Technology without Borders
Newsletter III / 2020

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Editorial

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

Covid19 leaves its footprints not only in the global economy and in everyday life, but also at Technology without Borders. Fortunately we were able to bring all teams back home in time when the pandemic started. In the meantime, almost all projects are on hold. Therefore we will use the current newsletter to report on the working groups and their activities.

Agroforestry - TwB's latest topic area - an overview

Agroforestry is a form of land use in which perennial woody plants such as trees or shrubs are planted on land where agricultural crops are grown and/or animals are kept. These elements can be combined either in spatial arrangement or in temporal sequence. (Definition according to J.Vogt, 1999)

Agroforestry systems are actually nothing new, as they have been managed for centuries. A classic example in Europe are orchard meadows. But in many places monocultures and industrial agriculture have replaced agroforestry systems, although they offer many advantages, especially for small farmers.

In every agroforestry system there are several interactions between the different components, both ecological and economic. In general, agroforestry systems are multifunctional systems and can offer a wide range of economic, socio-cultural and ecological benefits. Among these advantages are for example

- Increasing biodiversity on agricultural land and
- a closed nutrient cycle,

but also economic advantages like the

- Independence from monopolists (seeds, fertilizers, pesticides) and market prices for a specific product.

Especially this point is a very important aspect for small farmers in developing countries, because, as in our projects, the seeds are grown by themselves and neither fertilizer nor pesticides are needed.

Agroforestry systems are also very interesting in terms of climate change, as they contribute to CO2 sequestration, e.g. by planting trees and improving soil quality, but are also more resistant to climatic changes and extreme weather events.

Our goal within the framework of TeoG projects is primarily to support local partners in the establishment of agroforestry demonstration farms and information events on agroforestry for small farmers. In 2016 Franziska Weissörtel from RG Munich started the project of an agroforestry demonstration farm in India. Currently we are transferring the findings through our RG Araranguá to a demonstration farm in Brazil. First conceptual approaches already exist to establish Agroforestry demonstration farms in Africa. Two of our members in Ghana have already started with first conceptual ideas.

Your board

F. Neumann F. Regler R. Schullan M. Graf N. Nguyen Ch. Zeidler L. Hachmann J. Schlund A. Fenn A. Vierling D. Schaffert J. Fassnacht

First preliminary work for the agroforestry project in Brazil

With its long summers and high annual rainfall, the climate of southern Brazil is ideal for highly productive agriculture. In addition to industrial production, Brazilian smallholders produce most of the country's daily food. The project wants to support this group in bringing the concept of agroforestry systems (AFS) closer to the local small farmers.

Before the project started, our smallholder partners had already faced several challenges: In addition to the all-encompassing Corona Pandemic, a drought lasting several months in winter and early July brought two storm fronts with wind speeds of over 100 km/h to Santa Catarina, whose violence brought down entire sports halls and residential buildings. One of the most affected regions was the southern part of the state where we will plant our AFS.

Fortunately, our project partners came through these crises unscathed. These current challenges have shown necessary precautions for project planning, but also advantages of the project scope:

- The possibilities of digital, direct marketing and ordering models improve income and planning reliability, especially in the current Corona Pandemic.
- The planning of AFSs must be secured against possible storm damage.
- The comparatively lower water demand of AFSs can reduce the otherwise high electricity costs of water pumps compared to conventional cultivation methods.
- Besides the sale, the targeted supply security through the cultivation of different crops is an advantage.

In parallel, the first project work could already be planned:
It is expected that an area of about 600m² will be planted, whose soil is unfortunately very sandy. Since a good soil naturally needs "life", we will use a special and simple technique:
A wooden bark will be placed in a cardboard box, filled with cooked rice and covered with leaves. The soil-improving fungal and bacterial cultures growing on the rice will be selected accordingly after a growth phase and propagated further. During the earthworks at the start of the project in October, these are then applied to the field to make the soil "more alive". In keeping with the second part of the TeoG motto: "...as simple as possible".
The project is supported in the implementation phase by a grant of 5000,- € from the Rotary District 1880 together with the Rotary Club Nürnberger Land, which has been approved in the meantime. We would like to take this opportunity to thank the District Grant Officer Sabina Gärtner-Nitsche and the President of the Club, Dr. Jochen Zeisler and Helmut Ruckriegel.

Lutz Michaelis, RG Araranguá – Brasilien

Working **G**roup **T**eaching **C**omputer **B**asics (WG TCB) - An Introduction

What started out as a small and modest proposal, has developed into a full-blown project within a year: In 2014, our Ghanian board member told us about ICT students (Information and Communication Technology) in Ghana who learn about the subject only through textbooks. He proposed to bring laptops to school - letting the students practice on computers.

A professor from the village Agona Abodom with his students

So in 2015 a project started in Germany, named **TCB** - **T**eaching **C**omputers **B**asics. Its goal was to collect donated laptops, ship them over to Ghana, prepare a workshop for the teachers on the basics of teaching on a laptop. The content included lessons about the internet, PowerPoint, Word and Excel. The teacher role is to serve as multiplicators, who can pass their knowledge on to their students.

With the first project, implemented successfully in Cape Coast, Ghana, we began working on a new project in 2016: A school in Lushoto, Tanzania was equipped with laptops and workshop trained teacher.

Around 2017, as working groups established themselves within the organizations, and the continuing line of projects was from now on overseen by the working group TCB. More projects were successfully implemented in Ghana, Togo, Haiti and even in Germany. Internet inaccessiblity proved to pose the biggest challenge to teachers, as it was an essential tool in their lessons. From this new concept was developed: The Knowledge Box, or "KnoBo".

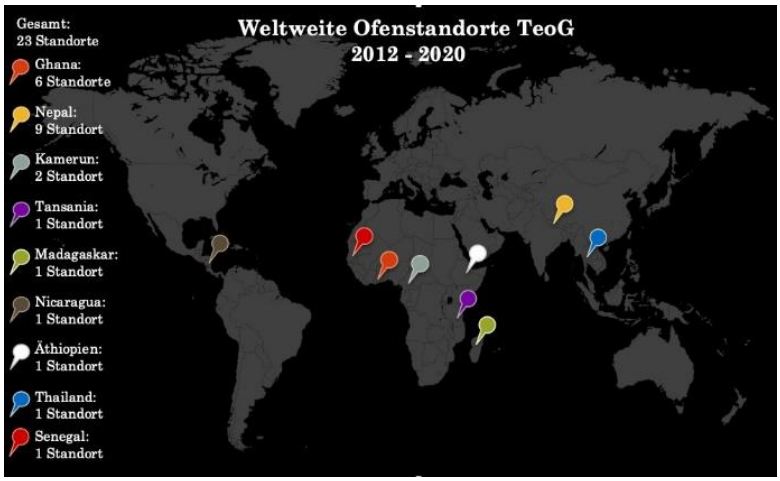
The "Knob" is a modified laptop which serves as a local server. By connecting all the laptops in the classroom to a KnoBo, the students had access to educational materials by KhanAcademy, and the Offline-Wiki.

Further projects are planned in Germany and Tanzania - but the latter is paused due to the world wide Covid 19 Pandemic situation.

Ina Reichmann, RG Erlangen

Working **G**roup Waste - An Introduction (WG Waste)

Through our cooperation with the **G**erman **R**otary **V**olunteer **D**octors (**GRVD**), we have come to the topic of garbage like the virgin to a child, since infectious garbage is a burning issue in the hospitals served by GRVD. It all started with the construction of two De Montfort Mark 9 in Techiman, Ghana in 2012, and with growing understanding and experience from the outreaches we have been able to continuously develop and improve the incinerator according to the motto "as technical as necessary, as simple as possible". In addition to the additional wall around the core masonry of the incinerator and improvements to the metal construction, aids for safe and easier operation and maintenance were also introduced.



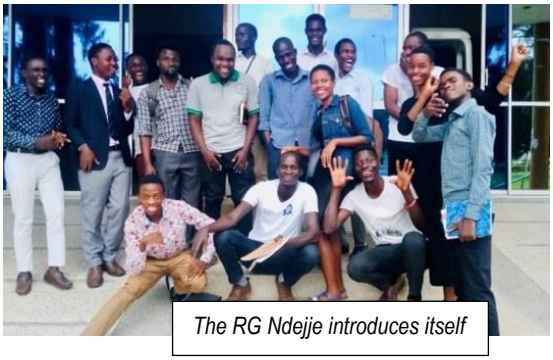
Also in addition to the technical optimization of the incinerator, the training concept and materials were continuously revised. As you can see on the world map, with the help of numerous supporters from Germany as well as local partners we have been able to build incinerators at 23 different locations on 3 continents. In the meantime, Nepal has outnumbered Ghana in built incinerators. It makes us proud that we have been able to provide a safe and environmentally friendly disposal of biomedical waste at so many different locations worldwide. And we are looking forward to helping more people in the years to come.

Henning Risse, RG Erlangen

Introduction of the Regional Group Ndejje /Uganda

Technology without Borders Regional Group Ndejje was established in February 2019 and it is the first Regional Group in Uganda. The Regional Group was founded at Ndejje University Main Campus; located in the central region of Uganda in Luweero district and is situated 38 km from the country's central capital. The University currently has a population of 1700 students, most of whom live on campus. The regional group currently comprises 22 active members, including students from Ndejje University, university staff and alumni.

Our regional group meets every Monday evening at the University's Water Research and Development Center (WRDC) to share information, plan fundraising activities and promote teamwork amongst all members. We already carried out a number of fundraising activities at the university campus, including a FIFA 2020 tournament as well as selling fruit packs that were sold during several soccer matches at the university's own stadium. This enabled us to cover operating costs while promoting TwB on campus and attracting new members.



The RG Ndejje introduces itself

RG Ndejje gained the needed expertise for implementing project ideas. For the time being, the members decided to concentrate on small and feasible development projects in order to improve the living conditions in the communities and on the campus.

Francis Ssentongo & Nina Schäfer, RG Ndejje

Clean Water for a Hospital in Tanzania

Ruanda Mission Hospital in the remote South-West of Tanzania is a small "bush hospital" for medical care of patients within a distance of 50 km. At a first research visit in 2017 hospital management ranked the inadequate water supply, both qualitatively and quantitatively, as one of the major problems. The Regional Group Aschaffenburg-Alzenau in cooperation with Aschaffenburg University has realized a project to supply the hospital with clean drinking water.

For organizational reasons we divided the project into two phases, drilling for ground water and - if successful - supply the hospital with the water found. In October 2019 a delegation from our RG was on site when a local company was drilling a well to a depth of 120 m. A water analysis confirmed that the water conforms to Tanzanian standards for drinking water. Our pump tests revealed a spring flow of approx. 1.5 cubic meter per hour, well above the hospital's needs. Following the positive results of this first subproject we were able to initiate the second step of bringing the water into the hospital.

Students at Aschaffenburg University were planning the supply system which has recently been completed by local companies. The borehole is now overbuilt and protected by a small well house. From here the water gets conducted to a newly constructed water tower on the highest point of the hospital area carrying two water tanks of 5.000 litres each. From there the water flows at sufficient pressure to the various hospital buildings supplying kitchen, toilets and showers, laundry and other taps. To remediate the waste water a sewage plant is already in place.

A business man from Alzenau donated a suitable submersible pump including control electronics which in March finally got released by Tanzanian customs and has now been installed. The pump delivers approx. 1.2 cubic meters per hour from a depth of 100 meters. Father Aden Komba, hospital director, reported that they switch on the pump twice a week to fill both water tanks, indicating a consumption of ca. 2 cubic meters per day for the hospital.

The pump is operated by electricity from the public grid supplying the hospital since 2018. According to our experience from last year's visit this power supply tends to frequent outages for several hours. Nevertheless this does not constitute a problem to the hospital's water supply, as the water tanks' capacity can compensate those outages.

So Ruanda Mission Hospital is now equipped with a stable supply system providing drinking water of high quality and enough quantity. "All water taps are glowing … we are very happy", Father Aden reported end of March.

As the capacity of the well considerably exceeds the hospital's need we can - in close cooperation with hospital management - think of extending the supply system e.g. to adjacent schools, the parish house and maybe to Ruanda village as well. A student of Aschaffenburg University is just compiling a corresponding study, perhaps it will lead to a follow up project.

Helmut Rhode, RG Aschaffenburg-Alzenau

Clean Water for the village El Cascajal

After many months of planning, developing and preparing, we are ready to implement the next part of our project. The main objective is to guarantee a clean water access to the villagers of El Cascajal in the rural region of the province of Esmeraldas in Ecuador.

Concepts and calculations have been made for the construction of a collector basin from a fresh water well near the village. Water supply will be ensured by a piping system with an integrated water treatment unit. A central distribution system enables people in El Cascajal easy access to this fresh water.

Educational and technical training programs for everyone in the village were created in order to support the technical implementation. Interactive workshops and educational units strengthen the knowledge transfer. The sustainability of the project strongly depends on further education of the people of El Cascajal.

Important financial and logistical support from our partners was needed to accomplish this tremendous task. The "apoBank Stiftung" as well as the "Wilo Foundation" funded a great part of this Project. We also received support from the city of Aachen for our engagement. The whole development of the project was possible by the cooperation with "Tierra Viva" in Ecuador.

As the world is facing the outbreak of COVID-19, it is imperative to act responsively, avoiding the risk of contagion of project members, as well as spreading the disease in other countries. Therefore, all project activities were suspended until further notice.

Currently we are finishing up the last details for the actual implementation of the project, which was provisionally postponed for October later this year. In the meantime, we decided to look for a possible expansion of the current water project in the same region in Ecuador.

We hope that the global situation improves, and we are able to help the village of El Cascajal with its much needed water supply system.

Alper Avci, RG Aachen

Short Messages

New project in Moshi, Tanzania – Support of people with Albinism

People with Albinism have to fight against several resistances in Africa. Along with still existing discrimination, skin diseases and reduced eye sight are major problems. Especially for children with Albinism, it is often difficult to keep up in the regular school classes, since they are not capable of reading school books and notes on the black board. In cooperation with the Albino Care project of the KCMC hospital in Moshi, which has been taking care of people with Albinism for a long time, we want to support especially children with Albinism with sun glasses we collect in Germany, sun protecting hats, magnifying glasses and reading foils. The hats can be purchased directly in Tanzania to support the local economy. Additionally, we plan training on how to use the new reading aids together with local eye doctors. With this project, we allow children with Albinism to gain a better education, a better health situation and along with that, an improved future in Tanzania!

Franziska Enzmann, RG Rhein-Main

Support of the our city's Intergration work in Erlangen

Developing countries are not the only ones who are at risk of not having sufficient access to the internet, these situations also happen in Germany, especially to refugees. Due to the pandemic, normal integration courses cannot take place, prompting the administration of Erlangen to move them online.

As such, the local government provides the participants in need with laptops. As another cooperation between Technology without Borders and the city of Erlangen took place in 2007, our city approached our organization again, this time to ask us for further assistance with this project. The stated goal is to provide technical support and monitoring of the distributed computers.

Ina Reichmann, RG Erlangen

Currently running and completed projects:

www.teog.ngo

V.i.S.d.P. Dr.-Ing. Frank Neumann, Ina Reichman, Annika Mücke

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