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### FOREWORD

The year 2019 has been remarkable in many ways. As we have celebrated the 5<sup>th</sup> year of EMAUA's existence, we have completed the purchase of our first land, which we'll dedicate to the creation of EMAUA Center. It also marked the end of our constitutive project, the Isegeretoto Organic Food Self-sufficiency Project. Furthermore, the number of pupils that we sensitized since 2017 increased to a total of 43,000, and the number of planted trees totalled 45,000.

We are glad that several operational improvements took place, that have dramatically improved the way we deliver impact. The whole team attended a 3-day training on tree nursery management hosted in our tree nursery in Malaba, given by two major Kenyan institutes of research. Besides strengthening our convictions, it put us on track towards reaching a 100K-tree production per year in future. Moreover, we have been able for the first time to hire an education officer, who highly improved the quality and the spectrum of our teachings in schools.

The support from a digital marketing professional significantly improved our website, with plugins that allowed the creation of a self-hosted crowdfunding platform. The new appearance, combined with bilingual, brand new content, now provides visitors with a better understanding of our activities on the ground and our aspirations. Our improved online presence resulted in an increase in donations, which directly led to an expansion of our activities.

We would particularly like to thank all those who engaged in supporting our work this year, as well as our base of donors, that now counts up to 5-year supporters! We are also thankful to our team of Swiss volunteers, whose efficiency intensifies every year. Finally, we would like to thank all those who have sent us messages of encouragement, per email or simply through the social media.

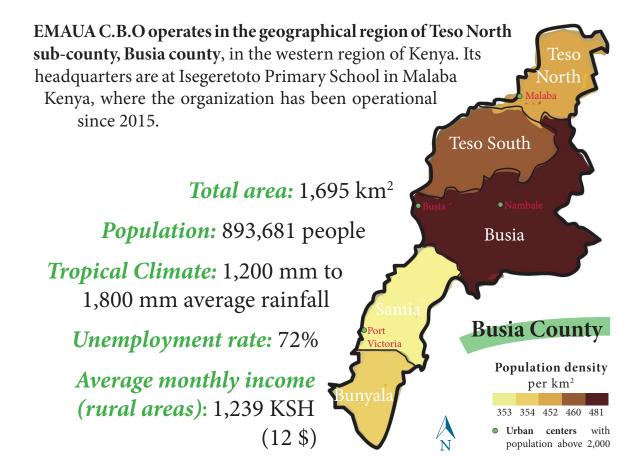
Julien Kauer
Chairman and founder

Local Resources Integration Open Source Traditions Science Agroecolgy Biodiversity **Teaching** Sustainability **Education** Research for Development Education Open Source Agroecology Food Local **Empowerment** Collaborative Sustainibility Design Local Resources Health Open Source Carbon Farming Resources Better Living Integration Sustainable Development

Goals Biodiversity

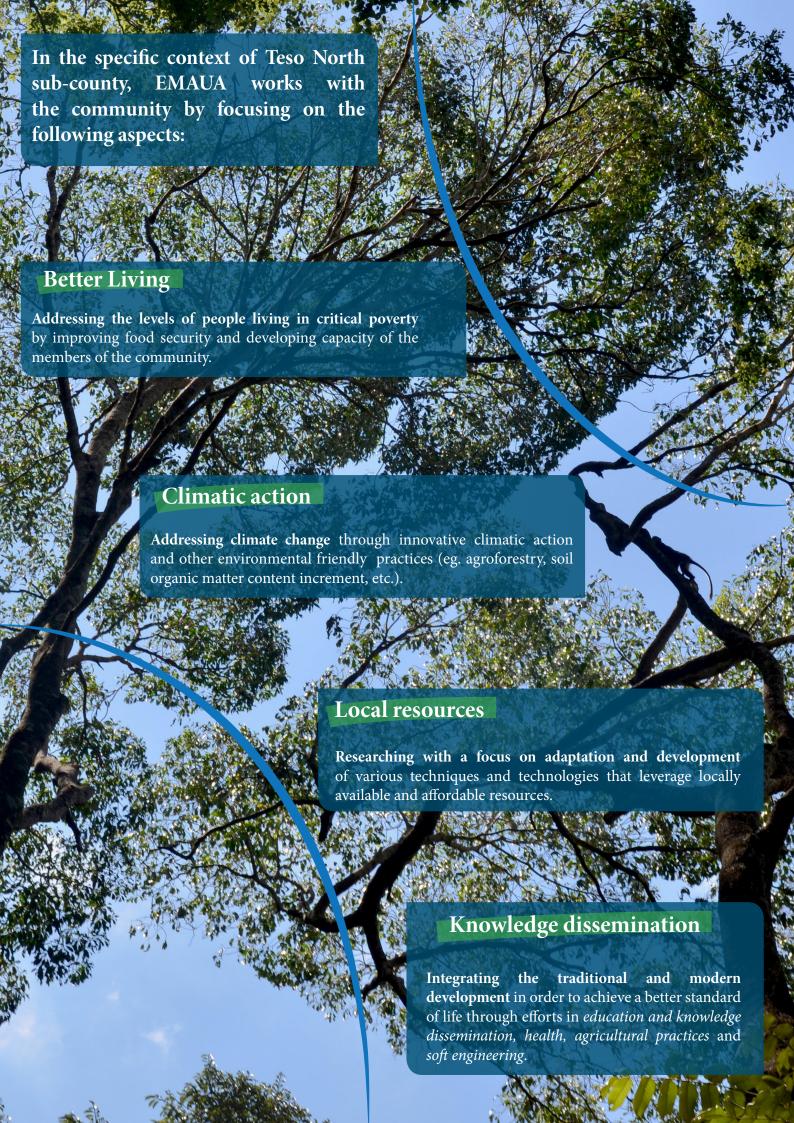
Transdisciplinary

### SITUATIONAL FACTS & KEY FIGURES



**Teso North sub-county region** experiences a tropical climate marked by two rainy seasons, long rains (March to May) and short rains (September to November). This weather patterns support agriculture as the main socio-economic activity. However due to **climate change**, there have been harsher dry seasons resulting in food insecurity and water scarcity.

The economic demographic is characterized by a large part of the population living with **low incomes** (12\$ per month according to County Government Reports). The main activity practiced is **small holder subsistence agriculture** with an average of 0.6 ha landholding per household. Other income generating activities include daily wage casual labour, motorcycle transportation and small-scale entreprises selling general commodities.



### ESSENTIAL FACTS

We celebrate our 5th year of existence in 2019. The most significant aspect of it was the acquisition of a 4-acre parcel of land in Busibwabo (Busia). We managed to reach 18,600 students through our community education and distributed 15,640 tree seedlings mostly in schools. In addition to the conferences and seminars in Swizerland, we also received an extensive training on tree nursery management courtesy of KEFRI/KALRO. This was the final year of Isegeretoto Organic Food Self-sufficiency Project.



**JANUARY** 

Completion of a 4-acre land purchase Busibwabo

**FEBRUARY** 

Trials of **bamboo tubes** for tree seedlings

**MARCH** 

Start of 5th year for Isegeretoto project

APRIL

Start of annual tree seedlings distribution Completion hut construction Busibwabo

### **AUGUST**

1st season harvest at Isegeretoto Project

Beggining of 6-month Stand at the "Festival visit of Jérôme Badollet

of the 5 Continents" (VS/CH)

**MAY** 

Training in tree nursery management by KEFRI/KALRO Conference at Eng.

School of Geneva, Switzerland (HEPIA)

### **SEPTEMBER**

Completion of 2<sup>nd</sup> hut construction in Busibwabo

### **OCTOBER**

Swiss Annual Conference in Fribourg

### **NOVEMBER**

 $2^{\text{nd}}$ position "Courir Pour Aider" competition (GE/CH) 2nd season harvest in Isegeretoto Project

### **DECEMBER**

Handing Isegeretoto Project Upgrade of the website Launch of a selfhosted crowdfunding

# TEAM AND ORGANIGRAM

The most important aspect allowing EMAUA to execute its mission is its people, who mostly originate from our areas of activities. Our team in 2019 was composed of 7 employed staff who are supplemented by casual laborers, occasional volunteers, and interns. We have a strong belief in investing in our staff by developing their capacity to handle project duties and administrative tasks.

### GENERAL ASSEMBLY



- Management/Finance
- Communication/Fundraising



### Projects & Programs

- Isegeretoto Organic Food Selfsufficency Project
- Community Education
- Tree Nursery
- Research & Developement Projects

### WELFARE

- Housekeeping
- Volunteers

### **EMAUA'S TEAM**

Julien Kauer Chairman and founder | Adams Maase Operations

Secretary | Maureen Etee Accountant | Michael Odieka Field Manager

Zablon Milengo Education Officer | Violet Amoit Welfare | Evans Chemiat

Improved Stoves | Leonard Aserwa Tree Nursery | John Euleme Vegetables

Production | Roziana Laini Intern | Carolyne Atoo Welfare

# LOCAL RESOURCES FOR BETTER LIVING

Our work is inspired by the recurring need to address challenges affecting communities, key of these being: low food production and food security, inadequate health care and degradation of the natural environment. EMAUA is focused on collecting and developing solutions that are based on the use of local resources since our target regions have a prevalence of low income earners.

In 2019, our key activities were: Community Education Program, Isegeretoto School Organic Food Self-sufficiency Project, Indigenous Tree Nursery, Research and Development.

### HOW WE WORK



EMAUA is in essence a knowledge based change agent in our communities. We aspire to develop and adapt suitable practical solutions to key challenges through the innovative use of local resources. Our methodology of work follows a 5 step framework.

#1 We deeply integrate ourselves within the community in order to understand the context in which we will be engaging. Insight gained from assimilation and listening to the various community members informs, #2 gathering knowledge and developing suitable solutions. #3 trials and validation of potential solutions. It includes: pilot projects, experiments and on-farm trials.

#4 dissemination of knowledge through our Community Education Program. #5 collaborations to set up projects in the community (especially in schools) to consolidate the knowledge and make it easily available to the entire community.

## COMMUNITY EDUCATION

The Community Education Program is aimed at spreading knowledge among the youth and adults, in order to sensitize on the vital alternatives provided by the use of local resources.

2019 was the start of a new phase, where we revisited the schools that were taught in the 2017-2018 phase, but with a new curiculum. The hiring of a responsible for the program marked a shift in its spectrum of action, as it tremendously improved the quality of our teachings. We reached a number of 18'600 students.

### LOCAL SOLUTIONS TO GLOBAL PROBLEMS



A significant amount of scientific knowledge on organic farming has been developed in the recent years, however a large part of it has remained out of reach to small-scale farmers. Our aim is to act as an agent that disseminates this knowledge freely in the community. In 2019, our focus has been on the importance of trees for human livelihood.

Our aim is to foster the practice of agroforestry and reforestration. Indeed, the growing demand for trees in business activities as well as for private use has led to the degradation of the environment, resulting in the destruction of most forested areas of Busia county. We believe that our community education program will raise awareness on the necessity to plant more trees, educate on effective methods of ensuring the survival of the saplings, and encourage the growing of indigenous species in order to enhance biodiversity.

This teaching, which will continue up to 2020, is a second phase of the community education program, where we are revisiting the schools reached in the 2017-2018 phase. The first phase reached an audience of 28,000.

Some of the improvements to the program included the publication of a teaching aid poster; the engagement of Mr. Zablon Milengo as a program coordinator;

and the purchase of a second motorcycle to improve on logistics.

We managed to engage 18'600 students, with whom 12'300 trees were planted, and between 100 to 1,000 trees were planted in 53 schools. We have also noted a positive response on this program and are looking forward to expanding the reach to a wider audience in the future.



### EMAUA'S TEAM

Standing row, from left to right: Jérôme Badollet, Meshak Ekachul, Leonard Aserwa, John Omonya, Violet Amoit, Michael Odieka, Carolyne Atoo, Venus Maase (baby), Adams Maase.

Sitting row, from left to right: Evans Chemiat, Julien Kauer, Zablon Milengo, Maureen Etee, Roziana Laini.

### ISEGERETOTO ORGANIC FOOD SELF-SUFFICIENCY PROJECT

The year 2019 was the 5<sup>th</sup> and last year for the Isegeretoto project, marking the end of a constitutive project at EMAUA. The project has offered insights on agroecological techniques and it has given us an appreciation of the diverse farming practices in the region.

The food self-sufficiency rate was of 39%, thus being a decrease in the production by 3% compared to 2018. This was primarily due to heavy rainfalls that led to flooding in several fields. The project was successfully handed over to the school at the end of the year.

### BACKGROUND

The concept of an organic food self-sufficiency project was developed in order to demonstrate alternative food production methods that were both high yielding and affordable for small-scale, low-earning farmers of Teso region. Isegeretoto school has been EMAUA's partner by offering its land resources towards this project. The objective has been to produce organic food for the pupils and staff, by intergrating indigenous and modern agricultural practices. We adopted non-mechanised agroecological techniques in order to focus on the utilisation of local resources. The strong focus on agroforestry lead us towards the production of tree seedlings, which eventually engendered the Indigenous Tree Nursery Project. The project also served as an on-farm trial and demonstration site for our Community Education Program.

The project aimed at meeting the food needs of a population that ranged between 150-350 pupils and 30 staff – on a land surface that ranged between 6-10 acres – over the years 2015 to 2019. In order to meet the self-sufficiency rate, the food crops that we grew included: Cereals (maize, sorghum, millet), legumes (beans, green grams), root crops (arrow roots, sweet potatoes, cassava), vegetables (kales, cowpeas, cabbage, nightshade) and fruits (pawpaw, banana). We also acquired two cows at the beginning of the project, that eventually multiplied to 9 cows in 2019, which assisted in providing milk, meat and manure.

### Table 1: Isegeretoto's Food self-sufficiency rate 2019

The table compares the school's needs with EMAUA's food production in order to achieve a self-sufficiency rate ( $S_s$  rate). The total rate (27%) is the self-sufficiency rate achieved when considering all school's needs, and the production rate (39%) is the self-sufficiency rate achieved when considering the items that can be produced locally only.

	Needs	Supply	S <sub>s</sub> Rate
Maize	3.99	0.9	23%
Beans	1.07	0.2	19%
Finger Millet	0.25	0.16	65%
Sorghum	0.25	0.18	73%
Cassava	0.10	0.1	100%
Wheat Flour 1	1.42		0%
Rice 1	2.95		0%
Meat 1	1.23	0.78	64%
Milk	0.00		0%
Tomatoes 1	0.00		0%
Onions 1	0.00		0%
Cabbages	0.51	0.1	19%
Nightshade	0.35	0.15	42%
Cowpeas	0.33	0.2	61%
Tea Leaves 1	0.02		0%
Cooking Oil 1	2.99		0%
Salt (kg) 1	0.15		0%
<b>Total Rate</b>			27%
<b>Production Rate</b>	e		39%

Key:

S rate: self-sufficency rate

<sup>&</sup>lt;sup>1</sup>Food items marked are not produced by the project.

### SOIL FERTILITY AND PEST CONTROL

In order to achieve soil fertility without recourse to inorganic fertilizer, we used:

- Compost, that we made from the crop residue
- Manure from the cattle in school, which we also supplemented by purchasing from local farms
- Tithonia diversifolia an hyperaccumulator weed
   as a green manure, as well as a key component in the making of compost tea.
- Desmodium as a green manure and as a cover crop in the implementation of ICIPE's push-pull technology between 2015-2017.

We observed a significant improvement in the soil fertility after 2 years of seasonal application of our techniques. Other fields also benefited from the use of Velvet bean (*Mucuna purensis*) and *Desmodium* as cover crops, that were incorporated into the soil.

The pest pressure on the vegetable production mainly was addressed through the use of plant-based solutions. We grew *Tagetes minuta* as an insect repellent and we successfully based our insect control on a solution of *Capsicum annuum* and *Tithonia diversfolia* throughout the project. Despite many attempts, the lack of known fungus repellent solutions prevented us from successfully growing tomatoes.

### LABOUR & FIELD OPERATIONS

The work in the fields was executed by 6 permanent staff and supplemented by the occasional hiring of casual waged labourers from the community during periods of intense work such as planting, weeding and harvesting. In this respect, the project was positively received in the neighbourhood for the employment opportunities it gave, as well as for the techniques that the workers learned and eventually adopted in their farms.

#### SELF-SUFFICIENCY RATES

In the five years of the project's existence, Isegeretoto school's food self-sufficiency rate ranged from 27% to 42%. These figures were obtained by comparing the production of the project to the food needs

of the school. However, these rates don't include food commodities such as salt, wheat, or tea leaves, that couldn't be produced locally. Moreover, these numbers varied depending on: The seasonal production – that has been subject to strong climatic hazards due to climate change; the fluctuating school's population of pupils; and the fluctuating land area, that the school made available to the project.

### **CHALLENGES**

During the five years, we faced many challenges with regards with the climatic hazards. There was a severe drought in the later part of 2016 and early 2017, followed by flooding that led to heavy crop losses in 2018 and 2019. However, we were protected from complete losses because of the diversity of crops cultivated.

#### ACHIEVEMENTS

We also appreciated the following sinificant outcomes, such as:

- The complete elimination of striga weed from the cereal fields, through the use of ICIPE's push-pull technology.
- The efficient cultivation of *Tithonia diversifolia* in the fields as a sustainable source of green manure.
- The conversion of all fields into agroforestry systems, that increased soil fertility and overall biodiversity, provided green manure, fuelwood, and protected the soil from erosion.

#### WAY FORWARD

Coming out of the project in 2019, we appreciated the increased understanding that we gained about effective and relevant agroecological practices for small-scale farming communities. We also appreciated the constraints related to non-mechanised agriculture. The practice of planning and managing systems is also a valuable experience that we carry with us going forward. We hope to collaborate on similar projects with schools and communities, in order to advocate for and demonstrate the use of local resources for a sustainable agriculture in future.

### IMPROVED STOVES

"The utmost dangerous thing that a woman can do in a developing country is cooking for her family", said a WHO official. Close to half of the world's population cooks on open fires, which results in the death of 4 million people yearly. This mortality rate is greater that the one of HIV/AIDS and tuberculosis combined. The year 2019 saw the continuation of our trials and improvement on the improved stoves project. We were able to construct a further 29 units in 16 households, as we continued assessing the impact and gathering feedback from beneficiaries.

### HOW WE WORK



A vital activity that happens in all households is cooking, yet a light exploration of how this is carried out in most low-income rural households shows a dire situation. Often characterized by high levels of smoke and three stone open fire stoves, the health and safety risks are tremendous.

We took upon ourselves the challenge to find a simple to build, low-cost stove made of local materials, that reduces smoke, cooks efficiently and is aesthetically appealing. We settled on a model which can be constructed within half-a-day, using fired bricks, soil from termite mounds and

sawdust. Moreover, it requiers very little technical skills and can be replicated after one training session only .

We started building and assessing the viability of this design in 2018. The year 2019 was the second year of the pilot project, where an additional 29 stoves were constructed, bringing the total number to 52. Stoves were build in households, schools and churches.

We are still working on how to significantly increase the scal ability of the project while also exploring the possibilities of further improving the design. So far, the reception has been encouraging and the demand is gradually increasing.



Our tree nursery was established with the intention of promoting and encouraging the community to conserve and improve the ground cover; preserve valuable watersheds and conserve the biodiversity through the planting of indigenous tree species.

During the year 2019 we managed to produce 15'640 seedlings of above 27 species, that were distributed for free to 53 primary schools and to 50 private farmers. We were also able to develop our capacity by receiving training on nursery management from KEFRI/KALRO as well as adopting bamboo as an alternative potting material.

### INDIGENOUS TREES FOR BETTER REFORESTATION

In the context of climate change, growing shortages of fuelwood, persistent soil erosion and degradation, as well as the loss of biodiversity, we established a tree nursery with an aim of promoting the plantation and the conservation of indigenous trees. In the 3<sup>rd</sup> year of this project, we were able to make improvements through:

Capacity building: A three-day intensive seminar held at the EMAUA site (Malaba), conducted by a team from KEFRI / KALRO (Kakamega). We received hands-on training that sought to improve general practices of our tree nursery management.

**Bamboo tubes:** We were able to conduct trials and adopt the use of bamboo as an alternative potting container in our tree nursery. In addition to the biodegradable nature of the material, it is also a viable alternative to the light plastic bags that became scarce following a plastics ban by the Kenyan government in 2018.

The community education program had a focus on the plantation and the conservation of indigenous trees. This was actualized through tree planting sessions with students and parents at the schools where 12'300 trees were planted and 18'600 students sensitized. A further 3'340 trees were distributed to 50 private small-scale farmers, which brings the total number of trees distributed to 15'640 trees. We believe that the planting of indigenous trees enhances the local biodiversity as well as preserves cultural practices i.e. the use of plant medicines and traditional crafts.





After 5 years spent on Isegeretoto School's land, the purchase of our own piece of land is meant to greatly improve our capacity to deliver our mission. This investment will particularly allow us to develop long term projects such as agroforestry systems and permanent facilities.

We are also glad to have been able to host volunteers and guests through most of the year, whose external points of view helped us to progress a lot. Finally, a major upgrade on our website marks the beggining of brand new opportunities.

### **ACQUISITION OF LAND**

In January 2019, we were able to finish negotiations and purchase of a 4-acre (1.84 Ha) parcel of land in Busibwabo, Busia. Since its inception, EMAUA has been hosted on the premises of Isegeretoto School, as part of the Isegeretoto project. However, the need of creating a center dedicated to learning and researching pushed us to look for our own piece of land.

The land, which is 15 km away from Busia town, will serve as a central point for expanding our outreach to the entire Busia region. As a start, we

#### A NEW WEBSITE

Sebastian Gebhardi, a Swiss digital marketing expert, has coached us since September 2019 on improving our digital presence. He shared his expertise and particular plugins, which allowed us to upgrade our website with advanced features. We greatly improved our visitors' experience by rethinking and reframing all texts and pictures.

For the first time, the *Wp Simple Pay* plugin has provided our donors with an option of donating online, which equiped us in order to launch our first self-hosted crowdfunding in December.

managed to construct 2 grass-thatched units with the aim of moving into the new base early 2020. We have the goal of practicing permaculture design to create a sustainable living and working environment. Having our own premises allows us to develop long term projects such as agroforestry, and to build permanent facilities. This major step will greatly improve EMAUA's impact in our areas of interest and within the local community.

### **VOLUNTEERS & INTERNS**

We have continously had the priviledge of hosting guests, volunteers and interns over the years. These interactions allow us to share ideas as well as to make significant progress in our projects and programs. This year, we had Roziana Laini as an intern, who has a background in community development. She was involved in the education program, where she addressed youth, and she helped in administrative work. We halso hosted Jérôme Badollet, a Swiss agronomist, for 6 months. Jérôme worked with our team on perrenial agricultural systems and the construction of housing units in our new land at Busibwabo.

### FINANCIAL REPORT

#### PROFIT AND LOSS STATEMENT

For the period 1st January 2019 to 31st December 2019

EXPENDITURES		INCOME	
Land Purchase	23 429	EMAUA Switzerland	30 143
Cash Balance as at 31st December 2019	395		
Projects & Programs	10 034		
Personnel Expenses	9 546		
Repairs, Maintenance & Improvements	2 789		
Welfare	2 709		
Meals	2 670		
Local Transports & Travels	1 512		
Capacity Building	1 403		
Administration	923		
TOTAL	\$ 55 410	TOTAL	\$ 30 143
		BENEFIT/LOSS	\$ -25 267

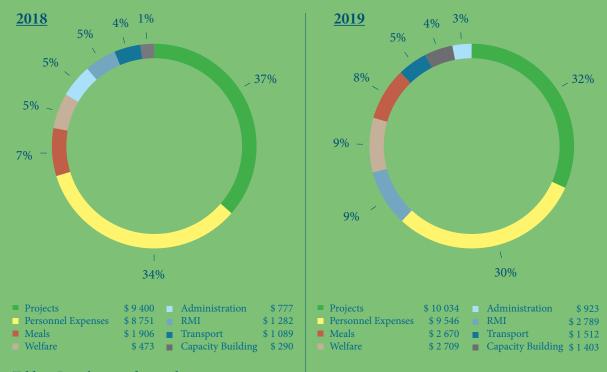
EMAUA CBO had a financial turnover of \$ 55 410 in 2019, a 15% increase compared to 2018. We incurred \$ 23 824 in capital expenses, involving a land purchase. Our operational expenses came to a total of \$ 31 980.

The donations received during the year totaled 30 143 \$. These funds were received through EMAUA Switzerland, our sister organization operating in Switzerland. The loss of \$ -25 267 is due to the use of reserves for the purchase the land.

The acquisition of a 4-acre parcel of land in Busibwabo (Busia) accounted for 42% of the year's turnover. It will allow us to establish a center that will serve as our headquarters in Kenya as well as an institute for learning and research. The funds for this acquisition had been wired from EMAUA Switzerland in 2018, but were used this year, for which reason we account for a loss in 2019.

The direct project costs accounted for 32% of the operational costs. These funds were used to pay for inputs, equipment & tools, and the casual labour hired to carry out the main projects and programmes. Isegeretoto Food Self-sufficiency Project has been the financially heaviest project, followed by the tree nursery.

Our personnel costs for the year accounted for 30% of the operational costs, with 10 regular salaried personnel delivering on its projects in 2019. The personnel costs represented an increase of 6% compared to 2018. We incurred a further 4% of the operational expenses on capacity building.



**Table 1:** Distribution of expenditures

This involved trainings and field visits, mainly in the field of tree nursery management, that would enable our staff to better deliver on our mission.

We spent 9% of the operational expenses on welfare of the staff & volunteers. Another 8% included meals that we provide to our team while they are engaged in work. The transport costs accounted for 5% while maintenance, repairs and improvements came to 9%.

The administrative costs of the organization accounted for 3% of the operational cost. This cost was minimized due to sharing of resources with Isegeretoto school as a partner that allowed us access to office facility.

In conclusion, the organization is in good financial standing with very minimal liabilitie s. The acquisition of the land parcel

in Busibwabo has been a major improvement in terms of fixed assets. We are looking forward to investing on developing the center which will see an increase in our long-term investment expenses. We wish to send our best wishes to all our generous donors, who enable EMAUA to fulfill its mission year after year.



EMAUA is grateful to the individuals and institutions who collaborated on and contributed to various projects and programs in this period. This support came in the form of fundraising assistance, collection on inputs (such as seeds, Information technology equipment) and, the sharing of relevant knowledge and skills. The alliances enabled us to stretch our work as well as evaluate the effectiveness of our mission.

**EMAUA Switzerland** (CH) is our main partner in Switzerland, that organised the fundraising and activities related to the sensitization about our work in Kenya.

**Isegeretoto School** (KE) hosted us on its land since EMAUA's inception, for our several projects.

**Anglican Church of Kenya (ACK)** and in particular Bishop John Okude of Katakwa diocese.

**Some Community leaders** (KE) in Teso North supported us since our beginnings: Oku E. Kaunya, Elizabeth Laini, Chief Masai, Chief Musa, etc.

The FiBL team in Kenya, under the Direction of Dr. Noah Adamtey, located at ICIPE Campus in Nairobi, who hosted us for a 5-day capacity building trip.

Kenya Forestry Research Institute (KEFRI) and Kenya Agriculture and Livestock Research Orga**nization** (KALRO) Kakamega, who trained us on tree nursery management.

The Commune of Presinge (CH) that supported us since our inception.

**Singi CBO** (KE), that is based in Busia and supported by Biovision Foundation.

**Kakamega CBO** (KE), lead by Abraham Imbai, who collaborates with us for the multiplication of tree species of Kakamega forest.

**Mr. and Ms. Juma** (UG), who shared with us their deep knowledge about medicinal plants.

The **Good Festival**, which invited us for free to a 4-day start-up incubation program at The Olympic Museum in Lausanne (CH).

All people from Switzerland and worldwide who make our work possible through their financial support and encouragements.