



The Tanganyika Aquahub

Aquaculture for the benefit of everybody

Fostering socio-economically and ecologically sustainable fish farming development in Lake Tanganyika Region



Annual Report 2020

Implemented by



Lake Shore
Lodge, Lake Tanganyika

SUSTAIN 



Zürcher Hochschule
für Angewandte Wissenschaften
zhaw

Supported by

primavera
stiftung

REPIC



Schweizerische Eidgenossenschaft
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The
Spring
Project

09.04.2021

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1. Introduction

After 12 emotional, uncertain, but deeply hopeful months, I am delighted to give a first glimpse into the activities of The Tanganyika Aquahub (TTA): Together with our Tanzanian & Swiss partner institutions, we have laid the foundation for the establishment of a commercial fish farm and training center to foster the development of a sustainable aquaculture sector in the Lake Tanganyika region.

Lake Tanganyika is the largest tropical freshwater lake in the world. Its water volume equals approximately 17% of the total liquid surface freshwater on the planet. Home to over 2'000 species – 500 of which are endemic – the lake is also one of the world's freshwater biodiversity hotspots and acts as a healthy protein source and income opportunity for the 10 million people living in its vicinity. However, climate change & malpractice in fishing industry has led to a significant decrease in catches and stocks in recent decades.

Fish farming (also called “aquaculture”) is a potential alternative to ensure long-term and stable supply of fish – but only if it is done in a sustainable manner. TTA's mission is thereby to produce and supply the necessary inputs such as healthy fingerlings and feed, but also know-how to fish farmers in the region. In 2020, we have built our first fishponds to make this happen!

To know more about our activities in 2020 and early 2021, please have a look through the following pages.



Severin Spring

Treasurer & Board Member

The Spring Project

09.04.2021, Zurich

2. The Tanganyika Aquahub (TTA)

The goal of TTA is to establish an energy-self-sufficient & resource-efficient fish farming training center in Kipili to foster the development of a sustainable aquaculture sector in the Lake Tanganyika region.

TTA will consist of:

- A solar-powered commercial **Tanganyika tilapia** farm and fish feed mill with annual production capacity of **2 million fry, 50 tons of table-sized tilapia** and **100 tons of fish feed**
- A **fish farming hands-on training and distribution center** to train other entrepreneurs and farmers and supply them with affordable fish farming inputs
- An **aquaculture research facility to support research and international collaboration** on sustainable aquaculture development in East Africa and especially the Lake Tanganyika Region (Tanzania, Burundi, Democratic Republic of Congo, Zambia)



3. Activities

In most action items the establishment is behind schedule (c.f. next page). This due to several reasons, such as long procurement times for certain materials, travel restrictions as well as reshifting of priorities due to COVID-19. Our initial goal (in Q2-20) was to finish the establishment of the first ~3'500m² of ponds (two broodstock ponds and two nursery ponds) including the water supply system by end of 2020. As end of Q1-21, two nursery ponds and one broodstock pond have been built and fully lined with HDPE geomembrane, one broodstock pond is currently being lined.

Furthermore, permitting and especially the approval of the Environmental Impact Assessment through the National Environmental Management Council (NEMC) takes longer than anticipated. We estimate that this is due to the pioneer character of the project in the region: TTA will be the first official fish farm next to Lake Tanganyika on the Tanzanian side of the lake.

The Ministry of Livestock and Fisheries is highly supportive of the project including the Director of Aquaculture Dr. Nazael Madalla and the Permanent Secretary of Fisheries Dr. Rashid Tamatama who have already visited the project location in 2019. Once NEMC approves the EIA, we expect the Ministry to issue the large-scale fish farming permit and operations on the farm can officially start.



3. Activities



Highlights

Q3-20:

- HDPE welding training at Leister in Sarnen (CH) and at BongoFISH HQ in Dar es Salaam (TZ) to train SUSTAIN & local TZ personnel

Q1-21

- Finished construction of first ponds, water supply
- Confirmation to receive 150 CHF [REPIC](#) (SDC & SECO) grant for TTA
- Confirmation to receive a [nuffic](#) grant for a project to provide hands-on training to [FETA](#) personnel (among others in the TTA facility), in collaboration with a Tanzanian-Dutch aquaculture consortium
- First female president of Tanzania gets sworn in – announces plans to support a sustainable “blue economy” (incl. sustainable aquaculture)
- Completed registration of Bongo Samaki (fully TZ-owned) to “replace” the BongoFISH entity



Setbacks

Throughout 2020: COVID-19 impact

- Impact on supply chains and prolonged material sourcing timelines
- SUSTAIN personnel could not travel freely to provide know-how and support during construction phase – now all done through online communication & exchange

Q3 to Q4-20: Presidential elections 2020

- Impact on supply chains and transportation further slowed down material sourcing
- Frequent communication blackouts (no internet, mobile connection) for prolonged periods of time







Q2 to Q3-20: Generator issues

- >5kV generator needed repairs for HDPE welding, but spare parts were not available in due time



3. Activities



Action Items	Current Status	Q2-2020 to Q4-2020	Q1-2021	Ongoing & Outstanding
Farm Setup		Planning of all systems, construction: shell building of hatchery & 4 ponds	Water supply system incl. 6.6kWp PV system, lining of first 3 ponds	1 pond to line, 4 ponds & 1 reservoir to build, feed mill & hatchery incl. PV systems
Agreements		Signed MoU between Lake Shore Lodge and SUSTAIN	MoU between SUSTAIN and TAFIRI in process	Signing of REPIC contract (SUSTAIN & ZHAW)
Material Sourcing		Material for first 4 ponds & water supply, sourcing 100% from TZ suppliers	Sourced material for feed mill & solar hatchery (some imports, not ordered yet)	Initial fingerlings & feed, farm equipment, material for further ponds
Finance		Contribution of Stiftung Primavera of 100k USD	REPIC contribution of 150k CHF secured	Outstanding 50k USD cash to be raised
HR		Broad hiring plan (c.f. REPIC proposal), liner welding training in Dar es Salaam	Olipa (BongoFISH farm manager) relocated to Kipili for the farm setup & operations	Hiring of personnel (+2 FTE in Q2-2021), on-site training through Olipa
Permits		Received water rights, submission of Environmental Impact Assessment (EIA)		EIA pending from NEMC, farm permit (formality after NEMC approval)

4. Impact

The impact of TTA in 2020 was focused on the involved construction personnel and the TTA team. Furthermore, we focused on best management practices for the applied construction methods and developed an Environmental Impact Assessment of the future farm.



Key Activities

- Manual cleaning of the site without harmful slash-and-burn method
- Construction of ponds with the help of manual labour instead of excavators, wheeling machines etc. to provide work to the local community
- Training of all involved personnel in pond construction: Site cleaning, excavation, dyke establishment, leveling, compaction, liner installation
- HDPE geomembrane welding and extrusion training of key personnel: Liner laying, liner welding, pressure testing, HDPE extrusion for pipe-throughs and puncture sealing
- Environmental Impact Assessment of TTA according to NEMC guidelines

To assess the impact of TTA in the future, we will continue collection of our key impact metrics (c.f. on the right).



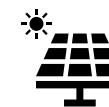
Key Impact Metrics (to date)

Socio-economic impact



>1'500 working days for the local community (non-TTA) & over **15** trained personnel

Renewable energy production



6.6kWp PV system installed (no significant production yet)

GHG emissions & resource recycling



Some emission prevention through avoidance of slash-and-burn method

5. Finance

Total expenses since project start to date account to 77.9k USD with capital expenditures at 65.5k USD and operational expenditures at 12.4k USD.

Main cost point was the solar PV powered water supply system with nearly 27k USD. This is almost 50% higher than initially planned and mainly due to our adjusted strategy to use the lake as the main water source and not a borehole well. This will allow a higher water pumping capacity and will eventually lower the cost per unit of water pumped. Furthermore, cabling costs were higher as expected as the solar PV array could not be placed near shore, respectively near the pump due to space restrictions.

All other Expenses were in line with our expectations or lower than initially planned.

However, due to the prolonged establishment timeline, we expect to overshoot the initially planned operational expenditures until production can start. To compensate this, we will lower the initial management costs and postpone the initially planned feed procurement and distribution project of BongoFISH.

ACCOUNT	TZS		USD	
CAPEX				
Solar water supply	TZS	61'603'474	USD	26'608
Pond building equipment	TZS	13'436'000	USD	5'803
Pond building materials	TZS	44'156'590	USD	19'072
Pond digging	TZS	10'452'500	USD	4'515
Pond lining	TZS	809'400	USD	350
Generator	TZS	5'245'000	USD	2'265
Environmental Impact Assessment (EIA)	TZS	8'350'000	USD	3'607
Office/Hatchery building	TZS	7'555'576	USD	3'263
TOTAL CAPEX	TZS	151'608'540	USD	65'484
OPEX				
Permits	TZS	2'250'000	USD	972
Accommodation & boarding	TZS	1'071'139	USD	463
Finance	TZS	64'851	USD	28
Salaries TTA	TZS	2'061'500	USD	890
Transportation	TZS	5'171'008	USD	2'233
BongoFISH salaries	TZS	5'500'000	USD	2'376
BongoFISH expenses & training	TZS	12'548'857	USD	5'420
TOTAL OPEX	TZS	28'667'355	USD	12'382
TOTAL CASH OUTFLOW	TZS	180'275'895	USD	77'866
Balance / Cash on Hand 09.04.2021			USD	22'134
FOREX: TZS / USD (2020 average)			TZS	2'315

6. Outlook

2021 will be an eventful year for TTA. 01st May 2021 will be the official start of the REPIC project. The facility will then be expanded with 4 further ponds (to reach a total of 7'000m² of pond area) and a solar-powered hatchery and feed mill. Construction will be completed latest by end of Q3-21.

A further soon-expected milestone will be the arrival of the first fingerlings which we will import from neighboring Zambia from the only existing Tanganyika Tilapia hatchery in the world (.. until now). However, this will depend on the completion of the permitting process. With our well-established connections to the fisheries ministry (we are in frequent contact with Dr. Nazael Madalla – the Director of Aquaculture – to update him on the progress of the farm), we estimate that this will be a formality once NEMC approves the EIA. The approval of NEMC is thereby the main external factor on which we have limited influence on.

In Q4-21, we look forward to start the planned outreach of our activities and build 6 demonstration fishponds together with local farmers who are interested to invest in fish farming – this is also a main part of the REPIC project. The idea is to evaluate the feasibility of fishponds integrated into rice paddy fields.

Furthermore, we are very excited to be part of a NUFFIC funded project to provide hands-on fish farming training to FETA staff. The expected implementation of the trainings is in Q4-21.



7. Contacts

For general project-related enquiries feel free to contact Severin Spring: spring.severin@gmail.com



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