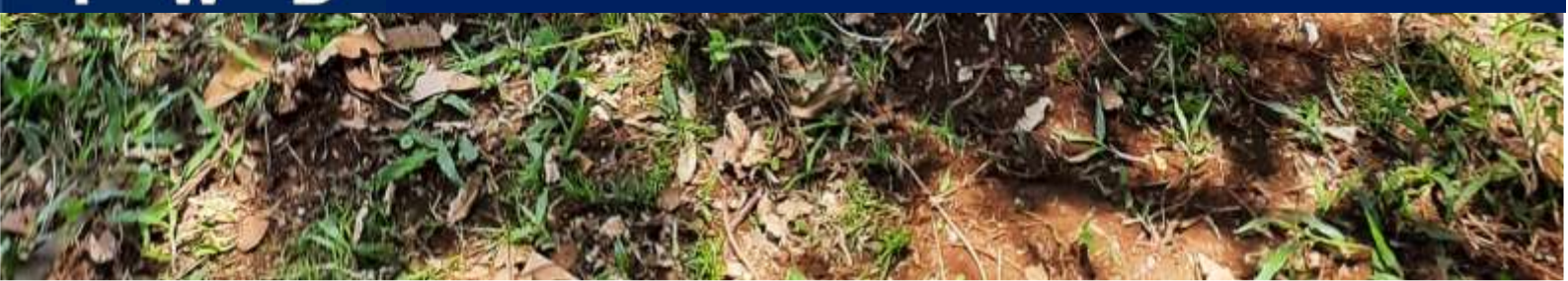
Technology without Borders

Annual report 2022



Impressum

Technik ohne Grenzen e.V.

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Content

Preface

In 2022, despite some remaining Corona restrictions, our project work has picked up full speed again. We are happy about many successfully completed activities in 7 different countries!

A special aspect this year was the change of our first board member. Dr. Frank Neumann, who had held this post since the foundation in 2010, was replaced by Robert Schullan. Frank co-founded Technology without Borders and has played a major role in shaping it over the past 12 years. We thank you from the bottom of our hearts, Frank, for your tireless work, your commitment and your enthusiasm! You have made TwB what it is today and left a lasting mark on most of our members. We are pleased that Frank will remain with us as Honorary Board Member.

We also welcome a new regional group to our ranks: The Freiburg Regional Group. Welcome, we are looking forward to your projects!

Finally, we welcome Heiko Blumenschein from the Rhine-Neckar Regional Group as a new member of the Projects Board and Felix Schofer as the new Treasurer, as well as Jannik Mechau as a new member of the Board with responsibility for TwB International.

All in all, we can look back on a very successful year and would like to thank all donors, supporters, project partners and, of course, all our members who do excellent work in our projects all over the world!

Robert Schullan and Markus Reinhard

On behalf of the entire board

Organisation

Technology without Borders has set itself the goal of improving living conditions in developing countries. This is essentially achieved with the following three fields of action:

1. to carry out practical development cooperation adapted to the situation in order to achieve as much as possible with given means.
2. helping those affected to help themselves through education and training.
3. generate sustainability - e.g. through microbusiness approaches.

In doing so, we want to use our technical knowledge sensibly to help other people. This was the overriding idea behind the founding of this association. In the title of the association Technik ohne Grenzen e.V. (Technology without Borders), the term "technology" stands for the possibility that all people who are enthusiastic about technology as well as skilled workers, technicians, master craftsmen and engineers can contribute. In doing so, we follow the motto: "As technical as necessary, as simple as possible." The association is also intended to open up the possibility for students in particular to help interculturally in this world in a variety of ways through the use of technical and engineering know-how.

Technology without Borders was founded in 2010 and is a decentralised organisation. All members work on a voluntary basis to avoid administrative costs, so donations go 100% to our projects. Projects can be carried out by the board or by the various TwB regional groups. The structure of the association also includes administrative and technical working groups for coordinated cooperation.

Board

1. **Chairman**	Robert Schullan	Since: 2022 Expertise: Mechanical Engineering
2. Chairman	Markus Reinhard	Since: 2021 Expertise: Electrical Engineering
Secretary	Lara Hachmann	Since: 2020 Expertise: Mechanical Engineering
Treasurer	Felix Schofer	Since: 2022 Expertise: Mechanical Engineering
	Christian Zeidler	Since: 2021 Expertise: Process Technology
Project Board	Annika Fenn	Since: 2019 Expertise: Electrical Engineering
	Andreas Vierling	Since: 2020 Expertise: Medical Engineering
	Heiko Blumenschein	Since: 2022 Expertise: Technician
Regional Organization	Daniel Schaffert	Since: 2014 Expertise: Energy Technologies
	Arne Bruns	Since: 2020 Expertise: Engineering
	Jannik Mechau	Since: 2022 Expertise: Chemistry
Public Relations	Franziska Enzmann	Since: 2021 Expertise: Bioprocess Technology

The Organisation in Numbers

Members

As of 31 December 2022, Technology without Borders had 561 members in Germany, with 31 new members joining in 2022. On the other hand, 67 members left the association, which can largely be attributed to a change in the registration system and the associated cleaning up of the database; some of the members left the association in previous years. In addition, the regional groups in Ghana, Brazil, Uganda and Cameroon have further members who are not registered as official members of TwB Germany - the members of foreign RGs who nevertheless had a membership number in Germany were, in contrast to the previous year, excluded from the charts. The membership development of the last few years is shown in Figure 1.

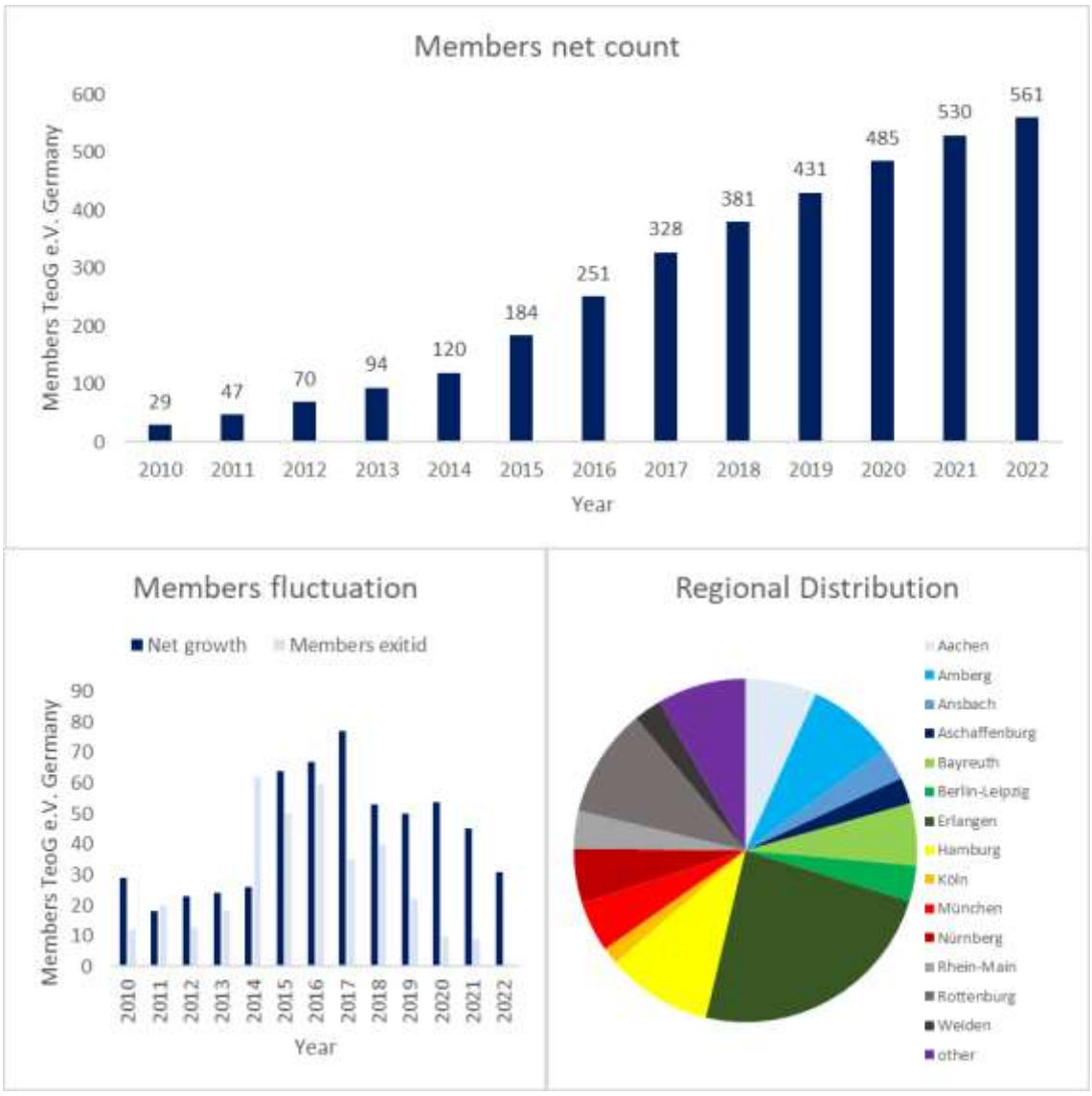


Figure 1: Members development at TwB.

In 2022, a virtual project leader workshop in German was conducted in January and a project leader workshop in English in June by Franziska Enzmann and Julia Schupp. In total, 57 new project leaders were thus trained, especially also in our RGs in Rwanda, Uganda and Brazil, and can now lead projects on behalf of Technology without Borders.

Projects

In 2022, 19 new projects were registered, 9 projects were completed and 4 projects had to be cancelled. The number of registered and completed projects as well as their distribution in terms of project topics and project countries over the last few years are shown in Figure 2.

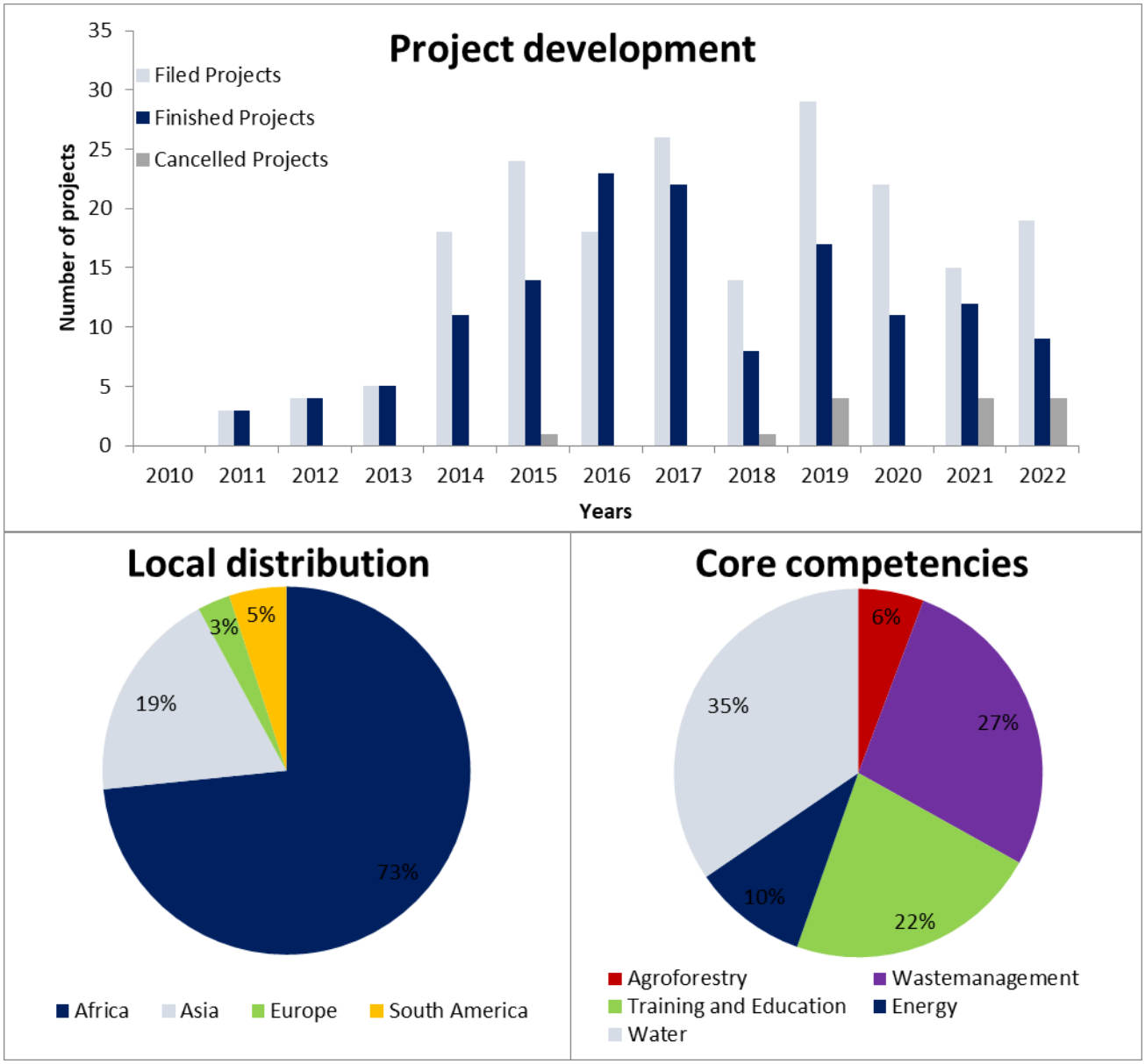


Figure 2: Project development and distribution of finished projects over the past years.

In total, Technology without Borders has completed 139 projects in 27 countries by the end of 2022. 44 projects are currently in the planning or implementation phase. The number of ongoing projects is thus slightly higher than in the previous year (37 active projects), as more new projects were submitted. The ongoing COVID-19 pandemic continues to cause delays in project implementation. Most projects have been implemented in Ghana (44) so far, followed by Nepal (12) and Tanzania (12). A more detailed view can be seen in Figure 3. The main focus of our work with 48 completed projects is in the area of water/sanitation, followed by waste management and recycling with 38 completed projects.

The majority of projects took place in Ghana. In 2022, four new projects were registered in Ghana and three each in Tanzania and Kenya.

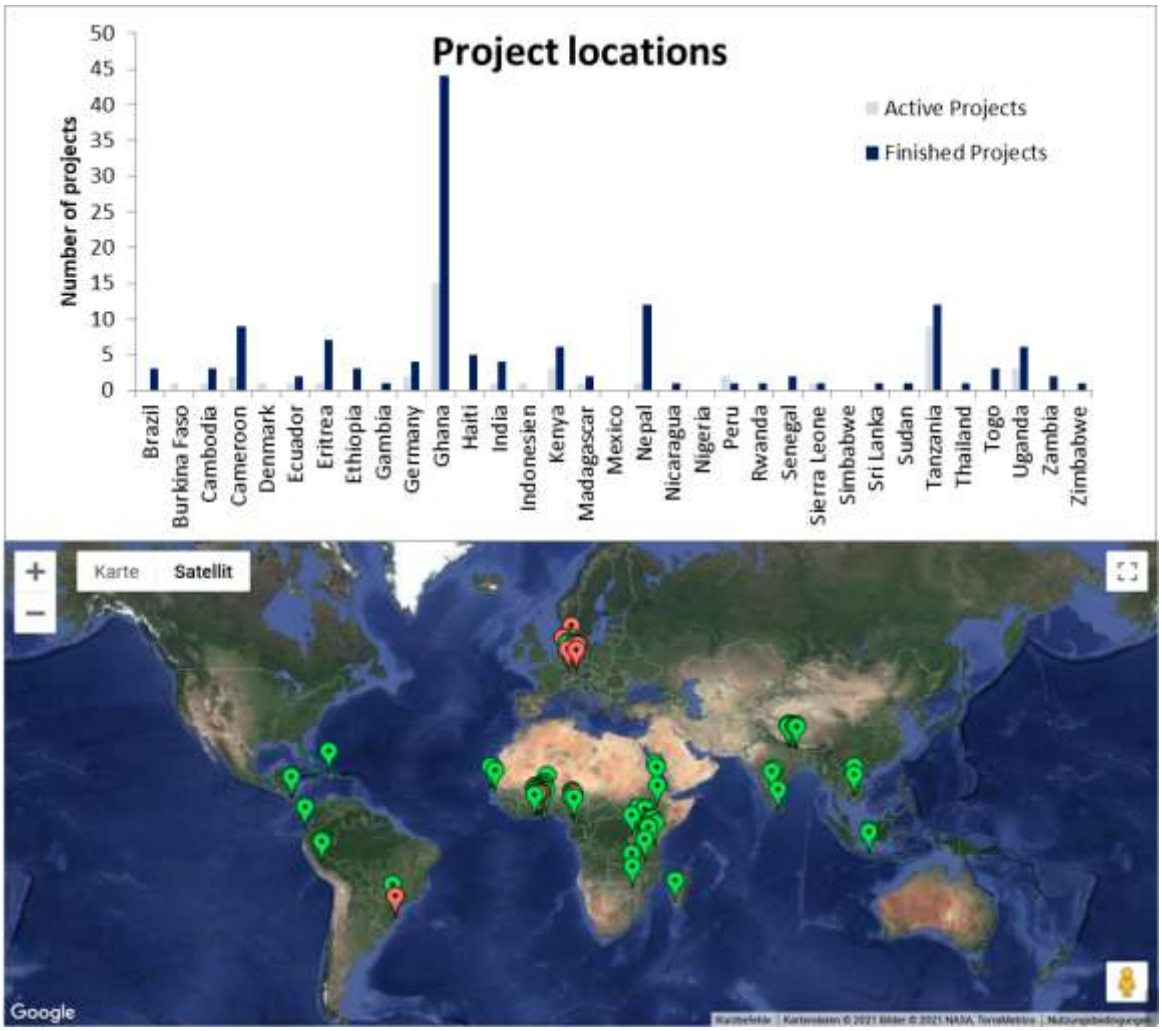


Figure 3: Worldwide distribution of project locations (green) and regional groups (red).

Finances

In 2022, income only slightly exceeded the association's expenditure by about 4%, so it can be said that project operations at TwB are back on track. As usual, project costs represent the majority of expenditure, with flight and material costs being the largest items. The main association has been very active in supporting regional groups with their projects in 2022, with a total of over €31,000 in donations passed on. A detailed breakdown of income and expenditure can be found in Figure 4.

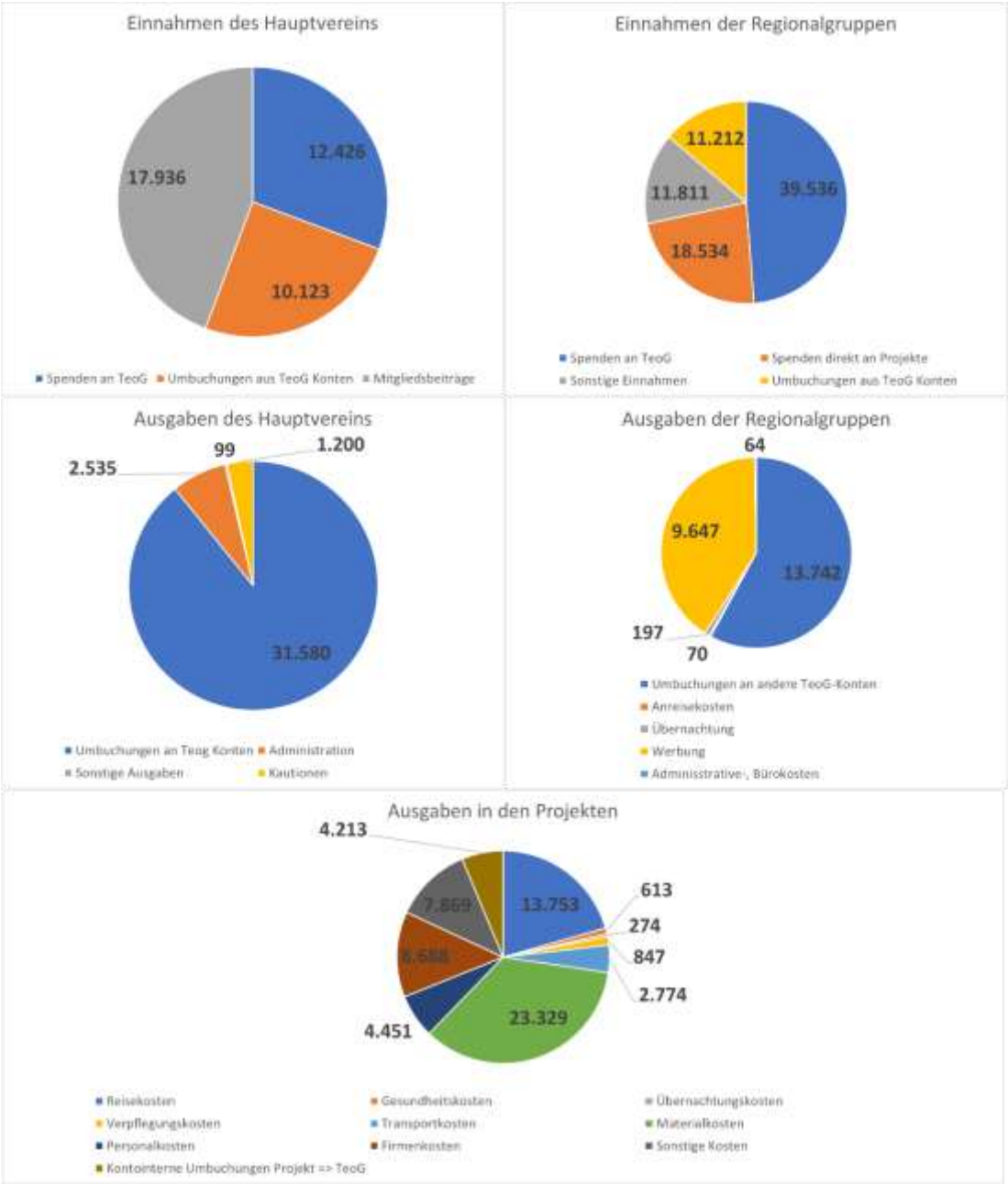


Figure 4: Earnings and spents of main association, regional groups and projects.

Core Competencies

Water and Waste Waster

Drinking water supply is still one of the central problems in developing countries. This is why Technology without Borders is becoming increasingly involved in this area. A total of 48 projects in the area of water/wastewater have already been completed, 6 of which in 2022. These are not only about the provision and treatment of water, but also about methods of saving water, for example through the use of dry toilets. Other goals in our projects are well construction, well regeneration, rainwater harvesting and wastewater treatment.

Working Group Water

Foundation	2010
Head	Thomas Witt

Activities 2022

Developing and implementing water-related projects, supporting project teams, building knowledge on water, answering technical questions.

One focus of the water working group is the collection of knowledge on the relevant topics. This knowledge is stored in a structured way and made available to the project teams. For this purpose, we use an internal knowledge management system that includes content on groundwater, sand storage dams, well drilling, water analysis, dry toilets and water extraction from air. In this way, our projects can be planned faster and better, project knowledge is not lost and we can contribute to improving the water situation in developing countries.

Waste and Recycling

Waste is an ever-growing problem worldwide and especially in developing countries. Therefore, TwB has activities in three different categories, firstly the recycling of plastic, secondly the recycling of e-waste and thirdly the disposal of infectious waste. The construction of appropriate incinerators is one of the longest success stories of the association. Plastic waste entering ecosystems leads to environmental contamination and microplastics in oceans, fish and ultimately food, the effect on human health is still not fully understood. In addition to plastic waste, there is now a flood of electronic waste in developing countries, which poses a high health risk, especially for children who are looking for recyclable parts.

Working Group Waste

Foundation	2010
Head	Henning Risse

Activities 2022

Continuous improvement of the MARK 9 incinerator, support of all projects in the field of waste, maintenance of knowledge management, response to enquiries regarding waste and recycling.

Through the cooperation with the German Rotarian Doctors (GRVD), we have focused on the incineration of infectious waste since our beginnings. The first project involved the construction of two De Montfort Mark 9s in Techiman, Ghana in 2012. After understanding the system better and better, we have since been able to further develop the incinerator, true to our motto "As technical as necessary, as simple as possible". In addition to a second wall around the main combustion chamber and improvements in the metal construction, we have now also introduced adjustments to facilitate operation and maintenance. The training concept is also being constantly developed. Thanks to the support of many partners in Germany and the countries of operation, we have now been able to build incinerators in 10 countries and on 3 continents. We are proud to enable environmentally sound and safe disposal of infectious waste in this way.

Education and Training

In developing countries, low education and training is a major challenge, especially in rural areas. This is why TwB is active in this field. The association and its members, especially the Hospital Support and TCB working groups, develop concepts for sustainable maintenance of technical facilities, training in the IT sector, implementation of recycling projects and much more. Two core topics are the Teaching Computer Basics (TCB) initiative, which aims to enable computer lessons in schools, and Hospital Support, which sets up maintenance plans for hospital equipment.

Working Group Hospital Support

Foundation	2013
Head	Katharina Mai, Lena Augustin

Activities 2022

Programming of a maintenance app for hospitals, support of all projects in the area of hospital support.

Working Group TCB

Foundation	2015
Head	Ina Reichmann

Activities 2022

Collection of used laptops, support for all TCB projects with software problems and "knowledge boxes", contact with implemented projects for maintenance.

Energy

A reliable energy supply is still not a matter of course in developing countries. The Energy working group is mainly concerned with the energy supply in hospitals and other public buildings, such as schools. Projects in this area deal, for example, with the planning and installation of photovoltaic systems, whereby the sustainable use of the system and the training of users form an important part of the projects.

Working Group Energy

Foundation	2010
Head	Nicht besetzt

Activities 2022

Currently no activities.

Agroforestry

Agroforestry is a form of land use in which perennial woody plants such as trees or shrubs are planted on land that is also used to grow agricultural crops and/or keep animals. These elements can be combined either in spatial arrangement or in temporal sequence.

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

In any agroforestry system, there are several interactions, both ecological and economic, between the different components. In general, agroforestry systems are multifunctional systems and can provide a wide range of economic, socio-cultural and environmental benefits.

These benefits included, for example, an increase in biodiversity on agricultural land and a closed nutrient cycle, but also economic advantages such as independence from monopolists (seeds, fertilisers, pesticides) and market prices for a given product. This point in particular is a very essential aspect for small farmers in developing countries, since, as in our projects, the seeds are grown themselves and neither fertiliser nor pesticides are needed.

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

Our goal in TwB projects is primarily to support local partners in setting up agroforestry demonstration farms and information events on agroforestry for smallholders.

Working Group Agroforestry

Foundation	2020
Head	Franziska Weißörtel / n.n.

Activities 2022

Knowledge enhancement in the field of agroforestry, support for agroforestry and reforestation projects.

Other active Working Groups

Working Group PR

Foundation	2013
Head	Laura Gutwill
Activities 2022	Newsletter, Social networks

Working Group IT

Foundation	2010
Head	Julian Deyerler
Activities 2022	Homepage, Office 365

Regional Groups

TwB currently has 10 active regional groups in Germany and the RG Freiburg, which is in the process of being founded. Erlangen is the RG with the most members (135) and the largest number of completed projects (49), however the RGs Bayreuth and Rhein-Main have registered the most new projects (4 each), as can be seen in Figure 5. In addition to the groups in Germany, groups are currently active in Ghana, Uganda, Cameroon and Brazil, with new projects from the regional groups there in Ghana and Cameroon (1 each).

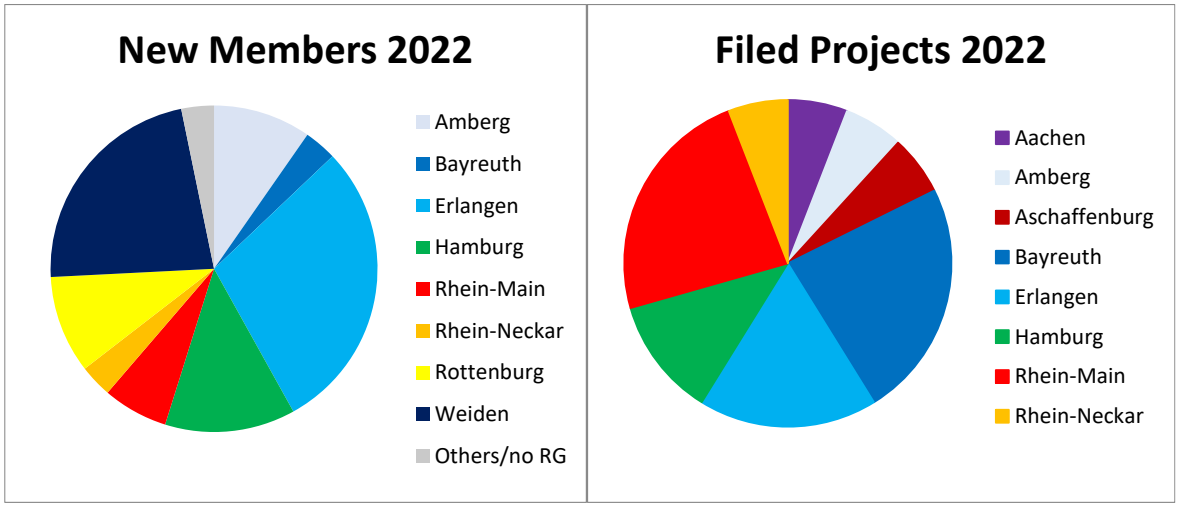


Figure 5: RG distribution of new members and new projects in 2022.

RG Aachen

Foundation	2017
Head	Sophie Kraudszun
Deputy	N.N.
Treasurer	Paul Grünefeld
Members (+ in 2022)	38 (+3)
New projects 2022	1
Finished projects 2022	0
Topics	

2 ongoing projects in Ecuador and Sierra Leone

RG Amberg

Foundation	2011
Head	Magnus Dunskus
Deputy	Adrian Danner
Treasurer	Hannah Eichler
Members (+ in 2022)	47 (+0)
New projects 2022	1
Finished projects 2022	1 cancelled
Topics	

2 ongoing projects in Nepal and Tanzania

RG Aschaffenburg Alzenau

Foundation	2017
Head	Johanna Schulte
Deputy	Kilian Hartmann
Treasurer	Jan Ackermann
Members (+ in 2022)	14 (+0)
New projects 2022	1
Finished projects 2022	0

Topics

Ongoing project in Tanzania

RG Bayreuth

Foundation	2010
Head	Johannes Häring
Deputy	Timon Günther
Treasurer	Jonas Groß
Members (+ in 2022)	33 (+1)
New projects 2022	4
Finished projects 2022	1

Topics

5 ongoing projects in Ghana

RG Erlangen

Foundation	2010
Head	Rebekka Haslinger, Anna Schnehle
Deputy	Julian Deyerler
Treasurer	Felix Schofer, Ricarda Brodwolf
Members (+ in 2022)	135 (+9)
New projects 2022	3
Finished projects 2022	2, 1 cancelled

Topics

4 ongoing projects in Ghana, Nepal and Tanzania

RG Hamburg

Foundation	2013
Head	Laura Schneider
Deputy	Dominik Heinrich
Treasurer	Katharina Kippert
Members (+ in 2022)	56 (+4)
New projects 2022	2
Finished projects 2022	2

Topics

4 ongoing projects in Eritrea, Cambodia and Peru

RG Rhein-Main

Foundation	2017
Head	Franziska Enzmann
Deputy	Cora Kroner
Treasurer	Peter Scheunert
Members (+ in 2022)	20 (+ 2)
New projects 2022	4
Finished projects 2022	3, 1 cancelled
Topics	

6 ongoing projects in Cameroon, Tanzania, Kenya and Burkina Faso

RG Rhein-Neckar

Foundation	2019
Head	Heiko Blumenschein
Deputy	Markus Reinhard
Treasurer	Melanie Reinhard
Members (+ in 2022)	4 (+ 1)
New projects 2022	1
Finished projects 2022	0
Topics	

Ongoing project in Germany

RG Rottenburg

Foundation	2015
Head	Julia Güntherodt
Deputy	N.N.
Treasurer	Annalena Grober
Members (+ in 2022)	58 (+ 3)
New projects 2022	0
Finished projects 2022	0

Topics

No ongoing projects

RG Weiden

Foundation	2021
Head	Elisabeth Eikemeier
Deputy	Nico Spörl
Treasurer	Alexander Gürtler
Members (+ in 2022)	15 (+ 7)
New projects 2022	0
Finished projects 2022	0

Topics

No ongoing projects

Regional Group	Foundation	Members 2022	Finished projects (total)	Ongoing projects
Aachen	2017	38	2	2
Amberg	2011	47	12	2
Aschaffenburg	2017	14	3	1
Bayreuth	2010	33	9	5
Erlangen	2010	135	49	4
Freiburg	2022	1	0	0
Hamburg	2013	56	13	4
Rhein-Main	2017	20	10	6
Rhein-Neckar	2019	4	0	1
Rottenburg	2015	58	11	0
Weiden	2021	15	0	0

TwB international

Currently, other Technology without Borders groups are active internationally as Technology without boarders (TwB), in Ghana, in Uganda, in Brazil and in Cameroon.

TwB Ghana was mainly active in the field of agroforestry in 2022, and an agroforestry demonstration farm is being planned together with German partner RGs. The project is supported and accompanied by the Board of TwB Germany.

In addition, the project "Recycle Up Water Sachets" was implemented in about 40 schools in Accra and the Eastern Region. Waste bins for the collection of drinking water sachets were set up in the schools and workshops were held for the students and teachers. Cooperations with transport companies and recycling companies have been successfully established and the first drinking water bags have already been collected at several schools. The schools receive some money for the drinking water bags, which was invested in football jerseys and in the repair of a drinking water well, among other things.

In the area of water supply, a project was started to set up a prepaid water meter system for more efficient and careful use of drinking water.

TwB Uganda implemented a waste management project at Ndejje University, where several waste bins were installed. In the area of plastic recycling, bottles of polyethylene were melted down and turned into paving stones in cooperation with the organisation co-workers. In addition, work was done on the bio-sand filter to increase the water flow rate. Another current project is the recycling of grey water at Ndejje University.

In April 2022, two members of TwB Ghana visited the regional group in Ndejje/Uganda and, together with a member of TwB Uganda, took part in a water workshop in Arua/Uganda, which lasted several days and was organised by Malteser International. Since the face-to-face meeting, there has been a lively exchange between our national groups from Ghana and Uganda, partly also via online video meetings.

The regional group in Cameroon has carried out its first own project and enabled the water supply of a kindergarten.

The cooperation with the international RGs will also be intensified in the coming year and the concept of partner RGs will be strengthened.

Projects

In 2022, 19 new projects were started and, despite the ongoing COVID-19 pandemic, 9 projects were also finished. Most of the new as well as terminated projects are in the water/wastewater sector, the exact distribution can be seen in Figure 6.

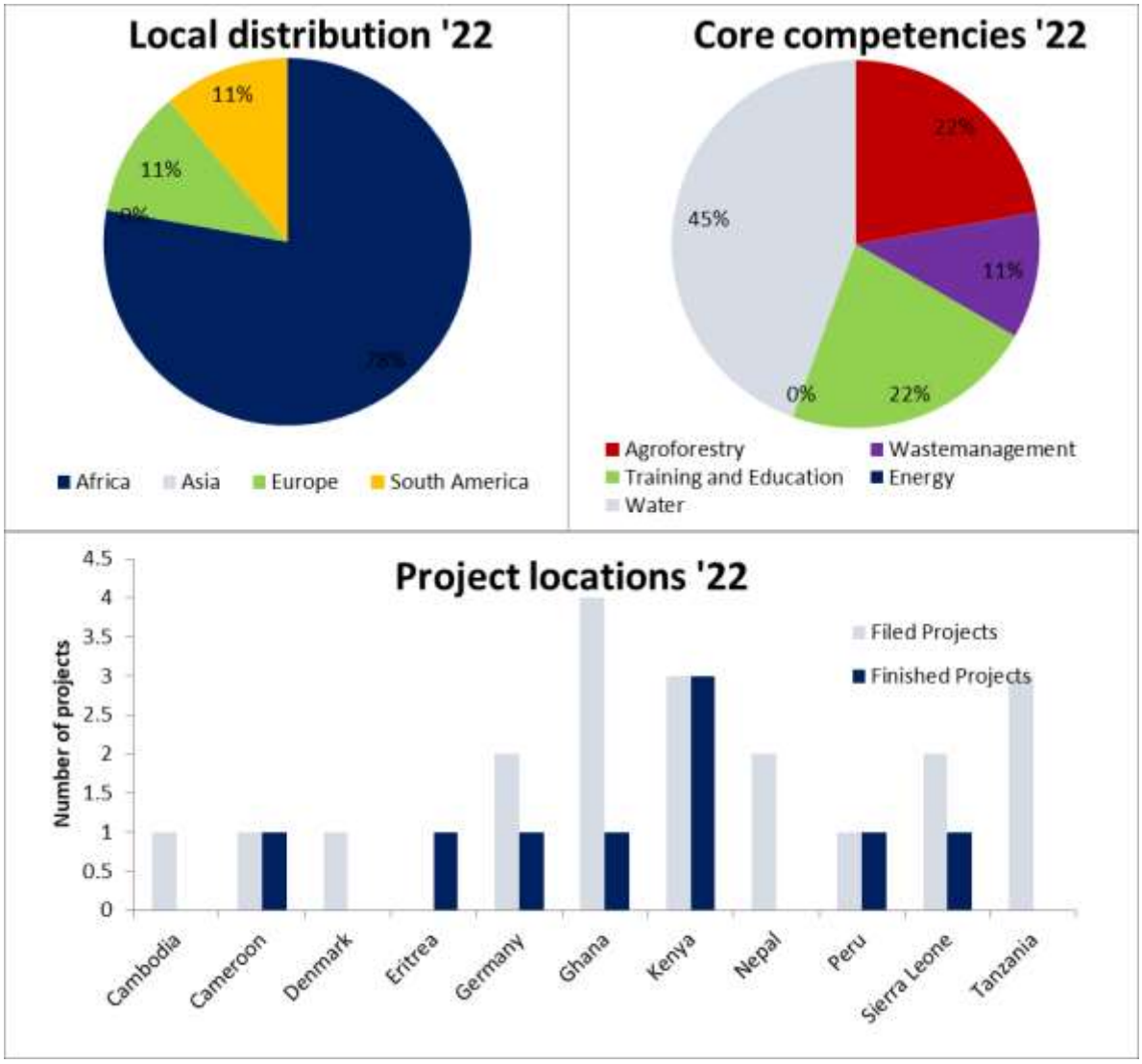


Figure 6: Finished projects in 2022, local and categoric distribution, world wide distribution of projects filed and finished in 2022.

New projects in 2022

Water supply for nursery and primary school

Project number	CMR_CMR_01
Project manager	Edgar Tagheu
RG	Bayangam
Location	Bayangam
Country	Cameroon
Topic	Water
Target	Water supply for nursery school and primary school

Participation IWA World Water Congress Copenhagen

Project number	DEN_01_ED
Project manager	Joseph Maudjorm
RG	Ghana
Location	Copenhagen
Country	Denmark
Topic	Education
Target	Presentation at IWA World Water Congress

Training concept renewable energy

Project number	DEU_07_ED
Project manager	Heiko Blumenschein
RG	Rhein-Neckar
Location	Heidelberg
Country	Germany
Topic	Energy
Target	Plan a concept for training on renewable energy for students in Sierra Leone

Project support in Ghana

Project number	GHA_56
Project manager	Dominik Lang
RG	Bayreuth
Location	Several
Country	Ghana
Topic	a.o. water
Target	Overall project support, Recycle Up, Regenerating Wells, Agroforestry

Prepaid Water Meter Project

Project number	GHA_57_WT
Project manager	Jannik Mechau
RG	Bayreuth
Location	Asesewa
Country	Ghana
Topic	Water
Target	Improve water supply in Asewewa with new distribution points and sources

Recylce Up Water Sachets

Project number	GHA_58
Project manager	Jonas Groß
RG	Bayreuth
Location	Several
Country	Ghana
Topic	Wastemanagement
Target	Improve infrastructure for plastic recycling

TCB Maintenance in Agona Abodom

Project number	GHA_59_ED
Project manager	Rebekka Haslinger
RG	Erlangen
Location	Agona Abodom
Country	Ghana
Topic	Eduction
Target	

Teaching Computer Basics / at school in Agona Abodom

Repair of water supply in Ngiya

Project number	KEN_07_WT
Project manager	Franziska Enzmann
RG	Rhein-Main
Location	Ngiya
Country	Kenya
Topic	Water
Target	

Repair of existing water supply by exchanging valves

Agroforestry and School Gardens in Ngiya – 2

Project number	KEN_08_AF
Project manager	Franziska Enzmann
RG	Rhein-Main
Location	Ngiya
Country	Kenya
Topic	Agroforestry
Target	

School gardens in Ngiya to improve food security for kids

Teaching Computer Basics

Project number	KEN_09_ED
Project manager	Tilman Beck
RG	Rhein-Main
Location	Ngiya
Country	Kenya
Topic	Education
Target	

Computer classes for youth and young adults

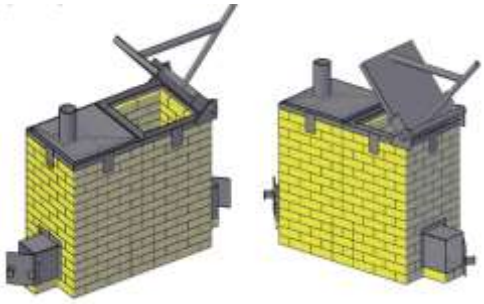
Water supply in Chiro

Project number	KHM_04_WT
Project manager	Bruna Ribeiro Mello Alves
RG	Hamburg
Location	Chiro
Country	Cambodia
Topic	Water
Target	

Next part of water supply project in Chiro

Wastemanagement in Kalikatar

Project number	NPL_14_WM
Project manager	Adrian Danner
RG	Amberg
Location	Kalikatar
Country	Nepal
Topic	Wastemanagement
Target	



Waste disposal at hospital in Nepal

Hospital Support in Nepal

Project number	NPL_15_HS
Project manager	Katharina May
RG	Erlangen
Location	Dhulikhel
Country	Nepal
Topic	Hospital Support

Target

Introduction of SWIFT App

Water supply in Satipo

Project number	PER_02_WT
Project manager	Nicolas Pezet
RG	Hamburg
Location	Sapito
Country	Peru
Topic	Water

Target

Next step of water supply project in Sapito

Plastic recycling, Cooperation mit Bintumani

Project number	SLE_01_WM
Project manager	Jannik Hereth
RG	Bayreuth
Location	Freetown
Country	Sierra Leone
Topic	Wastemanagement
Target	

Preexploration for Recycling-Project (plastic waste)

Power Up- Upcycling used batteries

Project number	SLE_02_EN
Project manager	Hannah Kloy
RG	Aachen
Location	Freetown
Country	Sierra Leone
Topic	Energy
Target	

Upcycling of used batteries for energy storage

Hospital waste project in Liuli

Project number	TZA_18_WM
Project manager	Stefan Leimbach
RG	Erlangen
Location	Liuli
Country	Tanzania
Topic	Wastemanagement

Target Disposal of infectious waste

Energy and water supply for hospital

Project number	TZA_19_WT
Project manager	Johanna Schulte
RG	Aschaffenburg
Location	Rwanda
Country	Tanzania
Topic	Water

Target Water and energy supply for mission hospital

Sustainable Nursery School

Project number	TZA_20
Project manager	Franziska Enzmann
RG	Rhein-Main
Location	Hai District
Country	Tanzania
Topic	Education

Target

Construction of sustainable nursery school with Trinity Academy

Cancelled projects in 2022

- NPL_14_WM (Wastemanagement Kalikatar, Nepal, RG Amberg, project management Adrian Danner); Reason: Official requirements for the construction of the stove could not be implemented in the planning without exceeding the budget. Contact with the hospital and partner organisations continues and alternatives are currently being sought.

- TZA_10-2_EN (Solar system for student dormitory, Tanzania, RG Rhein-Main, project leader Christine Dillmann); reason: necessity of the project is not given, as the student dormitory is already connected to the grid and the consumption is too low to justify the costs.

- TZA_13 (Teaching Computer Basics, Tanzania, RG Erlangen, project leader Anna Schnehle); Reason: Communication was generally difficult, after a cancellation at short notice by the project partner, it was decided to use the existing resources at schools where the need is greater.

- DEN_01_ED (Participation in the IWA World Water Congress, Joseph Maudjorm, TwB Ghana); Reason: The visa for the trip to Denmark could not be obtained in time, the participation was therefore cancelled free of charge.

Finished projects in 2022

Water supply for nursery and primary school

Project number	CMR_CMR_01
Project manager	Edgar Tagheu
RG	Bayangam
Location	Bayangam
Country	Cameroon
Topic	Water
Target	

Water supply for nursery school and primary school

The Bayangam Regional Group, founded in 2021 in Bayangam, Cameroon, has completed its first project of its own. A water pipeline was laid from an existing well to the primary school and kindergarten in Bayangam. Trenches had to be dug over a length of 500 metres and a 2000 litre tank installed on the grounds of the kindergarten, as well as another tank on the grounds of the primary school. A 5-metre-high wooden structure was erected on the kindergarten grounds to safely place the 2000-litre water tank. In the kindergarten, a water tap and a sink were installed in each classroom. The outdoor toilets also have a water connection and a wash basin to enable the children to strictly observe hygiene measures. In the primary school, a tap was installed in front of a classroom so that the 250 pupils will have access to clean water every day.

Another aspect is the renovation of the kindergarten's internal classrooms to improve conditions for the children. The work is nearing completion. As a small side project, vegetable beds were planted on the grounds of the kindergarten. The idea behind this project is to foster a sense of responsibility and practical skills in the children. By taking care of the small vegetable garden, the children also have the opportunity to do activities together. The first harvest is planned for the month of March.

Water for Eritrea

Project number	ERI_09_WT
Project manager	Jan Marc Schwidtal
RG	Hamburg
Location	Begu Valley
Country	Eritrea
Topic	Water
Target	

Construction sand storage for clean water supply

This project is about the construction of a sand storage dam to supply water to the Begu Valley. Construction began at the beginning of 2017, and since then the dam construction has progressed in stages with each rainfall event. The completion of the eighth sub-project was delayed recently; this project involved the middle section of the dam. The pandemic was the main factor slowing us down in this case. The innovative construction method ensures maximum efficiency and longevity of the reservoir. Now the construction phase could be completed in 2021, and a follow-up project for further construction is already in the works. At the same time, the dam is already functional and provides an increasingly valuable contribution to the population's water supply.

This project was made possible by co-financing from the BMZ. The last construction phase will hopefully be completed soon.

Rhein-Main Planting Action

Project number	DEU_04
Project manager	Cora Kroner
RG	Rhein-Main
Location	Einhausen
Country	Germany
Topic	Agroforestry
Target	Planting of 300 trees to increase climate protection, water storage capacity and species protection

On 18 March we were able to plant 75 wild cherries and 250 ash trees on the grounds of the Riedgruppe Ost water supply association. Unfortunately, only 3 TwB members were able to participate due to Corona regulations. Nevertheless, we are very pleased that the planting campaign went so well and hope that these trees will make a contribution against climate change and for the water quality in the region.

Hospital support in Ghana

Project number	GHA_55_HS
Project manager	Katharina Mai
RG	Erlangen
Location	Techiman/Berekum
Country	Ghana
Topic	Education
Target	Technical support, introduction of Swift App

The first stop was the HFH Berekum. Here, the "Swift" app developed by TwB was introduced. This is used by the technicians to digitally inventory the clinical equipment. In addition, they can network with each other and thus share their knowledge to solve problems more quickly. Within the one and a half week stay in Berekum, the entire equipment inventory was digitised and the Preventive Maintenance function was also diligently integrated into the work. The medical staff was also trained in the reporting system of the application to facilitate the communication exchange with the technicians. For the second part of the project, the team went to Techiman. Here, the focus was on analysing the technicians' workflow and structuring the workshop so that the new workshop buildings could be planned based on this information. In addition, we worked with the technical team of the Clinical Engineering Department to improve the current workflow. New communication and documentation systems were established to increase the flow of information for repairs and maintenance. Another big task in Techiman was to de-clutter the current workshop. Last but not least, a tool trolley was introduced so that all screwdrivers & co. have a fixed place. The success of the project will be evaluated in regular meetings with the local technicians. Future cooperation is also envisaged.

Agroforestry and school gardens in Ngiya

Project number	KEN_05
Project manager	Franziska Enzmann
RG	Rhein-Main
Location	Ngiya
Country	Kenya
Topic	Agroforestry
Target	School gardens and tree nursery

Together with our partner association Stawisha Africa, TwB has planted school gardens at a total of 10 primary schools according to the agroforestry principle. The pupils have actively helped and have also founded environmental clubs at the schools, which will take care of the gardens in the future. The agroforestry principle combines agricultural and forestry use of an area. For this purpose, so-called "Islands of Abundance" were planted in the school gardens, in which vegetable plants and fruit trees complement each other in a circle. Different types of vegetables and fruits that are used in Kenyan cuisine were planted. The fruit and vegetables are used in the school kitchens. In addition, rainwater harvesting systems were newly installed at all schools or existing systems were repaired so that the gardens can be sufficiently irrigated. Compost was also created at each school to produce organic fertiliser and the necessary gardening tools were provided for the further care of the plants. The school garden project was rounded off by workshops with the members of the new environmental clubs on the topics of climate change and plant growth as well as composting of organic waste and green waste. In addition to the school gardens, a small tree nursery was also started on the grounds of Stawisha Africa, from which local farmers can now obtain fruit trees. This is also intended to counteract desertification and climate change in the long term. The tree nursery was developed in cooperation with a local expert for fruit trees.

Childrens books for Kenya

Project number	KEN_06
Project manager	Franziska Enzmann
RG	Rhein-Main
Location	Ngiya
Country	Kenya
Topic	Education

Target

Increase literacy by opening a library for kids

In many rural areas of Africa they are in absolute short supply - books! Yet reading stories is a great way for children to learn a language better through play, to improve reading and writing as an important skill for their future professional lives, and to simply go on a mental journey to foreign worlds. Therefore, we have diligently collected English-language children's books and brought a total of almost 200 books for different age groups to Kenya, where we have set up a small library for children in addition to our projects on agroforestry and water supply together with our partner association Stawisha Africa. The kids can come in the holidays and in the afternoons after school and read or play board games such as Scrabble. The project was rounded off with a handicraft workshop, where all the children could make a bookmark with their name, and an afternoon of reading aloud.

Repair of water supply in Ngiya

Project number	KEN_07_WT
Project manager	Franziska Enzmann
RG	Rhein-Main
Location	Ngiya
Country	Kenya
Topic	Water
Target	

Repair of existing water supply by exchanging valves

In March 2022, we happened to pass by an existing water supply system that was built a few years ago with support from UNICEF. The system consists of a drilled, cased well, a solar-powered pump, a solar panel, a high tank and a small "water kiosk" where people can fetch water. There are also pipes to some nearby farms and three schools. The system had not been functioning for about a year when we arrived. After consulting the residents and examining the system, it turned out that basically only three valves were defective, so that the water could no longer flow out of the tank. The pump itself as well as the solar system were fully functional except for an insect nest in the fuse box, which we removed. Of course, it was clear that the water supply had to be repaired, after all, 80 families as well as 3 schools can get clean water through it, which are currently dependent on rainwater. So, in cooperation with a local technician, the valves were changed and the taps in the water kiosk were repaired. A meeting was also convened with the village board, the head teachers and some of the families who use the water to set up a water committee. This committee, in collaboration with Stawisha Africa, will collect and manage funds for repairs in the future so that repairs can be done without outside help. In addition to the current caretaker of the plant, who is already quite elderly, another person will be trained to operate the pump in the future.

Clean Water for Alto Sondoveni

Project number	PER_01
Project manager	Nicolas Pezet
RG	Hamburg
Location	Alto Sondoveni
Country	Peru
Topic	Water
Target	Construction of a pipeline system and a storage tank for spring water for Alto Sondoveni, use of sand filters

Currently, water-borne diseases and water scarcity during the dry season, which lasts from May to November, are a constant problem in Alto Sondoveni. Through our project, we want to establish a stable and year-round water supply for the village and secure it in the long term. The water will be piped from a nearby spring to a storage tank centrally located in the village. There it will be filtered and made available for free use.

We are in regular contact with the village to ensure good cooperation and communication. During construction and commissioning, as well as for maintenance, we involve the villagers from the very beginning, because the water supply is their wish. Together with the villagers, our outbounds built a prototype for our filter system, a bio-sand filter, and familiarised themselves with the local conditions. They also conducted educational workshops to sensitise the villagers to the importance of clean water and to provide them with the necessary knowledge for the use and maintenance of the filter system. These aspects are essential to maintain the supply of clean water for the village in a self-reliant and long-term manner. Currently, we are evaluating the results of the filter prototype on site with the help of water samples and are planning the implementation of the water supply.

Plastic recycling, Cooperation mit Bintumani

Project number	SLE_01_WM
Project manager	Jannik Hereth
RG	Bayreuth
Location	Freetown
Country	Sierra Leone
Topic	Wastemanagement
Target	Preexploration for Recycling-Project (plastic waste)

At the end of May this year, we embarked on our first outreach in Sierra Leone. The focus of the preliminary exploration was on expanding the RecycleUp! Water Sachets project to Sierra Leone and thematically adding more types of plastic and recycling options. The second focus was on the Powerwall project. Systems consisting of solar cells, storage and lighting and/or USB chargers are being planned. The local partner is Light Salone Innovation, a start-up around founder Mustapah Lolleh, which can be seen as an association of innovative minds. Connections were also found with waste collection groups and ventures that try to recycle plastic but still lack know-how and machinery. The Environmental Protection Agency has shown interest in cooperation and possible funding for future projects is conceivable through cooperation with the German Embassy and the EU Delegation, among others.

At the Kenema University of Technology, a group led by Mr. Kebbie has set itself the goal of collecting, selling and recycling plastic. Storage facilities in Kenema are currently being renovated and cooperation with a company in Makeni will provide access to a shredder and baler.

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