

Editorial

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

5505 trees were planted in a campaign of about 50 TwB members and support from the Board of Trustees for Forestry (KfW) from Saturday, 10/9/2021 in northern Hesse, Germany. This was made possible by donations and the money from our CO₂ fund. Since 2016, for each project, we paid a compensation for the carbon footprint of the flights we take as part of our development cooperation.



The gratitude of the board goes especially to the two organizers, Franzi and Cora, who made this outstanding action possible with the support of their RG and the forest administration responsible for this forest area. Furthermore, we would like to thank all members who came to this great event, some of whom left at the middle of the night to listen attentively to the introductory words and instructions of the forestry workers in the morning. Conclusion of all participants: A very successful event!

In addition, from November 4-6, 2021, the Rotary West Africa Project Fair (WAPF) was held online from Accra, where we presented three projects this year. It was especially important for us to present the project "End Plastic Soup - ReceycleUp! Water Sachets" to as many Rotarian clubs as possible in order to convince them to participate in this project. Our goal is to involve 80% of all Ghanaian schools in the collection and recycling of water sachets within 5 years with a "train-the-trainer" concept for the Ghanaian Rotarians. At WAPF, we connected with Assistant District Governor Frank Owusu Deprah, who in turn enabled us to officially approach the Council of Presidents with a formal request to give our presentation to all Ghanaian Rotary Presidents. This presentation will then be given by Martin Oduro Bilson, current President of RC Techiman, in cooperation with us.

As you can see, despite COVID-19, a lot is happening and so we can look forward to the coming Christmas season with joy. Consequently, it remains for us as the board to say thank you to all members, friends and supporters for your commitment and also wish a Merry Christmas and a Happy New Year. We hope to see you all again in good health!

Sincerely,

Your board

F. Neumann

M. Reinhard

M. Graf

L. Hachmann

J. Schlund

D. Schaffert

R. Schullan

Ch. Zeidler

F. Enzmann

A. Fenn

A. Bruns

A. Vierling

TwB has planted!

On Saturday 9 October 2021, our TeoG planting campaign took place in Schwarzenborn. With 51 planting enthusiasts, we went into the planting circles in bright sunshine and took to the

spade. Five different tree species were planted, including three deciduous species and two coniferous species, to create a climate-adapted mixed forest.



TwB was actively supported by the Federal Forestry Enterprise in Schwarzenborn and the Kuratorium für Waldarbeit und Forsttechnik. The trees were not only planted, but also provided with individual protection to minimize game damage. The planting campaign was not only a measure to compensate for the CO₂ emissions caused by our flights and to make

the forest more future proof, but also a perfect opportunity to meet again for a joint event after almost two years of the covid pandemic. Our regional groups from Aachen, Bayreuth, Erlangen, Hamburg, Rhein-Main and Rein-Neckar were present, and after planting, they were finally able to really enjoy club life again with a cozy barbecue and fireside evening.

We had set ourselves the target of 5505 trees. We didn't manage to plant all of them, but it was a successful campaign for climate protection in any case. The remaining trees will be planted by the professionals from the Schwarzenborn forestry company.

We would like to take this opportunity to thank the Bundesforstbetrieb Schwarzenborn and the Kuratorium für Waldarbeit und Forsttechnik as well as Kuraray Europe



GmbH, the Grünteam, the Knüll-Camp, the Privatbrauerei Eichbaum, the Forstamt Hanau and the Forstliches Bildungszentrum Weilburg for their support with the planting area, expertise, manpower, tree donations, barbecue food and drinks as well as tools. We could not have done it without you!

Franzi Enzmann, RG Rhein-Main

Rotary West African Project Fair (WAPF)

The West African Project Fair (WAPF) is an annual event which offers rotary clubs in West Africa to present their projects and do networking with each other. This year the WAPF took place online from 4th to 6th of November and was hosted in Accra, Ghana. 680 rotary clubs were present at the WAPF. After a few members of Technology without Borders already took part as guests last year, our organization was represented actively with three project presentations at the WAPF this year.

Since Technology without Borders has already implemented more than 60 projects in Ghana and is present with own local members and regional groups there, the WAPF 2021 was a great opportunity for us to present our current three projects in Ghana with the aim to acquire a lot of Ghanaian Rotary Clubs as cooperation partners. Especially, it is essential for us to include as many local rotary clubs as possible in our project *“End Plastic Soup – Recycle-UP! Water Satches“*, which deals with the collection and recycling of water satches. In the second project *„Regenerating Wells“*, we reactivate clogged and calcified boreholes by applying an ecofriendly chemical. In the third project, *“Agroforestry Demonstration Farm“*, we want to use demonstration farms to train and support local farmers in improving their yields and income in the long term through agroforestry.

The project presentations of all participating clubs and partner organizations were accessible during the whole event in a virtual room. At each day of the WAPF there was the opportunity to meet at virtual tables with video to exchange views and do networking after the official part. In this way, many contacts were established, e.g. with the assistant district Governor Frank Owusu Deprah and with the rotary club Accra Spintex. Subsequent to the WAPF, an exchange with a more extensive presentation of our projects already took place with both contacts. Also, through the support of Assistant District Governor Frank Owusu Deprah, a presentation to the Council of Presidents of all Ghanaian Rotary Clubs is planned to be given by the current President of RC Techiman Martin Oduro Bilson.

Finally, we would like to extend our sincere thanks to RC Techiman, RC Höchststadt and Rotary Passport Club Horizon 1850 for their support at the WAPF.

Together, Rotary clubs and TwB present the following projects at WAPF:

The slide displays three project panels:

- „End Plastic Soup – Recycle-UP! Water Satches“:** Features the Rotary logo and a photo of a person in a red shirt and blue skirt filling a blue plastic basket with water sachets.
- Regenerating Wells:** Features logos for Rotary Club Göttingen-Hesse, Marahn and TwB, and a photo of people in blue shirts gathered around a well.
- Agroforestry Demonstrationsfarm:** Features the logo for WASSER OHNE GRENZEN E.V. and a photo of a lush green agroforestry farm.

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Jannik Mechau, RG Bayreuth

Clean Water for Nzindong

Despite the ongoing Covid pandemic, our drinking water supply project in Nzindong was successfully completed in November 2021.

First, as well with a depth of over 70 m was drilled in Nzindong, a mountain village in the west of Cameroon, in cooperation with a local contractor. The design of the well was based on a hydrogeological survey, which revealed the depth of the second water-bearing layer not in contact with the surface.

This layer provides clean and mineral-rich water. The borehole was completed before we arrived in Cameroon. In cooperation with the Cameroonian engineer Hervé Ngawa, a solar plant for an electric pump was planned, and the construction of the plant also started before our arrival. The villagers in Nzindong also dug trenches for the water pipes at the end of the rainy season. A new public washing place at the hospital was built and the existing washing place was repaired.



The actual implementation then began at the beginning of November. Around the well bore, we built a watertight casing together with the local mason and then installed the electric pump and the control system for the pump together with Hervé Ngawa. The pupils of the village actively supported the installation of the pump with its more than 60 m long riser. A 3000-liter tank was cleaned, disinfected and then placed at the highest point of the village. The pump is now automatically controlled by the level in the tank and is additionally protected by a dry run sensor in the well.



The solar system reliably operates the pump in the dry season already with half of the originally planned battery storage. At the end of the dry season, the second part of the batteries will be installed by our local partners in order to be able to store sufficient energy also in the rainy season when the sunshine duration is lower. The staggered installation ensures that the replacement of the batteries, which is due in a few years, is not necessary for the entire storage system at the same time. We laid a total of 1.3 km of pipe to transport the water from the well to the tank and from there to distribute it via the natural gradient to the primary school, hospital, church, rectory and the two public washing places.

This created a drinking water supply adapted to the terrain, which now directly supplies the hospital and school and considerably shortens the transport routes of the people in Nzindong. The inhabitants of Nzindong can now fetch clean mineral water from eight water taps. Water



analyses have shown that the water is safe to consume, and the mineral content and pH value are better than in the water from the older hand wells, which also do not supply water during the dry season. The quality is comparable to the water available in plastic bottles in the supermarket, so we hope to also contribute to reducing plastic waste. During the last days of our stay, the people in Nzindong have

already accepted the water very well.

Two technicians from Nzindong have been trained so that they can operate the system and carry out minor repairs themselves. The necessary tools were provided by a donation in kind during the project and remain on site in Nzindong. Training the primary school students on the topic of clean water rounded off our implementation, which took a total of three weeks. Of course, there were challenges here and there and we will improve a few small things over time, but all in all we are happy about this very successful project.

Franzi Enzmann, RG Rhein-Main

Incinerator for a Hospital in Mbouo, Cameroon

At the beginning of November this year we, Sophie and Daniela, from the Erlangen regional group set off for Cameroon to build an incinerator for the disposal of (infectious) hospital waste at the "Hôpital Protestant de Mbouo". Besides the construction of the furnace, it was also necessary to conduct two training sessions: One for the entire hospital staff in the field of waste separation, and a second for the furnace operators who will be responsible for waste incineration in the future.

The "Hôpital Protestant de Mbouo" with 200 beds is located in the Cameroonian western region (Ouest). Mbouo itself is located seven kilometers south of Bafoussam, which is the capital of this region with 350,000 inhabitants. Until now, the hospital had collected all the waste in a hole and burned it openly at certain intervals. Here, the temperatures generated are far from sufficient to completely sterilize the waste. Furthermore, the release of harmful fumes associated with the heavy smoke development represents a considerable health hazard for residents, staff and patients. Germs and bacteria enter the groundwater, posing further dangers. The high risk of infection due to the open and freely accessible storage of waste must also be considered.

The project idea originated from Dr. Christian Doll, a surgeon at the Charité Hospital in Berlin and a member of the Klinikpartnerschaften e.V. association. He himself worked as a local doctor for some time and recognized the need for a more modern waste disposal system. So, he got in touch with Technology without Borders and the planning of the project could start. The technology chosen was the DeMontfort Mark 9a incinerator with a throughput of up to 50 kg of waste per hour. The advantage of the furnace is that it reaches sufficiently high temperatures

(at least 800 °C) to completely sterilize the waste. Moreover, when operated properly, flue gas emissions can be kept very low due to the furnace's second combustion chamber. The project was fully financed by Klinikpartnerschaften e.V.

The implementation of the project on site took place in November this year. We were warmly welcomed by our project partners in the hospital community from the very beginning. In addition to the actual oven, the construction included a foundation, trash chambers and a roof. The foundation was built before our arrival so that it could harden. Within about two weeks, with the help of four hardworking craftsmen (masons and welders), the construction project was then completed.

Even during the construction phase, the hospital's previous waste separation system was looked at, appropriate trash signs were attached to new trash cans, and the entire hospital staff was instructed in the necessary waste separation. The training ended with a gratifyingly lively discussion and strong interest in proper separation. After the furnace construction was completed, the first burns with the furnace were scheduled. This involved five trainee furnace operators receiving detailed instruction in the steps of the incineration process. The nearby Protestant University also showed great interest in the project. A group of medical technology students visited us with two professors one morning and had everything explained to them in detail. At the end of our trip, we visited the incinerator in Bangoua that TwB built about six years ago. Fortunately, it is still in operation and in good condition for its age.

We are happy about the successful completion of the project and hope for a further exchange between the project partners and TwB. Thank you to all involved for the great support!

Sophie Hutzler and Daniela Wegner, RG Erlangen

Clean water for a Peruvian Village

The long-term goal of our project is to establish a stable water supply for a small Peruvian village. The village of Alto Sondoveni is located in the rainforest where the rain and dry seasons determine the availability of water throughout the year. Currently, besides water scarcity, water-borne diseases are an ongoing problem.

During our exploration trip of the project "Water Supply Sondoveni" we acquired valuable data and experience. In preparation for the implementation phase, we set several goals for the exploration trip, which we were able to realise on site.

First, we collected information on the water sources to be used for the water supply as well as their accessibility and other boundary conditions. Furthermore, educational workshops were conducted for the villagers to explain the importance of clean water and to provide them with the necessary knowledge for the use and maintenance of the filtration system. These aspects are essential to maintain a self-reliant and long-term supply of clean water for the village. To get a sense of the general mood, we also carried out interviews that focused mainly on the expectations and concerns of the community. Furthermore, our two outbounds built a prototype for the filter system of the planned water supply, a bio-sand filter, together with the villagers. We collected important information regarding the practical implementation of our ideas, for example concerning the material and tools available and the possibilities of procuring them. Currently, the functionality of the filter is being tested and observed by analysing water samples. We are supported in this by some villagers as well as by local volunteers. In summary, the time in Peru was very helpful for our team and takes us a step further on the way to implementing the project.



Layla Raig, RG Hamburg

Short Messages

Establishment of the regional group Weiden

Recently, a new regional group was founded in Weiden. Projects in the field of hospital support are to be realised with the support of the Weiden location of the Ostbayerische Technische Hochschule (OTH) Amberg-Weiden. The group is led by students from OTH Weiden.

Currently, the regional group meets every two weeks on Wednesdays at 2 pm. The next date is 12/22/21. Due to the current situation, the meetings are held online. If you are interested, please contact group leader Elisabeth Eikemeier (elisabeth.eikemeier@teog.de)!



Elisabeth Eikemeier, RG Weiden

Generous Christmas donation from greenovative

For many years, the company *greenovative* has supported the association Technik ohne Grenzen e.V. (Technology without Borders) both during the Christmas season and at the charity run of the Erlangen regional group because Bernd Fuchs, one of the company's founders and current managing director has been a member of TwB for years. Among other things, he headed the energy working group for several years, and TwB members have also been able to complete their student research projects or bachelor theses at *greenovative*. Thus, *greenovative* is very interesting for TwB members as a possible future employer.

On behalf of the board, Frank thanked the entire *greenovative* team online and virtually for this generous donation.



Frank Neumann, Board

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

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