PEOPLE & SPORTS

A DYED-IN-THE-WOOL HUMANITARIAN AND JACK OF ALL TRADES

Tanzanian aid project poses enormous physical and logistical challenges for R&S colleagues

When Henrik Rausch talks about his volunteer work for a bush hospital in Africa, it sometimes sounds like an adventure movie. The R&S employee's tales of obstacles and hurdles would be perfect material for a screenplay – with a happy ending. But it took more than two years of planning, waiting and hard work on site before St. Walburg's Hospital in Nyangao finally had a stable power supply and modern IT network. Rausch and his colleagues received valuable support from Rohde&Schwarz.

The bush hospital in the remote southeast of Tanzania dates back to 1958, when an order of nuns from Tutzing on the Starnberg Lake near Munich established a small medical station in Nyangao to provide basic healthcare to the local population. It has since grown into a hospital with 220 beds and employees. It is also the only place for nearly a million people to get treatment. However, the technical infrastructure was as old as the hospital itself.

Technology from another century

The Missionary Benedictine Sisters, who still run the charitable hospital, turned to the Artemed Foundation in Tutzing for help. This non-profit organization provides medical assistance in regions where healthcare is unavailable. This led to contact with Henrik Rausch, who volunteers for Artemed with his wife, a doctor – and with him to Rohde&Schwarz. "St. Walburg's Hospital was struggling with a number of problems, including technical infrastructure mostly dating back to the 1970s," says Rausch, Senior Program Manager, Technology Systems (8GC5) at the Munich headquarters. "Before we got there, the IT systems, computers, networks and internet access were practically non-existent."

Challenging in every way

Artemed could draw on highly qualified volunteers from the medical sector and deploy them wherever needed. However, the foundation lacked engineering and technical expertise in the early days. In 2017, R&S employees filled this gap when the foundation fitted out a medical ship in Myanmar (see Inside 3/2017, pages 70 and 71).

Now Artemed was ready to take on the next big project. "We basically started from scratch, gutting all the buildings and working with local helpers to lay several kilometers of new cables. At the same time, we installed an uninterruptible power supply (UPS)," says Rausch. This central UPS with batteries like those used in electric cars is literally a lifesaver. The many power outages and surges, sometimes several times a day, often forced surgeons to stop working on patients while they were on the operating table – with fatal consequences.

At the end of 2018, Rausch, who also handled the financing, resources, procurement and logistics, began by creating a workable concept. "The first goal was to provide a stable power supply on the entire campus. Once in place, the next step would be to set up a new, modern IT network as the basis for a digital patient management system and material management," explains the project leader. "Given the conditions in the African bush, this was a very challenging project. However, I was confident it could be done."

Pandemic planning chaos

Rohde&Schwarz played a key role in carrying out the project. Without help from the company, which supported the team especially with project management, system engineering, logistics and also by donating unsellable inventory, the project would have been too much for the foundation. The material procurement alone was an enormous challenge. "The nearest location selling usable screws is roughly a two-hour drive away," says Rausch. "So, even the smallest screws and washers, any cables and tools and the high-tech server, had all be thought of ahead of time, purchased, packed and sent to Tanzania in a shipping container."

But as with so many other projects, the pandemic upended the planning. "It was unthinkable for colleagues to travel there to install everything," recalls Rausch. "We had to wait a whole nine months, until mid-2021, before we could travel to Nyangao

St. Walburg's Hospital in southeast Tanzania is the only means of accessing healthcare for around a million people. Along with men's, women's and pediatric wards, the campus has an intensive care unit, laboratories, administrative offices, a pharmacy and a dental practice.

By air to Nyangao: for the journey to southeast Tanzania, the group of electrical, civil and IT engineers, electricians and software and database specialists chartered a bush plane.

Locals and helpers from Germany work hand in hand to unwind massive cable drums. Sometimes their hands were also useful in overcoming language barriers.

Four minds for a challenging project (from left): project leader Henrik Rausch, who served as a system architect and engineer as well as a system integrator, architect Patrick Somweber, who coordinated the civil engineering work, and the two R&S colleagues Florian Hönig, who installed the electrical and IT technology, and Daniel Schneider, who managed the installation of all the computer cables. There were many other helpers not shown here.

– under strict conditions.

"Luckily, everything arrived complete and intact. But this was of little use at first. The volunteers who had planned to come from Germany now had other commitments. So, Rausch began searching for new candidates – no easy task with difficult travel conditions and the vaccination situation.

The diocese steps in

Even with the new team, including R&S colleagues Florian Hönig (GF-ZM), Daniel Schneider (3MP1B), Felix Strey (8GDI) and Ralph Schmeisser (8DC6), the problems were not over. The group could travel to Tanzania, but domestic flights were not yet available. Once again, Rausch's improvisation skills were put to the test. He soon found an answer: through his contacts with a flight school in Zanzibar, the trained pilot chartered a bush plane to ferry his team – along with the missing material, which were brought in dozens of suitcases – to the south of Tanzania.

However, this solution – born of necessity – had a catch: "We didn't want to swoop in like VIPs arriving by private jet," says Rausch. "First you need to stop and think whether this is the best option." Especially because the bush landing strip is rarely used. No ground staff, no fuel, not even a shop. "The Vicar General of the Diocese of Lindi made a special call to the district commissioner to announce our arrival in advance so that we would have no difficulties – and to ask for the airport to be

opened," says Rausch with a smile. The alternative, eight or nine hours across the country in an off-road vehicle after a 14-hour flight to Tanzania, seemed less appealing. After the second flight, the volunteers still had a 90-minute drive to the hospital.

Extreme physical exertion

The on-site work could finally begin under extreme conditions. Just living with temperatures of up to 40 °C in the shade posed physical and mental challenges. Under the roof gables, the heat sometimes reached 60 °C. The multilingual and multicultural teams made up of volunteers and locals struggled to overcome language barriers and also had other factors to deal with: dampness, rat and bat droppings and the risk of injury. Equipped with headlamps, they edged past protruding nails and dangling live wires to lay several kilometers of fiber-optic cables and power lines. "After talking with the hospital management, we finally decided – for our own safety – to completely disconnect the buildings from the power grid for a full day," says Rausch.

If all goes according to plan, that will be the last day at St. Walburg's Hospital without electricity. Since the end of 2021, the hospital has had a secure power supply backed up by dozens of powerful computer-controlled lithium batteries that can be recharged thousands of times. "It's enough to keep the entire hospital running for at least an hour," says Rausch. "That will cover over 90 percent of outages." As an additional backup, a diesel generator will start up automatically whenever the batteries are less than 30 percent charged. However, the fuel tank has run dry on at least one occasion. "I can now monitor all disruptions from Munich with an app. An intelligent monitoring system sends an alert to several recipients, for example if prompt action is needed to fix a reported generator problem before the batteries run out," adds Rausch.

A new world in 800 days

The network links are functioning not only between the two continents, but above all within the hospital. More than 150 computers are connected to each other and the internet. There was also training to familiarize the employees with the new world of computers and modern power supply systems. "I actually found a Dar es Salaam company to translate parts of the manual into Swahili so the local staff could perform maintenance correctly without outside help," says a visibly pleased Rausch. Digitalization is also progressing well. The doctors make their rounds with tablets and retrieve patient files online to discuss the course of illnesses and X-ray images. After just four weeks, 4,500 patients' data had been entered into the database. The operating expenses are decreasing and the efficiency and quality of medical care are improving rapidly. Thanks to the new, reliable power supply and IT systems, modern medical technology can now be implemented and the first batch of equipment has been ordered. "It is great to see how things are coming along," sums up Rausch. "From a technical standpoint, our project has sent the hospital on a journey through time."

R&S employee Henrik Rausch was not the only one working up a sweat. Temperatures of up to 60 °C under the roof gables called for stamina.

Valuable support: R&S equipment enabled the Artemed Foundation to provide the hospital with advanced technology.

The future arrives at St. Walburg's: within just four weeks, 4,500 files were transferred to the new digital patient management system.