



Technology without Borders Newsletter II / 2019

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Editorial

Dear members, dear friends and dear facilitators of **Technology without Borders**,

our TeoG family has grown last year in Uganda and Rwanda. This fact and the findings of the board visit to Ghana have led us to adapt our constitution to the new findings. The constitution has been relatively unchanged since 2014 and regulates ***the binding interaction between the individual TeoG organisations and their statutory objectives***. The foundation and existence of a TeoG organization requires a commitment to and compliance with this constitution.

As a new element, we have created an expanded framework for possible organizational forms as follows. A TeoG organization can be a TeoG subsidiary registered in the respective country, a TeoG regional group of a TeoG subsidiary, or a TeoG regional group operating locally in a country. This expansion of the constitution facilitates the initial phase for newly emerging TeoG organizations in particular.

With this in mind, we wish our newly emerging TeoG organizations in Uganda and Rwanda every success and look forward to their cooperation.

Your board of directors

F. Neumann F. Regler R. Schullan N. Nguyen M. Stephan J. Schlund D. Schaffert
Ch. Zeidler A. Fenn J. Fassnacht

Annual Members Meeting of Technik ohne Grenzen e.V.

This year's annual general meeting took place at the University of Forestry in Rottenburg (HFR). 36 full members came together and felt very comfortable due to the excellent organization of Olivia Sigmund and Julia Güntherodt. Again all participants received not only important information about the association, but they had also the possibility to network beyond their regional groups.



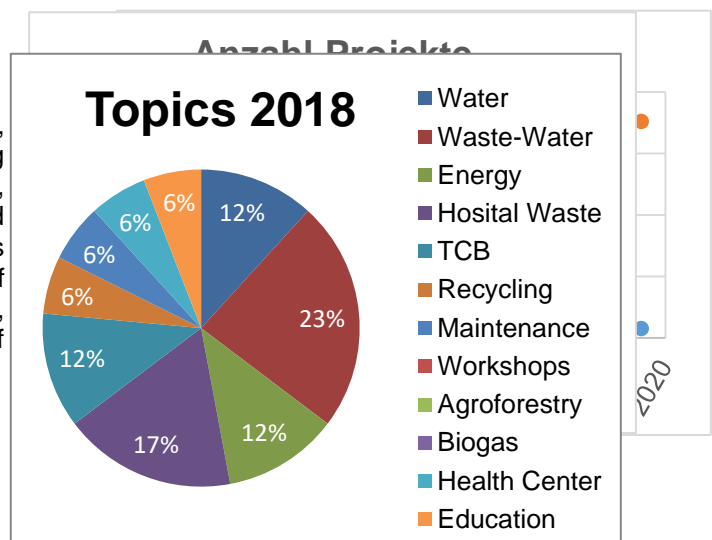
The formalities were dealt with quickly and so this year's members' meeting began as usual with the report of the board of directors. Also this year, the Board reported on the positive membership development of 88 members for 2018 (674 members as of December 31, 2018). This trend also continued in 2019, so that we counted 708 members on the day before the general meeting.

The development of our foreign assignments was similarly pleasing. In 2018 we were able to complete 30 projects

worldwide. For our project board this meant that **every two weeks** they received a new project on the table for approval. At this point, the Chairman emphasized the everlasting and constant commitment of Veronika Birk and Martin Huber.

In Tanzania, in terms of the number of projects, the same number of projects are now being implemented as in Nepal. As in previous years, the infrastructure topics of water, wastewater and energy account for almost half of our projects (see also www.teog.ngo). With more than 20% of the projects, Hospital Support (Hospital Waste, Maintenance) has now become a stable pillar of our project activities.

At this point, the Executive Board expressed its special thanks to all project managers, project



participants, members and colleagues on the Executive Board who made these activities possible. Without this consistently honorary commitment, our association would not have been able to achieve this fantastic achievement.

These and other updated information about **our** association can now be found in the main module of our presentations.

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A key area of the annual report dealt with the consequences of the visit of the Executive Board in Ghana and the resulting new constitution for all international TeoG organizations. This new constitution also benefits the newly founded TeoG organizations in Rwanda and Uganda. The second consequence was the dissolution of the national subsidiary in Ghana, as experience has shown that it is very difficult to hold national general meetings in developing countries.

In November, the Recycle Up! team informed the board of its separation of TeoG in the form of independent NGOs both in Germany and in Ghana.

Furthermore the board informed the general meeting about the decision of the board about the exclusion of a member. In a separate agenda item, the general meeting confirmed this board resolution after an intensive discussion with 22 votes in favour and 4 votes against.

The treasurers and the cash auditor informed in their reports about the cash situation and at the request of the cash auditor the treasurer and the board were unanimously discharged.

At the upcoming elections both the chairman and the 3rd treasurer were confirmed by the general meeting. Our secretary M.A. Melanie Stephan was appointed for a further term of office.

Unfortunately, we also had to say goodbye to two long-standing members of the Executive Board. Due to professional reasons, Dr. Veronika Birk and M.Sc. Martin Huber asked to be discharged from their position on the Executive Board "Technology & Projects". On the one hand, the Executive Board expressed its regret and, on the other hand, its sincere thanks to both for their strong commitment and their dedication. With 30 projects per year, the two received and processed documents for a project every two weeks – and all this on a purely honorary basis! A great achievement! We wish Veronika and Martin every success in their future careers, all the best and we are happy that both of them will remain as active members.

M.Sc. Jonas Schlund and cand. Ing. Annika Fenn have declared their willingness to succeed as Chief Technology & Projects Officers. Both were appointed to the office with the date of the general meeting at the previous board meeting and they took the opportunity to introduce themselves. M.Sc. Jakob Faßnacht also took the opportunity to introduce the division of work between him and M.Sc. Daniel Schaffert in the board office for "Regional Organizations".

The preview of the association year 2019 was relatively unspectacular. On the one hand we have to manage the upcoming projects and on the other hand we want to start our first project to compensate our Carbon Footprint in 2019. For this all RG's are called upon to send suggestions to the board.

Finally, a big thank you from Allen to the organizers Olivia and Julia from the RG Rottenburg.

Executive Board

Incinerator maintenance and training at hospitals in Senegal

At the end of February, Annika and Anna-Lena from Erlangen as well as one member of the Mission Institute Würzburg and the Robert Koch-Institute Berlin set off to Dakar to inspect incinerators in three different regions. In addition to maintenance, the emphasis was on reframing the training of hospital staff in the topic of biomedical waste.

After our arrival, we visited one of the National Hospitals and other small medical posts in the region, together with representatives of the local partner organization ANPSCS (Association des Postes de Santé Catholiques du Sénégal). We were able to get a first overview of the different models of incinerators used.

After three nights in Dakar, we continued with the local technician Pape towards our first site in Thiès. On our way and in the following days we visited nine hospital posts there. In discussions with the hospital staff, we have been informed about the respective challenges of waste separation as well as the individual problems with the incinerators. At the same



time, we were able to work with Pape to remedy minor design flaws and conduct initial combustion training.

For the following weekend, we had already scheduled a two-day course on biomedical waste prior to our arrival. This should refresh the knowledge about separation and handling of hospital waste. With the practical findings of the previous days, we were able to adapt them even better to the needs of the 16 participants from 13 different hospital posts. In addition, we were able to demonstrate the correct operation of their incinerators on a repaired one. On the second day, selected participants directly applied their new skills in small groups. The participants realized once again how elementary waste separation is for safe and functional combustion.



After the training we focused on the individual hospital posts again. In two teams, we examined further incinerators in the area of Thiès and noted the necessary repairs. We were able to practically evaluate our training at the already functional incinerators by burning with the respective trained personnel - a clearly structured procedure had already been established! An instruction manual attached to the incinerator in the national language Wolof should additionally serve as a reminder in the future.

Our last stage took us to the Sine Petite-Côte in Mbour. From there we visited another four hospital posts. Apart from one, we were able to bring these into a functional condition and carry out combustion training with the also trained staff. The problem with the disposal of the ashes existed as in the previously visited hospitals. Sometimes they even used the ashes as fertilizer in their garden. Therefore, the waste systems are to be retrofitted with closable ash pits.

In a final meeting with everyone involved, we documented the remaining repairs. In the next few weeks, Pape will take care of them, so that all 17 incinerators will be running functional soon. Furthermore, the piloted training materials are going to be refined and shared with our project partners.

Last but not least, we want to thank warmly our project partners: the members of RKI and Mission Institute, the ANPSCS and the technician. It was a very good project and we are happy for being part of it. Thank you so much!

Anna-Lena Treutlein, RG Erlangen

E-Waste in Ghana

Many obsolete electronic devices end up on large electronic landfills, as well as in Ghana. Over there, these devices are disassembled to attain valuable components like copper and gold under conditions that are both inhumane and harmful to the environment. In light of this, two members of the Bayreuth regional group visited Ghana to observe the local situation and to evaluate the possibility of an environmentally friendly dismantling procedure.

Obsolete electronic devices from Europe are increasingly exported abroad. Therefore, our organisation has set a goal to support an appropriate recycling of these electronic devices called recycle down! electronic waste. In order to reach this goal, the RG Bayreuth specialised in the dismantling of laptops and computers in autonomous containers with the RG Tarkwa following a field study of the GIZ. A meeting with our cooperation partner GIZ soon displayed the need for recycling electronic waste in Ghana. A progress exchange showed that it is not very easy to obtain a parking space for a container in Agbogbloshie.



Following this, we organised a workshop for dismantling laptops at the university of Tarkwa with 60 participating students. The RG was even able to gain a couple of new members. Our project was also introduced in two very well received lectures. However, we, along with our Ghanese members, were only able to find four laptops for the workshop. The health risks and pollution caused by electronic waste exist, but for many these problems are not visible and even unknown. This impression was also confirmed by our visit of the landfills in Kumasi, Tarkwa and Cape Coast, where we found a lot of plastic, yet no electronic waste. Additionally, a large portion of electronic waste is owned by the government or Agbogbloshie, making the access even more difficult. Further steps include becoming the contact persons for GIZ and Professor Beck from the university of Aschaffenburg, which are specialised in recycling of electronic waste. Sharing knowledge and experience is our central aim. While the knowledge and electronic waste is present, the latter is not available outside of Agbogbloshie.

Therefore, the organisation will search for alternatives in other countries and focus more strongly on increasing the motivation to utilise electronic waste to preserve the know-how and establish procedures. The already obtained container will be used for other projects.

Our big thanks go to Dr. Gerhard Baumüller from Rotary Club Höchststadt an der Aisch, who set up a donation box on the occasion of his birthday. With this donation our project could be largely financed. Many thanks are owed to our sponsor ifixit, which provided us with 12 toolkits, making the dismantling of laptops a walk in the park.

Kira Schlesier and Matthias Stachowski, RG Bayreuth

Incinerator construction in Thailand

During end of February and mid of March 2019, Lara and Max from RG Erlangen executed the first Thailand Project for TwB. Within three weeks, an incinerator system for burning hospital and household waste was constructed and lectures on waste management for students have been taught.



Even Thailand is known as a beautiful vacation destination, there are still economically underprivileged regions. In late 2017, Mr Kresimir Delinic initiated the contact between the nearby municipalities of Buntharik (about 5,000 civilians) and Ban Maet (about 750 civilians). The infectious leftovers of the local hospitals are transported about 80 km to Ubon Ratchathani twice a week. Although the municipalities invest in their information policy, it is still common to burn household waste on fields and beside streets. In

order to reduce costs and effort, the municipalities asked for a local incinerator solution for hospital and household waste. This incinerator should be integrated into their local waste management.

We chose to build a DeMontfort Mark 9 incinerator, which comes with a combustion rate of up to 50 kg of waste per hour. Based on experiences of finished incinerator projects, technical improvements were applied at this construction, for example a waterproof sealing between roof and chimney. The manufacturing quality of the Thai workers was impressive.

The future incinerator operators received trainings on several days. We explained and showed them how to use, maintain and repair the incinerator. They proved good learning process as well as great operation skills. There is a detailed incinerator manual in Thai language at the incinerator site. Due to qualified usage as well as the second burning chamber of the incinerator, smoke gas emissions can be kept on a low level. The distance of about 100 m to the next building is great enough.



Our attendance did caused many interested people to ask us for giving talks about waste management. With descriptive presentations, we talked about the basics of waste management according to the slogan 'reduce – reuse – remove', about energy-recycling and waterproof dump sites. Many locals are awareness of waste issues already, so hopefully we motivated them consequently improve their waste-related behaviour.

Due to contacts of the hospital board, we also executed a pre-exploration of two outreach clinics in Laos. Both hospitals are already equipped with incinerators for burning infectious waste. However, both incinerators only provide one burning chamber each which results in higher smoke gas emissions and an uncomplete burning process. Furthermore both hospitals were interested in the TwB Swift App.

During the final meeting with the boards of the municipalities, the hospital admins and some teachers, the decision for integrating the new incinerator into the local waste management endeavor was made. In future, the municipalities will construct a compost system as well as a sealed dump site for ashes at the incinerator site. We are still in contact with them for supporting their future projects.

Thanks to all participants for your support!

Maximilian Deckelmann, RG Erlangen

Development of a waste disposal logistics for Water Sachets in Ghana

Ghana is drowning in plastic waste. One of the main causes are drinking water bags, the "Water Sachets". As infrastructure and environmental awareness are lacking, the valuable

packaging is carelessly disposed of in the environment. This causes diseases, flooding and serious global environmental damage.

Pascal from RG Bayreuth spent 2.5 months in Ghana to work on his bachelor thesis. Among other things, the thesis deals with the possibilities that TeoG can seize to reduce the amount of plastic waste generated locally. For an in-depth understanding of the situation, a detailed analysis of existing structures was conducted. To achieve this, Pascal travelled to various cities, where he got to know not only the regional groups, but also various CEOs and other important actors in the business.

The "Recycle!UP Water Sachets" project has been dealing with the collection of polyethylene sachets in schools since 2012. In addition to equipping schools with suitable waste bins, pupils are also informed about the consequences of plastic waste. The children and adolescents are to develop an entrepreneurial spirit and begin to see new possibilities instead of problems. In addition, the schools can generate additional income to support the children through the sale of materials.



In the course of the project 5 schools have been visited, in which the now independent organisation "RecycleUP! Ghana" 2016 acted in the same spirit. It became clear that the achievements could not be regarded as sustainable. In none of the schools the structures still existed. Often everything collapsed after only a few months. This was due, for example, to the fact that the commissioned drivers stopped working with the school. This again showed the necessity of the current project, the establishment of a detailed waste disposal logistics.



Pascal with RG-Members Sam and Agnes (middle) & PE-Recycler Kofi (CEO) + Father

In the end, a detailed final report was produced with information about the majority of stakeholders in the PE and PET recycling industry throughout Ghana. Future project teams can refer to the document and use it to integrate other schools into the project as quickly as possible. Above all, however, long-term success can be secured, as the educational institutions can now obtain precise information about more than one driver and the purchasing companies. In the future, the project will be carried out as a "piggyback project". This means that it is not an independent project, but an accompanying project. Each project team that travels to Ghana in the future will visit 2-3 schools and equip them with bins. Thus,

with little financial means, extensive success can be achieved and the amount of plastic can be reduced in the long run.

Pascal Lefarth, RG Bayreuth

One Year Postgraduate Studies for Engineers – International Cooperation for Sustainable Development

You are an engineer, would you like to use your technical know-how in a meaningful way and extend it by holistic problem solving approaches? Have you already gained your first experience abroad and are now looking for a career in international development cooperation (GIZ)? Then a one-year postgraduate course at the Seminar for Rural Development (SLE) at Humboldt University in Berlin might be just the right thing for you!

After his TeoG-Eritrea stay, Lukas applied to the SLE in Berlin to take part in the international postgraduate course. For the one-year full-time program he receives a scholarship of 1000 Euro per month, financed by the Berlin Senate and the BMZ. In the courses, he exchanges ideas with the other 20 participants on an interdisciplinary basis and benefits from the experienced trainers and their experiences.

"In Eritrea I noticed that technical solutions are often relatively easy to find. However, it is much more difficult to ensure that this solution reaches people. You have to see the big picture for that. I missed this realistic problem finding in my engineering studies. Through my work at **Technik ohne Grenzen (TeoG)** I was able to gain a first insight into what it means to work contextually. The SLE now builds on these experiences, goes into more depth and offers me the necessary know-how, which was missing in my studies, to really work sustainably".

Lukas Schreiner, participant of the 57th course and member of Technik ohne Grenzen in the project "Water for Eritrea".

Here he learns how technical solutions can be implemented with the inclusion of social, political and economic components. An international project study takes him and his team to Mongolia from August to October. Accompanied by a team leader, the team develops supplementary sources of income for nomadic families. By imparting action-oriented skills, of current debates relevant to development policy and methodological competences such as project management, planning and evaluation, teamwork, conflict management and participatory survey methods, Lukas has the opportunity to professionalize his own profile. Working in interdisciplinary teams as well as in intercultural contexts is not only varied, but also an important prerequisite for career entry.



SLE participants of the 57th course and SLE Director Dr. Susanne Neubert (2fr) visiting a biogas plant with milk filling station in Brandenburg, accompanied by Bio-park consultant Carlo Horn (1fl).

Further information: On Saturday, 22 June 2019, the current course will introduce postgraduate studies at SLE. The information day will take place from 14:00 to 18:00.

Contact: Miriam Holländer: m.hollaender@hu-berlin.de (Coordinator SLE studies) and Lukas Schreiner: lukas.schreiner@tuhh.de (Member at TeoG, RG Hamburg)

Short Messages

Toilet Construction in Gambia

In February and March the *TwB* members Regina Fischer and Adelheid Gonschorek of the regional group in Amberg travelled together with Daniel Butkaitis of the regional group in Rottenburg to Gambia for three weeks to build a dry toilet at the skill center in the rural Sintet.

In this small west African country with a population of nearly two million inhabitants the organization „Socialis of The Gambia“ works for twenty years now on a better future for the children and the youth at the localities Sintet and Brufut. With *TwB* as an organization for sustainable development work, a cooperation to work together was founded in 2017.

The toilet can benefit the hygienic situation without the use of a canalization system or a water supply. Dry toilets work by separating urine and faeces. Both can be used as fertilizer for the plants of the agricultural class after a hygienization and composting procedure at the skill center.



After a first journey to Gambia in May 2018 to meet the Gambian project partners, the toilets now were built sponsored by the *Rotary Club Amberg*. Although the project started with some time delays and daily temperatures of 40 °C, the three *TwB* members of Germany coordinated the local partners and workers and improvised when materials were missing. Now we are hoping that the toilets will be used enough to produce a useful amount of fertilizer. As a second part of the project, a usual pit latrin was built in the bigger village Brufut, which is now used by around 40 pupils of the skill center there.

Construction discussion on excavated foundations local project partner are accepted and at the schools. For sure all the project partners learned a lot about intercultural communication.

Regina Fischer and Adelheid Gonschorek, RG Amberg

New source of drinking water for the village Kabonwule, Northern Ghana



In our previous report, we informed about our water project in Northern Ghana. The village suffers from health problems caused by extended fluoride content in the ground water during the dry season. After Joseph, a member of our regional group in Accra, successfully tested materials for the filtration of fluoride ions together with John and Edmund from RG Kumasi went to Kabonwule again. The three local members trained the inhabitants in filtering their water by using readily accessible materials in the households. Furthermore, they activated a borehole by equipping it with a new hand pump. Therefore, the inhabitants have an additional source of water now which supplies water all year round including the dry season. Our Ghanaian members documented their impressions during their implementation in a video which can be viewed at our website by using the following link: <https://www.teog.ngo/videos/?lang=en>. Finally, we would like to express our thanks to the rotary club in Göttingen-Hann. Münden and our third board member Robert Schullan for the financial support.

Jannik Mechau, RG Bayreuth