Dear friends and supporters of the Solar Energy Foundation,

There are two selected projects that I would like to present to you in more detail in this newsletter:


2. In April 2024, we held a five-day Bootcamp for inventors of sustainable energy products at and from universities as part of the Startup|Energy initiative. The participants from Kenya, Uganda and Germany benefited from an intensive and varied exchange.

In addition to these focal points, you will also find an overview of other planned and implemented activities on page 12.

Enjoy reading!

Au/Freiburg, May 2024

Dr. Harald Schützeichel
Director
Changing the lives of people with learning disabilities with solar panels - A case study from Allamano Special School, Nyeri, Kenya

by Gathu Kirubi, Director of the Kenya Solar Energy Foundation

What comes to your mind when you think of attending a school for children with a variety of learning disabilities such as autism, cerebral palsy, Down syndrome and other conditions? If you think of yourself as a person without a learning disability, as I do, then you expect to find children who are rather sad, shy, anxious and rather unhappy. But nothing could be further from the truth!

Strange as it may sound, it seems to me that the “less mentally capable, the bigger the heart to love, smile and just enjoy life.” I cannot explain this scientifically. But the evidence for this strange hypothesis is quite evident at Allamano Special School for people with learning disabilities in Nyeri, 130 km north of Nairobi, Kenya.

Allow me to take you on a journey to Allamano School, where the children with their individual learning difficulties teach us important lessons: a) the power of smiling; b) creativity for self-reliance; c) sustainable management. And finally, the school shows us that solar systems can create added value.

The power of David and Venesa’s smile

David Njogu
David Njogu looks much younger than his actual age of 18, perhaps due to his exuberant zest for life and broad smile.

For the past 14 years, David has known no other home than Allamano School. He suffers from severe cerebral palsy, is unable to speak and has difficulty feeding himself. Thanks to his highly inspiring and talented teachers like Beatrice, David has not only learned to go to the toilet on his own. He can now also count a few numbers and draw a little. Despite his difficulties, his infectious smile lights up the school. "When you come to school in a bad mood, David's smile gives you the spark you need to brighten up your day," remarks teacher Beatrice with a warm smile.

May I introduce: Venesa Aeno, my new love! Her hug was so tight. She couldn't let go of me. She looks 10, but is actually a young woman of 19. Venesa suffers from multiple disabilities, including severe autism and Down's syndrome. She has been well cared for at Allamano for 15 years.

She has no language skills and, according to her teachers, is unlikely to develop any. She has been trained to feed herself with her fingers because her brain cannot coordinate the "complex" science of spooning. "How long will Venesa stay in Allamano?" I ask teacher Beatrice. "For the rest of her life," she says without hesitation.

Venesa represents a typical lifelong task at Allamano school - many children are too disabled to ever finish school. In other words, they become permanent students and residents! This is one of the reasons why the school needs more and more continuous support. This is the only way to ensure that vulnerable children like Venesa will always have a school to call home.
"One of the biggest challenges we face at Allamano is teaching these children life skills that will enable them to stand on their own two feet when they finish school," says teacher Naomi as she leads me into her classroom, which is equipped with workstations and lots of teaching materials.

Sitting next to her is Elizabeth Muthoni, an impressive example of how Allamano supports the disabled! Elizabeth Muthoni is 23 years old, has reduced growth and came to Allamano in 2013 with limited mental abilities due to her mild cerebral palsy.

With her remarkable weaving skills, Elizabeth is living proof of Allamano’s motto: disability does not mean inability. In less than 2 months she has woven the basket she is carrying over her shoulder in the picture. She will sell the basket for Ksh 1,500 (10 euros).

During the two-month school vacation in December, I learned that she had woven an even bigger basket that had already sold for Ksh 3,000 (20 euros). "And how did you spend the money, Elizabeth?" I asked curiously. "Oh, I gave it to my mother to buy food," she stammers back in Kikuyu, her mother tongue.

The lesson I take away from this is that even disabled people, if they are well trained and guided, can contribute to feeding their families.

Elizabeth and her group of about 10 children are in the last class of Allamano, the so-called vocational preparation level. In this level, teacher Naomi patiently and slowly teaches the children practical life skills such as weaving, knitting and others.

"We have no doubt that Elizabeth will lead a fruitful and productive life when she graduates from Allamano," says teacher Naomi proudly, while the guests loudly applaud Elizabeth for her inspiring story.
Sustainable management

Allamano Special School, located in the rural areas of Kenya, is a public institution - by public I mean that it belongs to the government. Like most public schools in Kenya, especially in rural areas, it struggles with great financial difficulties. When it comes to funding, special schools like Allamano are even worse off because most parents of disabled children are too poor to supplement the meagre funds provided by the government. Wealthy parents prefer to take their disabled children to private institutions that are better funded.

Thanks to the foresight of the Board of Management (BOM) under the leadership of Mr. Maina, Allamano has initiated sustainability projects to support the operation of the facility. One such project is aquaculture (fish farming). "This fish pond is about 50 m³ long and can hold over seven thousand kilos of catfish," explains Mr. Wanjohi, a leading expert in aquaculture and member of BOM (pictured below).

"And what do you do with the catfish?" I ask with interest, as I have little experience in fish farming. "Oh, the fish is a great protein for our children in Allamano. And we'll sell the surplus to the local hotels. I'm a fish farmer myself, not far from this school. We can't meet the local demand for fish," explains Mr. Wanjohi with the admirable confidence of an expert.
From the well-maintained school grounds to the ongoing infrastructure projects such as the fish farm and the planned physiotherapy room, the BOM has clearly created the right governance structure to ensure efficient and responsible management of the school's resources. The management of the BOM is complemented by the support and supervision of the local Catholic Church, represented by Sister Rachel, the current superior of the Sisters of Mary Immaculate (pictured below).

Solar energy as a catalyst for change

"The high electricity bills are one of our biggest challenges at the school," explains Mr. Maina, the BOM Chairman, as he takes us on a tour of Allamano. As shown in the table below, Allamano's electricity bill ranged from 273 to 90 euros, with an average of around 200 euros per month.

<table>
<thead>
<tr>
<th>Month</th>
<th>Electricity Bill/Mon (Ksh)</th>
<th>Euro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct, 2023</td>
<td>40,965</td>
<td>273</td>
</tr>
<tr>
<td>Nov, 2023</td>
<td>25,359</td>
<td>169</td>
</tr>
<tr>
<td>Dec, 2023</td>
<td>13,442</td>
<td>90</td>
</tr>
<tr>
<td>Median</td>
<td>25,359</td>
<td>169</td>
</tr>
</tbody>
</table>

As in any other rural area, the power supply from the grid is very unreliable. "Power cuts of up to 5 hours a day or at night are not uncommon, especially during the heavy rainy seasons," notes Mr. Maina. Even with normal lighting, caring for over 100 children with various disabilities is a (difficult) Herculean task! "Considering their multiple vulnerabilities, it is an absolute nightmare to care for them in complete darkness when the power goes out," explains Sister Rachel, the matron who spends every day and night with these children.

The Solar Energy Foundation was able to alleviate the situation here in March 2024 by building several solar systems. The solar system installed by the Kenyan Solar Energy Foundation consists of five different and independent system components:

a) one system (5 kW) that supplies the classrooms, the office and the dining hall;
b) another separate system (2 kW) that supplies the convent or the nurses' apartments;
c) a refrigerator with freezer compartment (108 liters);
d) outdoor security lights (3 pieces) and

e) portable solar lamps (50 units).

The various systems are designed and installed to function independently of each other in order to achieve system redundancy. In other words: If one system fails, the others can continue to work. Assuming that the solar system is able to reduce the electricity bill by around 60%, this means a saving of more than 1,000 euros per year. In about 5 years, when the battery bank needs to be replaced,
the school will have accumulated enough funds to pay for these repairs and maintenance.

In summary, the new solar system not only saves money, but also eliminates the challenges and risks associated with frequent power outages. Most importantly, the solar system will significantly increase safety for the children, improve the learning environment and thus support the dedicated teachers.

The Allamano School's new solar system was made possible in large part by a donation from the Mathilde Eller School in Munich, Germany. This school is a learning center with a focus on intellectual development. Many thanks for this!
It is obvious that Allamano Special School is special not only because of its children. More importantly, Allamano is special because it challenges the stereotypes associated with disabilities in an innovative and effective way. From a conceptual point of view, Allamano is a commendable effort that deserves the greatest recognition.

*Dr. Gathu Kirubi*
You might think that there is hardly anything less exciting than innovative products and business ideas that come from a university environment: Too much theory, too little practical relevance. The 12 participants of the Clean Energy Bootcamp of Startup|Energy from April 10 to 15, 2024 in Nairobi proved the opposite.

The innovations range from the production of biogas through plastic recycling to services for organic farming and efficient cooking to a solar-powered atmospheric water collection system. Some ideas are already so far advanced that pilot projects are being carried out with large companies such as Kenya Airways.

Four universities each selected three innovators for the Bootcamp. The international composition enabled the participants to think outside the box and gain new impetus by broadening their horizons.

"The Clean Energy Bootcamp from Startup|Energy not only gave me theoretical impulses, but also showed me how much perseverance and entrepreneurial energy it takes to build a company. It's a long journey, not a short sprint," says one participant, referring to the fact that the Bootcamp not only imparted theoretical knowledge, but also offered the opportunity to get to know the real business world:

As a kind of "reality check", the participants visited four local start-ups in one day and were able to...
discuss their practical experiences in day-to-day business with the founders:

- Llyord Mwaniki Gitau, co-founder of Zuhura Solutions, which for the first time in East Africa has developed a food vending trolley powered by renewable energy: the "Halisi Trolley".
- James Mulatya, co-founder of Drop Access, whose flagship product is a mobile solar refrigerator for medicines and vaccines.
- Chris Maara, founder of Kiri EV, which is pursuing a pioneering business approach for electric bicycles.

All four founders took part in the Startup|Energy accelerator program.
The Bootcamp ended on April 15 with a public demo day at Kenyatta University Nairobi, followed by a panel discussion on the challenges for clean energy innovation in East Africa.

The panel discussion featured prominent experts:
- Mark Ameyo, Investment Officer at Kenyan Climate Ventures
- Dr. Kelvin Khisa, Senior Research Scientist at the Kenya Industrial Research and Development Institute (KIRDI)
- Prof. Maina Mwangi, Director of Innovation Incubation and University-Industry Linkages (Kenyatta University)
- Charity Wanjiku, co-founder of Strauss Energy Ltd. and coach at Startup|Energy

Lively participation in the Demo Day and panel discussion at Kenyatta University Nairobi

What remains after the Bootcamp?
One participant gives a clear answer: "Now it is up to us as innovators to translate this wealth of knowledge and practical experience into concrete action. It is our collective responsibility to realize our dreams, bring about positive change in our communities and advance the goals of sustainable development."

Startup|Energy and SENDEA Academy
In addition to a number of structural barriers, local energy startups and SMEs in Africa face particular challenges. One of the biggest is their lack of visibility for cooperation partners and investors. We support local entrepreneurship in the renewable energy sector through two initiatives:
- Startup|Energy (in cooperation with the University of Freiburg) and
- - SENDEA Academy: our training facility for solar technology and management in Uganda.

These initiatives are supported in particular by:
News in brief

Four more solar refrigerators installed in Kenyan health centers
Together with the Nairobi-based start-up DropAccess, the Kenyan Solar Energy Foundation has installed four more solar refrigerators in rural health stations. The so-called "Vaccibox" provides refrigeration for medicines and vaccines and is also mobile. The locally developed and produced refrigerator has already been used by us several times. Now these health stations have a new Vaccibox: Randho-re Dispensary, Rapedhi Dispensary, ACK Clinic and Chamakowa Health Center.

The Bachuma Hospital in Ethiopia has received a 68.4 kWp solar system
A major project was completed at the beginning of the year: the Bachuma Hospital (West Omo Zone) received a solar system that supplies essential parts of the hospital with energy. The project was coordinated and implemented by the Ethiopian Solar Energy Foundation in collaboration with the local solar company Sun-Transfer. Financing was provided by the NGO "Village Health Partnership".

In preparation / planning

SENDEA Academy (Uganda)
The following courses are currently in preparation:
- June: Freelance training in Kamuli and Kaliro (two weeks)
- July: Repair of solar home systems
- August: Training specifically for female solar entrepreneurs
- July - September: three training courses for solar technicians (five weeks each) in Kampala, Hoima and Mubende
- October: Further training in solar project planning and management

Solar village in Uganda
We are planning the realization of another solar village in Uganda. We are currently lacking 15,000 euros for this.

Schools and health centers in Kenya
We are also planning to continue our solar installations in schools (see report in this newsletter) and health stations (especially for cooling medicines). We are also dependent on further donations here.

Startup|Energy
Another multi-day training camp for African energy start-ups will take place in November. The location will be Nairobi or Lagos.
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Your donations make our work possible

- 200 euros: Light for a household (Solar village)
- 1,500 euros: Training of a solar technician
- 1,000 - 3,000 euros: Solar energy for a village school
- 2,000 euros: Participation of a startup in the Startup|Energy programme (one year)
- 2,500 euros: Solar refrigerator for a health centre

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