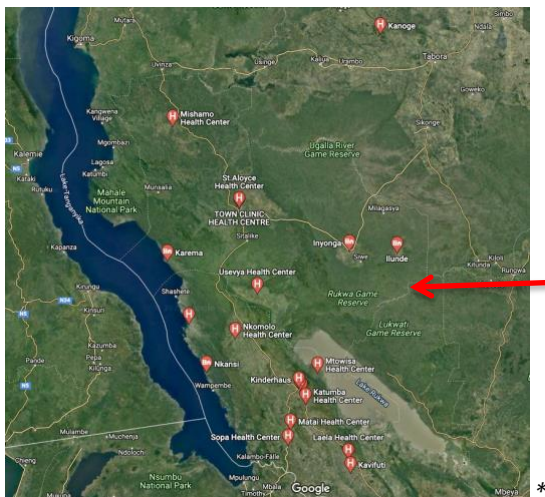




Prevention of Avoidable blindness program in the western regions of Tanzania (Rukwa, Katavi, Kigoma region) through provision of comprehensive quality eye care services



Key-facts 04.04.2023

**Ryner Linuma und Dr. Henning Baur – project manager
Erick Msigomba, Dr. Martin Kotula, Dr. Martin Anderson
Dr. Karsten Paust – project director**

Key-facts

Country: Tanzania, Population **2016:** 54.4 Mio; **2022:** 63.59 Mio¹

Region: Rukwa; population: **2012:** 1,004,539, **2022:** 1,540,519 ²

City: Sumbawanga, Dr Atiman Memorial Hospital (diocese of Sumbawanga)

Supply situation in the field of ophthalmology 2016:

- one cataract surgeon (assistant medical officer, non-university training course), responsible for about 1,500,000 inhabitants of the region (Germany: 1 ophthalmologist: 12,000 inhabitants).
- Number of (cataract) operations per year per million population in the region: an estimated 250 (Germany: 7,000)
- 3 "eye nurses" (ophthalmic assistants),
- 2 optometrists

Further regions of the project:

since 2021: Katavi region, location: Mpanda, St Aloyce health center, (see below)

from October 2023: Region Kigoma

Rationale of the eye-camps: screening and surgeries, mostly by local health care workers; European professionals provide support, optimise organisational processes and impart and deepen knowledge in the field of eye care and surgeries ("teaching and training").

- **First eye-camp** November 2017 in Sumbawanga: construction of the infrastructure; basic equipment with material to stay in situ; screening: 600 patients, surgeries: 162 eyes
- **Second eye-camp** April 2018: additional material, autorefractometer and A-scan etc., stabilisation of the power supply, instruction of local technicians, since then technical support ("remote maintenance" via WhatsApp) possible. Implementation of a practice/clinic administration program. Screening: 775 patients, surgeries: 175 eyes

The eye camps take place in close cooperation with Interplast-Germany e.V., Mr. Marcus Strotkötter. This is a very valuable help, especially in the area of logistics.

The project runs until 2020/21 in cooperation with the German Committee for the Prevention of Blindness **DKVB** as a donation platform. There is a separate account for the project.

- Summer 2018: Start of a training program: 3 ophthalmic assistants, 1 cataract surgeon (non-physician assistant medical officer – cataract surgeon (AMO-CS))
- **Third eye camp** November 2018
Screening: 900 patients, surgeries: 180 eyes
- **Fourth eye camp** April 2019

Screening: 1,000 patients, surgeries: 210 eyes. Talks with the state government about the project; Project manager in Tanzania will be **Ryner Linuma**, Bachelor Science in Rural Development, Eye Health Program Manager.

- Summer and autumn 2019: Training of another 12 ophthalmic assistants, another 2 AMO cataract surgeons and 2 optometrists, plus 1 medical doctor to become a specialist in ophthalmology
- September 2019: The Atiman Hospital opens an optical workshop, where glasses are manufactured and sold. There is also a low vision section.
- 24 October 2019: the DKVB is officially recognised as an NGO in Tanzania
- **Fifth eye-camp** October 2019
Screening: 848 patients, surgeries: 241 eyes,
Teaching and training of a total of 17 ophthalmic assistants
- Memorandum of understanding (MoU) between the regional government, Sumbawanga diocese and DKVB.
- The ophthalmic assistants deployed on the periphery start education and screening programs in schools, examine patients at their ophthalmic workplaces, treat simple cases and refer complicated cases.
- Publications on the project at the [IAPB](#) and in "Die Ophthalmologie" as a scientific publication: [Sumbawanga Augencamp follow-up Studie](#).
- January 2020: it's the beginning of a wonderful cooperation with [Charity vision East Africa](#). Charity vision, led by Miriam and Baptist, supplies our project with sets for the surgical procedures.
- Autumn 2020: Opening of the eye clinic at Dr Atiman Hospital in Sumbawanga. Client: Diocese of Sumbawanga with financial support from the **Anja Balkenhol Foundation**/Bonn.
- Autumn 2020: Start of training for 6 more ophthalmic assistants for the Rukwa region.
- September 2020: The International agency for the prevention of blindness IAPB recognises two team members as **Eye health heroes 2020**: [Ryner Linuma](#) in the Future leader category and [Selemani Mkapila](#) in the Innovators category.
- October 2020: Start of the health education program: EYE HEALTH EDUCATION AND AWARENESS RAISING ON EYE HEALTH IN RUKWA REGION with funding from the Stiftung Schlitzohren (Slit Ears Foundation). Click here for the [report](#).
- **Sixth Eye camp** October 2020, this time as a one-week teaching and training camp for ophthalmic assistants and local surgeons.
Screening: 500 patients, surgeries: 177 eyes.



- It is an [Eye camp under Covid 19](#): Teaching and training take place as blended learning: Online teaching with Martin Anderson and Andrew Blaikie from **St. Andrews University** / Scotland and the [Arclight Project](#).
- First use of a laser to treat glaucoma (micropulse cyclophotocoagulation).
- The German Ophthalmological Society's (DOG) [Research Promotion Award](#) went to Dr Martin Kotula for this project.
- Equipping the 22 ophthalmic assistants with the Arclight Ophthalmoscope.
- 24 October 2020: Ceremonial handover of the new eye clinic to the Atiman Hospital in Sumbawanga. And the 3 AMO - Cataract surgeons: Angelina, Johnbosco (in training) and Liberator.



- A finished and fully equipped eye clinic was handed over - after a project period of almost 3 years. See: A [three-year reflection](#) on the Prevention of Avoidable Blindness Project.
- Autumn 2020: End of the eye camps in Sumbawanga and transition to regular clinic operations. There will continue to be regular training sessions in Sumbawanga for the local eye health care workers.
- 26 October 2020: Talks with stakeholders from the neighboring region of Katavi. The program is accepted by all sides and will start in 2021.

Region: Katavi, population: **2012**: 550,000, **2022**: 1,152,958 ².

Location: Mpanda, 100,000 inhabitants, St Alois Health Center (Catholic Diocese of Mpanda)

Supply situation in the field of eye care in Katavi 2020:

no (!) cataract surgeon, three ophthalmic assistants.

- 30 December 2020: Equipping the eye teams in the entire Rukwa region with surgical instruments and a basic set of consumables with the generous support of the [Stiftung Lichtblicke in der Welt](#). (Lichtblicke in der Welt Foundation).
- Since February 2021: Start of training for 16 ophthalmic nurses for the neighbouring region of Katavi with its capital Mpanda.
- May 2021: Equipping the eye teams in the entire Katavi region with surgical instruments and a basic set of consumables, again with the generous support of the **Lichtblicke in der Welt Foundation**.
- May 2021: the project gets a new name: **TanZanEye**



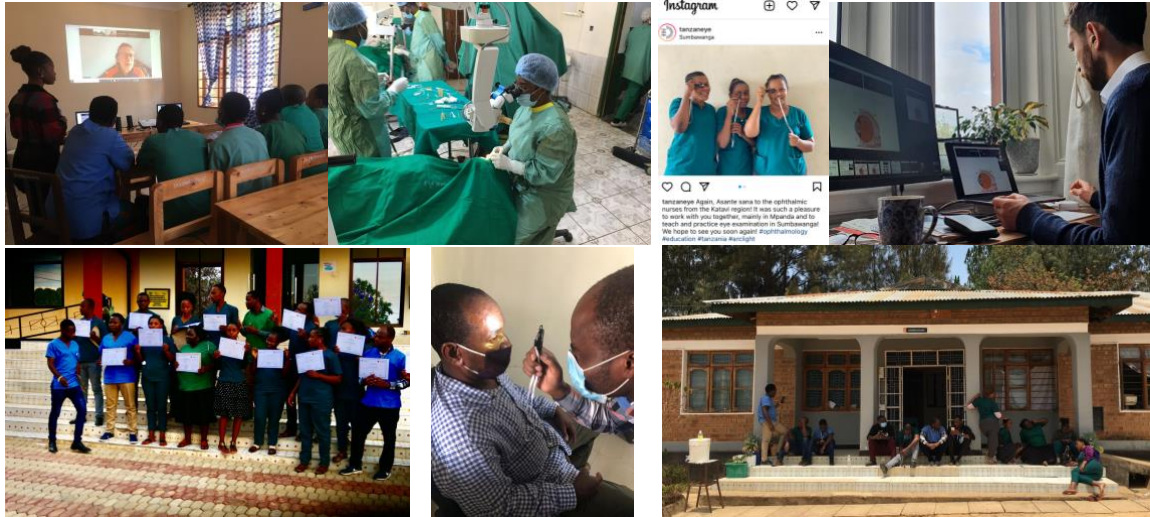
- the project is led by: Ryner Linuma and Dr. Henning Baur - project manager, Eric Msigomba, Dr. Martin Kotula and Dr. Karsten Paust. Dr Martin Anderson joins TanZanEye shortly after.
- the project is supported by our own association:

TanZanEye e.V.

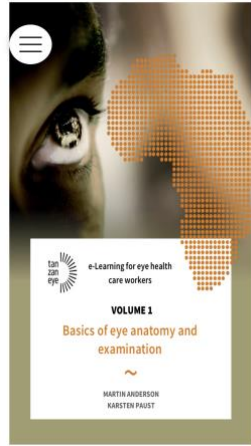
- TanZanEye e.V. is an independent, non-profit association under German association law.
- **First eye-camp** in Mpanda (Katavi region) July 2021
Screening: 600 patients, surgeries: 190 eyes
- 17 July 2021: ceremonial handover of surgical instruments and a basic set of consumables to all ophthalmic assistants in the Katavi region.
- September 2021: two more assistant medical officers have completed their training as cataract surgeons and are returning to the Atiman Hospital: Angelina and Johnbosco. Her training was funded by the [Deutschen Blindenhilfswerk](#)
A big thank you!
- **Second eye-camp** in Mpanda (Katavi region) October 2021
Screening: 600 patients, operations: 120 eyes
Running concurrently: Glaucoma Camp Sumbawanga with 50 laser treatments for patients with advanced glaucoma.
- In addition to patient care, the focus was on further training for the more than 40 trained staff. The **teaching and training program** ran face-to-face and as a

webinar. Thanks to Dr Martin Anderson and Dr Andrew Blaikie from the Global Health Research Division, University of St Andrews/Scotland

- 198 followers follow the project on [Instagram](#) at: tanzaneyeye



- 15 December 21: TanZanEye e.V. is registered as an NGO in Tanzania.
- January 2022: national, Tanzanian funder cover the treatment costs of the insured eye patients. A crucial step towards sustainability.
- March 2022: TanZanEye signed a memorandum of understanding with the regions of Rukwa and Katavi. They define the responsibilities of the stakeholders. They are the basis of cooperation at eye level.
- April 2022: work on the e-book **e-learning for eye health care workers** is complete. Thank you to Martin, Thorsten, Patrick and Robin at [Litello](#), to Angelina, Asha and Maren for their unbelievable commitment! Now there is a digital textbook for ophthalmic assistants OAS ("eye nurses") in 4 volumes.
- **Third eye-camp** in Mpanda (Katavi region) April 2022
Screening: 600 patients, surgery: 125 eyes
Running concurrently: a **glaucoma camp Sumbawanga** (70 laser treatments) and a **surgical training camp** for 4 local cataract surgeons under the direction of an experienced German eye surgeon (more than 100 eye surgeries). Thank you to Iris Winter!



- 25 April 2022: Handover of the e-books to the ophthalmic assistants in the region. Each health center receives a tablet with an e-book loaded onto it. Online introduction via zoom from Scotland and Germany. A big thank you to Martin Anderson and Patrick, Robin and Thorsten from [Litello](#).
- May 2022: Because no assistant medical officer - cataract surgeon has been found for the Katavi region to date, the AMO Angelina will be "relocated" from Sumbawanga to Mpanda to support the eye care of the ophthalmic assistants. Angelina has become a good surgeon. A German ophthalmologist has sponsored her and pays part of her salary which enables her to stay on the project.
- June 2022: a mobile surgical microscope has arrived in Mpanda. Jakob Prechtl from [Prechtl Techsolutions](#) helped with the installation and instruction via WhatsApp. Thank you for this great support.
- The "Eye Clinic" has received a basic set of instruments and consumables. The first surgeries have taken place.



- Construction of the new eye clinic in Mpanda has started and is scheduled for completion in April 2023. A big thank you to the Anja Balkenhol Foundation, which bears the financial costs for the construction.
- The construction of the operations building in Sumbawanga has started. The construction is financed by the [Stiftung Lichtblicke in der Welt](#). Again, a big thank you.

- The [Else Kröner-Fresenius-Stiftung](#) (Else Kröner-Fresenius Foundation) will provide financial support for the project over the next three years. As a result, we were able to gain a very strong partner for the area of "[Human Capacity Building](#)".
- Several publications on "[Glaucoma treatment using transscleral cyclophotocoagulation](#)". We hope that this will help reduce the preventable severe visual impairment and blindness caused by glaucoma.
- Keneth Yona has his residency exam. His education is largely funded by [Kids' and Poores' Eyes International](#). This is great because now the Rukwa Region and Atiman Hospital in Sumbawanga has an Ophthalmology Specialist.

Excursus (October 2022): When the foundation stone for this project was laid in 2016, the population of Tanzania was 53 million, in 2022 it was 61.7 million². In October 2022, Welthungerhilfe classified the hunger situation in Tanzania as serious³. In 2021, the child mortality rate in Tanzania was 47.1 (deaths per 1,000 live births)⁴ - compared to Germany: 3.6.

- **Fourth eye-camp** in Mpanda (Katavi region) November 2022
Screening: 605 patients, surgeries: 95 eyes
Running concurrently: Glaucoma Camp Sumbawanga with 55 laser treatments for patients with advanced glaucoma.
- In addition to patient care, the focus was on further training for the more than 50 trained staff. The **teaching and training program** ran face-to-face. Almost 50 ophthalmic assistants (OAS) and 60 community health care workers (CHW) from the 3 project regions took part. Thanks to Dr Martin Anderson and Dr Andrew Blaikie from the Global Health Research Division, University of St Andrews/Scotland. The [Arclight Project](#) is an integral part of our program.
- The main sponsor of the "Human capacity building for quality eye health care" area is the **Else Kröner-Fresenius Foundation**:

This area is an integral part of our Prevention of Avoidable Blindness program, which includes additional and complementary investments in infrastructure and equipment.

- Supervision of the local surgeons Angelina, Johnbosco, Liberator and Keneth by Erick Msigomba and Dr Dirk Harder. Also: training in the storage of consumables, handling of instruments, hygiene and much more. After the construction phase, it is now time for the areas of daily practice. Ophthalmology has arrived in the region.
- Once again we are supported by [Charity Vision Tanzania](#). Without the team around Baptist Mutesasira and Mariam Ernest, the surgical care of the patients would not work so well.
- Inauguration of the operating room building at Atiman Hospital. The building was financed by the [Lichtblicke in der Welt](#) foundation.



At a ceremony in the Villa Hammerschmidt in Bonn, State Secretary for Development Jochen Flasbarth honored Dr Karsten Paust with the **EINE WELT-Medaille** (ONE WORLD medal): “As an ophthalmologist, Dr. Karsten Paust has been volunteering in Ghana, Cameroon and Tanzania for many years. Thanks to the combination of medical eye treatment and specialist training, TanZanEye e.V. improves the living conditions of many people and strengthens health care in rural regions of the partner countries in the long term.” This prize is representative of a large team.

- Germany supports Tanzania in the [comprehensive introduction of health insurance](#).



- Numerous private initiatives collect donations for our project. Thank you very much for so much commitment.

- We are increasingly entering into strategic partnerships with other NGOs: only together can we solve the obvious needs of our patients: [KCCO](#), - KinderAugenKrebsStiftung [KAKS](#) (children's eye cancer foundation) and [Know the glow](#) give us valuable support and advice. It is primarily about the care of children with eye diseases that lead to blindness (e.g. cataracts) or even death (e.g. retinoblastoma). Early detection is crucial here. And this is where the ideas of our project and the philosophy of the **Arclight Project** come into play.
- There must be cooperation: The competition between NGOs for the utmost benefit to the patient is no longer up to date. It needs a change of perspective in many ways.
- March 2023: TanZanEye, [Light for the world](#) and the [Arclight project](#) have jointly designed a course at the Ophthalmological Academy in Düsseldorf: “**It takes two to tango** - about a change of perspective in development cooperation”.
- **Fifth eye-camp** in Mpanda (Katavi region) April 2023
Screening: 433 patients, operations: 111 eyes
Parallel to this: Surgical Camp Sumbawanga with 350 patients, 65 operations and 29 laser treatments for patients with advanced glaucoma.
- 25./26.04.: **Future search workshop** in Mpanda: Exploring the future of eye care in the Rukwa, Katavi and Kigoma. Henning and Martin prepared it. The workshop was joined by the healthcare managers and the bishops of all three regions and the clinical management of the three clinics (Sumbawanga, Mpanda and in the future Kasulu). Joint perspectives!
- 28.04.23 Inauguration of the new eye clinic in Mpanda



- August 2023: the first two optometrists, Elizabeth and Jenifa, get their diplomas.
- August 2023: The College of Ophthalmology of Eastern Central and Southern Africa (COECSA) holds its annual meeting in Mombasa, Kenya. TanZanEye has 2 presentations: “Micropulse Cyclophotocoagulation for Advanced Glaucoma in Resource-Limited Settings” (Keneth Yona) and “Establishing Sustainable Eye Care in “Hard to Reach” Regions” (Ryner Linuma)
- Presentation of the e-book for ophthalmology professionals during the COECSA meeting, there will be a dedicated APP at the end of November.



- Initial talks with the regional administration of the Kigoma region to establish eye health care in this region
- September 2023: Roll out of the Know the glow – TanZanEye awareness campaign



- October 2023: The award “Tropenophthalmologie” from the German Ophthalmological Society goes to Dr. Karsten Paust
- October 2023: the eye theatre building in Sumbawanga receives modern equipment with the support of the Lichtblicke in der Welt Foundation.
- October 2023: TanZanEye signed a Memorandum of understanding with the Kigoma Region.
- **First eye camp** in Kasulu, Kabanga referral hospital (Kigoma region) October 2023
- Screening: 586 patients, operations: 144 eyes, laser treatments: 45
- **Sixth eye camp** in Mpanda (Katavi region) October 2023; there are 3 focal points: operations, teaching and training and sustainability
 - a. Surgical Camp Mpanda with 238 patients, 57 operations
 - b. Teaching and training by Ophthalmic assistants in cooperation with the Arclight Project
 - c. Future search workshop in Mpanda: Exploring the future of eye care in the Rukwa, Katavi and Kigoma with the health managers and the bishops of

the three regions and the clinical management of the three clinics (Sumbawanga, Mpanda and future Kabanga). Joint perspectives!



- **Surgical eye camp** in Sumbawanga 30.10. – 03.11.: the team of eye surgeons at Atiman Hospital in Sumbawanga operates on 55 eyes of varying degrees of difficulty under the supervision of an experienced eye surgeon
-



Global Citizenship Award
– sponsored by Public
Health Scotland

Dr Andrew Blaikie, NHS Fife

„....Dr. Blaikie's extensive research and implementation activities in LMIC settings target the provision of relevant and effective low-cost diagnostic tools. His passionate commitment has led to an unprecedented increase in global ophthalmic capacity, mobilised knowledge in eye care, and significantly reduced unnecessary blindness. His influence reaches not only medical professionals but governments, policy-makers, and most importantly, the individuals whose lives are profoundly improved by earlier and more accurate diagnosis. His efforts exemplify the ideals of the NHS Global Citizenship Award, demonstrating an inspiring commitment to improving the quality of health and social care in the most underserved areas of the world....”

- We are happy and proud to have Andrew at our side.



We want to achieve that by the end of 2026 the minimum structural and personnel requirements for a nationwide supply of basic eye care services are in place in all three regions. Alongside and after that, there should be an increasing emphasis on quality and sustainability.

There are a large number of supporters without whom this project would not work.

A big thank you for all the help and appreciation.

Thanks to the many helpers, team members, supporters and friends.

**Please continue to support us with a donation
TanZanEye e.V.
Volksbank Köln Bonn**

IBAN: DE52 3806 0186 4940 3630 18

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Further sources and ideas:

In the [Lancet Report on Global Eye Health](#): vision beyond 2020, you can read about global eye health and how it is positioned in the Sustainable Development Goals of the UN.

There is a recording by the Federal Ministry for Economic Cooperation and Development of January 25, 2023 on Joint perspectives - [Cooperation with Africa in Times of Change](#).

The [Keynote-lecture von Jennifer Makumbi](#) (Ugandan Writer) is well worth reading: Reflecting African-European Perspectives - How Europe Filled Africa's Silence.

Marcus Lanz talks to Melanie Müller and Joe Chialo about future cooperation with the African continent. [Worth seeing](#). We learn a lot - also from the story with Florian Silbereisen.

[Andrea Böhm](#) writes in Die ZEIT on the Western stereotype of the eternally helpless African.

More background:

The project is based on the NATIONAL EYE HEALTH STRATEGIC PLAN 2018-2022 Status: SEPTEMBER 2018 by MINISTRY OF HEALTH COMMUNITY DEVELOPMENT, GENDER, ELDERLY AND CHILDREN. Our project manager Ryner Linuma is one of the co-authors.

The leading causes of visual impairment worldwide are uncorrected refractive errors (42%) and cataracts (33%). 80% of visual impairments including blindness are preventable or treatable.

The prevalence of blindness in Tanzania is about 2.4% (in comparison: worldwide 0.48%)

In Tanzania, cataracts are the cause of blindness in 65% and severe visual impairment in 75%

In Tanzania there are 55 ophthalmologists, 81 assistant medical officers in ophthalmology (AMO-O), 105 ophthalmic nurses and 212 optometrists. For comparison: in Germany there are 7,000 ophthalmologists.

Requirement per million inhabitants: 4 ophthalmologists, 10 AMOO and eye nurses, 20 optometrists (source: IAPB).

After general training in the medical field (not university), assistant medical officers in ophthalmology AMO-O complete a two-year additional qualification in the field of ophthalmology and can then take over ophthalmological care in a care area. You operate on cataracts and eyelid malpositions (e.g. after trachoma), do not operate on childhood cataracts and not on the rear segment of the eye.

Basically, to reduce the number of cataract-blind people, enough cataracts must be operated on; The benchmark is the "cataract surgical rate" (CSR), the number of (cataract) surgeries per year per million population.

The cataract surgical rate in Tanzania is 475 (2016); in Germany 7,000/1,000,000 inhabitants.

sources:

1. <https://www.laenderdaten.info/Afrika/Tanzania/bevoelkerungswachstum.php>
2. <https://sensa.nbs.go.tz/>
3. <https://www.welthungerhilfe.org/hunger/global-hunger-index>
4. <https://data.unicef.org/country/tza/>