care waste conducted in Liuli by the RG Erlangen. Additionally, an assessment of a water project implemented in 2019 at the Rwanda Hospital with a view to further possible projects by the RG Aschaffenburg-Alzenau. Due to the unstable power grid, it would be conceivable to automatically switch the supply to the generator or photovoltaic systems.

We hope you enjoy reading our newsletter, wish you all a pleasant winter season, contemplative holidays and a good start into the new year.

Sincerely

Your board

R. Schullan
A. Vierling

M. Reinhardt
D. Schaffert

L. Hachmann
A. Bruns

F. Schofer
J. Mechau

C. Zeidler
F. Enzmann

A. Fenn

Rain water collection for resource efficient student's home in Hombolo

In the overall project to build a resource-efficient student dormitory in Tanzania, the original aim was to make the water and energy supply of a new student dormitory in Hombolo in Tanzania self-sufficient and efficient. In the first phase of the project, the construction plans of the local architect were optimized so that, e.g., fewer pipes were needed. In addition, a well was drilled to supply not only the dormitory but also the neighboring population with clean drinking water for a small fee. In this new section, a rainwater cistern was built and gutters were attached to the roof of the building to ensure garden irrigation with the collected water and to have service water for the dormitory.

The cistern was constructed from a waterproof concrete, a technique that has proven durable in the area. Other cisterns of this type were visited in advance by our project team. Besides the better insulation of the water against heat, the UV resistance of the cistern is also higher than that of a plastic tank. Other possibilities as well as a size estimate of the possible amount of water were investigated in a bachelor thesis, which was completed on the project in 2021.

The construction was ultimately executed by a local company. The slightly elevated cistern holds a total of 15,000





liters and was directly connected to the roof gutter. The water can either be drawn off manually via an outlet at the bottom of the cistern for watering the garden, or by a pipe that was also laid into the building. The cistern has an overflow protection. As part of the project, the pedestal of the drinking water tank from the first project section was also renewed because cracks had formed.

In the third part of the project, a photovoltaic system was to be built; the dimensioning was designed in another bachelor thesis. However, this project was cancelled because a connection to the electricity grid must be made due to regional requirements and the low consumption quantity did not justify the construction of a solar plant. Thus, the overall project on our part is now completely finished.

Franziska Enzmann and Christine Dillmann , RG Rhein-Main

Construction of an incinerator for the disposal of hospital waste in Liuli, Tanzania.

Due to the Tanzanian Guideline for Hospital Waste of 2017, it was overdue to find a safe disposal for the generated waste at St. Anne`s Hospital in Liuli. With partner organization Friends of St. Anne`s e.V., which supports the hospital in many ways, TwB built a Mark 8a incinerator there, as well as provided training on how to use the incinerator and the newly established waste separation system.

In August of this year, Ricarda and I (Stefan) started the journey to Tanzania. Two weeks before, the foundation for the whole construction was already laid. Arrived in Songea, where the headquarters of the Anglican Ruvuma Diocese is, we started to get the materials for the construction of the incinerator. Before our arrival we had already talked to the district engineer on the phone, but some of the materials we had discussed were not available in the region. That same evening, we met with him personally to find a solution for this. In the end, we got all the materials, but some later than planned. Since we lacked the refractory bricks and the refractory cement at the beginning, we started first with the construction of the waste chambers, as well as the roof construction. We worked together with two masons from Songea and the electrician of the hospital, Elly Mbombe. After 10 days on site, we were able to begin construction of the Mark 8a two-chamber incinerator, as well as the roof construction. In addition to building the incinerator, we established a waste separation system and trained hospital staff on the potential hazards of (infectious) waste, awareness of waste, and the new waste separation system. After the incinerator was completed, the future users of the incinerator (the burners) were shown how the incinerator works, how it must be maintained and what protective equipment must be worn when using it. After the burners demonstrated their skills in the incineration process and in the query about the maintenance steps, they were issued a certificate. Due to the delivery delay at the beginning of the project, small things had to be finished after we left. However, we were in contact for this and additionally we had two German medical students on site who kept an eye on it for us. The two medical students completed a clinical traineeship there through the Friends of St. Anne's.



Besides the project we could make some nice trips in the surrounding area and were invited by Bishop Raphael Raul to Mamba Bay. Unfortunately, we also had to fight a few days with a typhoid infection. All in all, we had a good time and a successful project in cooperation with the hospital and the Friends of St. Anne`s.

Stefan Leimbach, RG Erlangen

Introduction of County Coordinators

As the new representative of the country coordinators for our international TwB organizations in the board and country coordinator for TwB Ghana, I would like to report on my goals and initial activities.

In addition to Germany, Technology without Borders is now active in Ghana, Brazil, Uganda and Cameroon with its own country organizations, where local members carry out projects independently. The newly created country coordinators serve as a link between the country organization and the board of the main association. They are the contact persons for officials and members from the country being provided with guidance, as well as for board members and project participants who want to travel to the country. They are also informed about all projects and activities in the respective country.

My goal is to encourage the involvement of our international members in our association structures and to promote networking between the country groups to increase the quality of our projects on site, to achieve greater autonomy for the country groups, and to bring together members from all over the world. We are currently taking the first steps in Ghana. For example, the constitution and bylaws of TwB Ghana have already been revised. The next step is the official registration of Ghanaian members by filling out membership applications. All registered members will then have their own TwB email address and access to our IT infrastructure. Gradually, this procedure will be implemented in the other country organizations. In Ghana, the foundation of two new regional groups in Koforidua and Somanya will be initiated soon. Another short-term goal is the election of a new national leadership.

Our international members can apply for donations for their own projects to the main association. In order to ensure a smooth project flow, German partner regional groups have been assigned to the national organizations. After approval by the main association, these groups are responsible for forwarding the donations and for the accounting of the corresponding projects. For this purpose, an organizational process has been set up that is identical to the existing process organization and must therefore be strictly respected. Many thanks go to the regional groups Bayreuth (Ghana), Rottenburg (Uganda), Rhein-Main

(Cameroon) and Aachen (Brazil) for their willingness to act as partner RG for the respective countries and thus also to provide the corresponding country coordinator.

A highlight this year was the personal visit of the regional group Ndeje in Uganda by two members of TwB Ghana in the context of an Emergency Water Supply Training, organized by Malteser. Since then, our regional groups in Ghana and Uganda have been tightly interconnected and exchange information in regular online meetings. For example, while our Ghanaians trained members in Uganda on the use of Wessoclean for well regeneration, the Ugandans shared their



knowledge on a biosand filter project. In addition, a digital project management workshop was held in English in July, with members from various country organizations participating.

Finally, I would like to thank the country coordinators Julia Güntherodt (Uganda), Franziska Enzmann (Cameroon) and Lutz Michaelis/Luis Cisneros (Brazil) and look forward to working together.

Jannik Mechau, RG Bayreuth

Water supply system for the village “Alto Sondoveni” in Peru

Between August and September 2022, the project "Water Supply Sondoveni" was successfully implemented. The project had a duration of 31 days in total.

Led by our team from RG Hamburg, a water supply system was built in the village of Alto Sondoveni in cooperation with the village inhabitants. The village is located on a mountain in the Peruvian jungle region Satipo, at an altitude of 1,200m to 1,300m. The locals must cope with intense heat and humidity, long walking distances, and weather-dependent water availability. Due to unreliable water supply and poor nutrition, many people in the region of Satipo suffer from anaemia.



The implemented water supply system collects water from nearby springs in two capture tanks and transports it by gravity through a 2.2km-long pipeline to a cistern with a capacity of 5,000L. The system will provide clean water for 270 people of the Ashaninka tribe, both in the rainy season and in the problematic dry season. The cistern is located at a central and high location

in the village so that as many villagers as possible can easily access the water, and further pipe networks can be extended to homes and school buildings. Two weeks after the completion of the project, an extension to the village school has already been realized. Thus, we see the willingness of the villagers to maintain the project in the long term. We hope the project will be an important milestone to fight local health problems.

Nicolas Pezet, RG Hamburg

Rwanda Mission Hospital - Electricity and water supply

How is the water and electricity supply at the Rwanda Mission Hospital? What has become of the previous project and is there a need for further projects? These are just two questions that RG Aschaffenburg-Alzenau dealt with on site in Tanzania in November.

The Rwanda Mission Hospital is a church hospital located in the district of Mbinga in the very southwest of Tanzania. It has 80 beds, some of which are double-occupied, and 500-600 outpatient treatments are performed monthly. Several hundred children are born there every year and several thousand children are treated there in their first years of life.

Three of us set out for Tanzania, Wolfgang Zipf and Helmut Rhode as long-time members, and me. For me, it was the first trip to the other side of the equator that I had longed for since graduating from high school. I was able to experience and see with my own eyes what I had previously only known from stories. Looking back, it was completely different than the pictures in my head that the stories had painted. The pure joy of life, the contagious warmth and the modesty of the people make one humble. We live in one of the richest countries in the world and take far too many things for granted, such as running water at any time and temperature in any quantity and also electricity at any time of the day or night. Even though everyday life on the ground in Tanzania has adapted wonderfully to the circumstances there, however, it is precisely a reliable power and water supply that is of enormous importance for safe patient care in a hospital. Thus, as part of a 2019 project for the Rwanda Mission Hospital, a well was drilled to ensure a supply of clean water. Much to our delight, the system has been operating largely trouble-free since then and now also supplies the school and the rectory in addition to the hospital.



For a permanent power supply, however, the expensive diesel generator currently has to run far too often, as the power grid in the area is not stable and the electricity fails at least once a day. But the then necessary manual flipping of switches for generator operation is not optimal, because all computers crash first and patient data are lost. If a power failure occurs during an operation, the operation must first be interrupted until the power supply is restored. Some solar cells with battery storage are available, but cannot currently close the gap, as they are not automatically activated either. In the discussion with the people in charge on site, the idea of automating this switching



system came up, which we will discuss further in the follow-up.

In addition to all the technical details we looked at, it was the conversations, the great encounters with the people and the shared experiences that made this trip so valuable and I am grateful to have been able to learn from the people there.

Johanna Schulte, RG Aschaffenburg-Alzenau

Short Messages

Christmas Market with TwB

On 19th and 20th of Dezember the regional group Erlangen is again taking over the volunteer stand at the Erlanger Christmas market. There we inform about our organization, sell souvenirs from project countries, home-made cookies and one can also participate in our raffle. We are looking forward to many visitors.

Stefan Leimbach, RG Erlangen

V.i.S.d.P. Dr.-Ing. Frank Neumann, Annika Mücke, Stefan Leimbach

Technik ohne Grenzen e. V. - Richard-Strauß-Straße 38 - 91315 Höchststadt a. d. Aisch

Vorstand: Robert Schullan, Dr. Markus Reinhardt, Lara Hachmann, Felix Schofer, Dr. Christian Zeidler, Annika Fenn, Andreas Vierling, Daniel Schaffert, Arne Bruns, Jannik Mechau, Dr. Franziska Enzmann

Vereinsregister: Fürth: VR 200 486 - **Steuernummer:** 216 / 111 / 00 865

apoBank **IBAN:** DE29 3006 0601 0007 5832 90 **BIC:** DAAEDEDXXX