

# Improving Water Quality by use of Constructed Wetland Wastewater Treatment at a Farm in the South of Mahé Island

*7<sup>th</sup> Wiosap project steering committee  
Dares Salaam, Tanzania  
29<sup>th</sup> January 2025*

**Fredrick kinloch**

**Ministry of Agriculture, Climate Change and Environment**

**Department of Environment**

**Waste Enforcement and Permits Division**

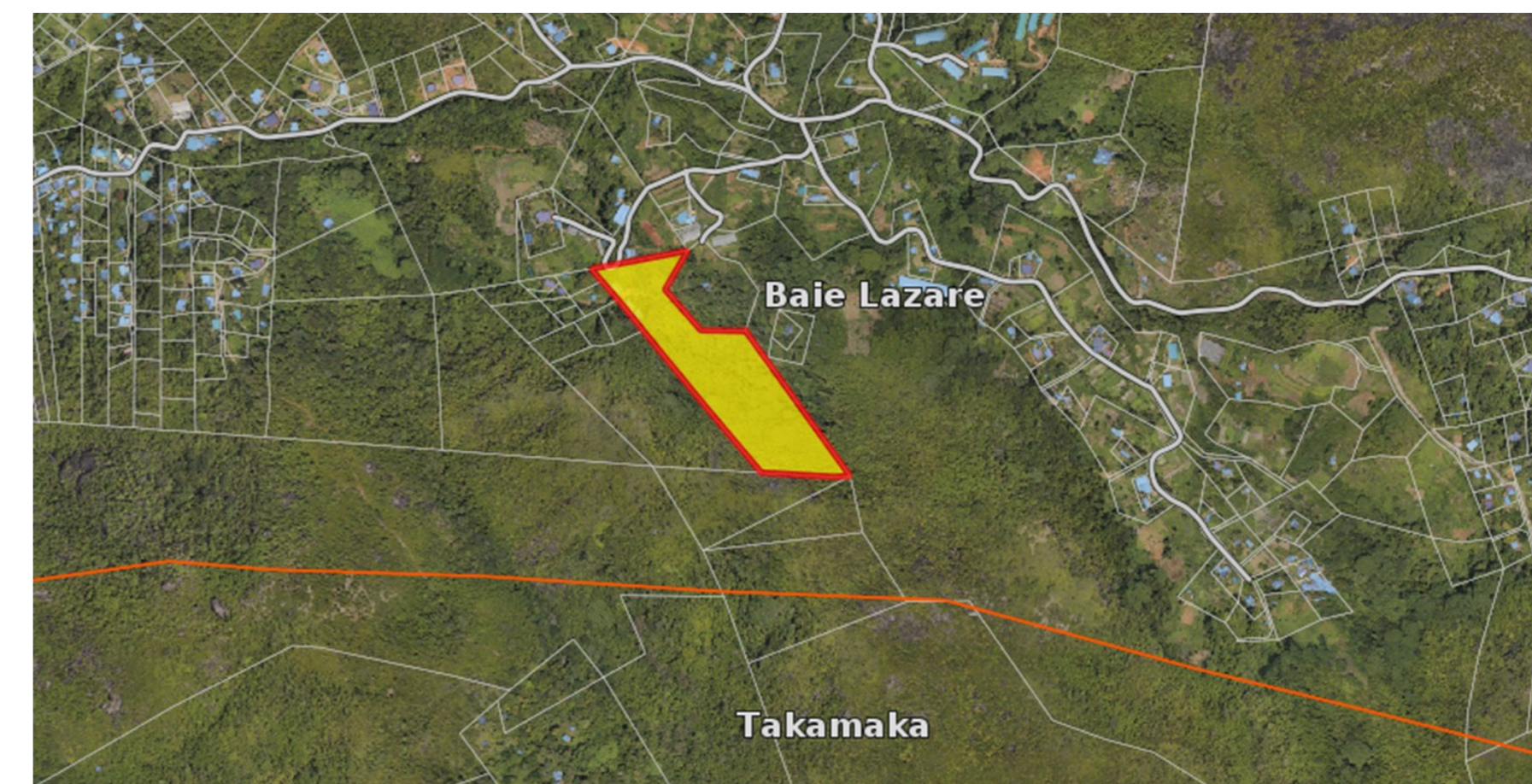


# Why the Project

- **Objective:**
- Improvement of Waste Water Discharge from Piggery.
- Improved Networking and Selection of Working Group
- Improvement of crop production and food security



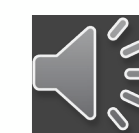
- **Where:**
- **South Region of Mahe Seychelles, Val Dan D'or, Baie Lazare.**





# Partners:

Partner Name	Mandate	Role in the project	Resources partner will provide
<b>Ministry of Agriculture, Climate Change and Environment (MACCE),</b>		Leading Government Agencies	Overseeing monitoring the project
<b>Department of Agriculture (DOA)</b>		Contact with the farmer	Engagement with the farmer
<b>Ian Charlette Consulting</b>		Project conception	Technical expertise
<b>Public Health Laboratory (PHL)</b>		Supporting services, Laboratory and issues on sanitation and hygiene	Environmental health officers, laboratory technicians,
<b>Seychelles Bureau of Standards (SBS)</b>		Laboratory services	Laboratory Technicians and equipment
<b>District Administration (DA) in association with the Regional District Council</b>		Contact with the community and the farmer.	Offices and project supervision
<b>University of Seychelles (UniSey)</b>		Research, data collection.	Students, laboratory services, documentation
<b>Seychelles Infrastructure Agency</b>		Design	Environmental engineers and monitoring of the construction





- We completed the following for the construction:
- Manure shed
- Constructed wetland and we only have to add the rocks and segregates for the treatment process.
- Holding tank
- Generator and pump room
- Collaboration with the University of Seychelles for a research thesis on the efficiency of the treatment and crops production.
- Build a nursery with endemic plants which will be introduced in the constructed w



**Endemic Plant Nursery**



**Generator and pump room**

## Key Achievements



**Constructed Wetland**



**Constructed Wetland**





## Constructed Wetland



## Constructed wetland



## Manure shed



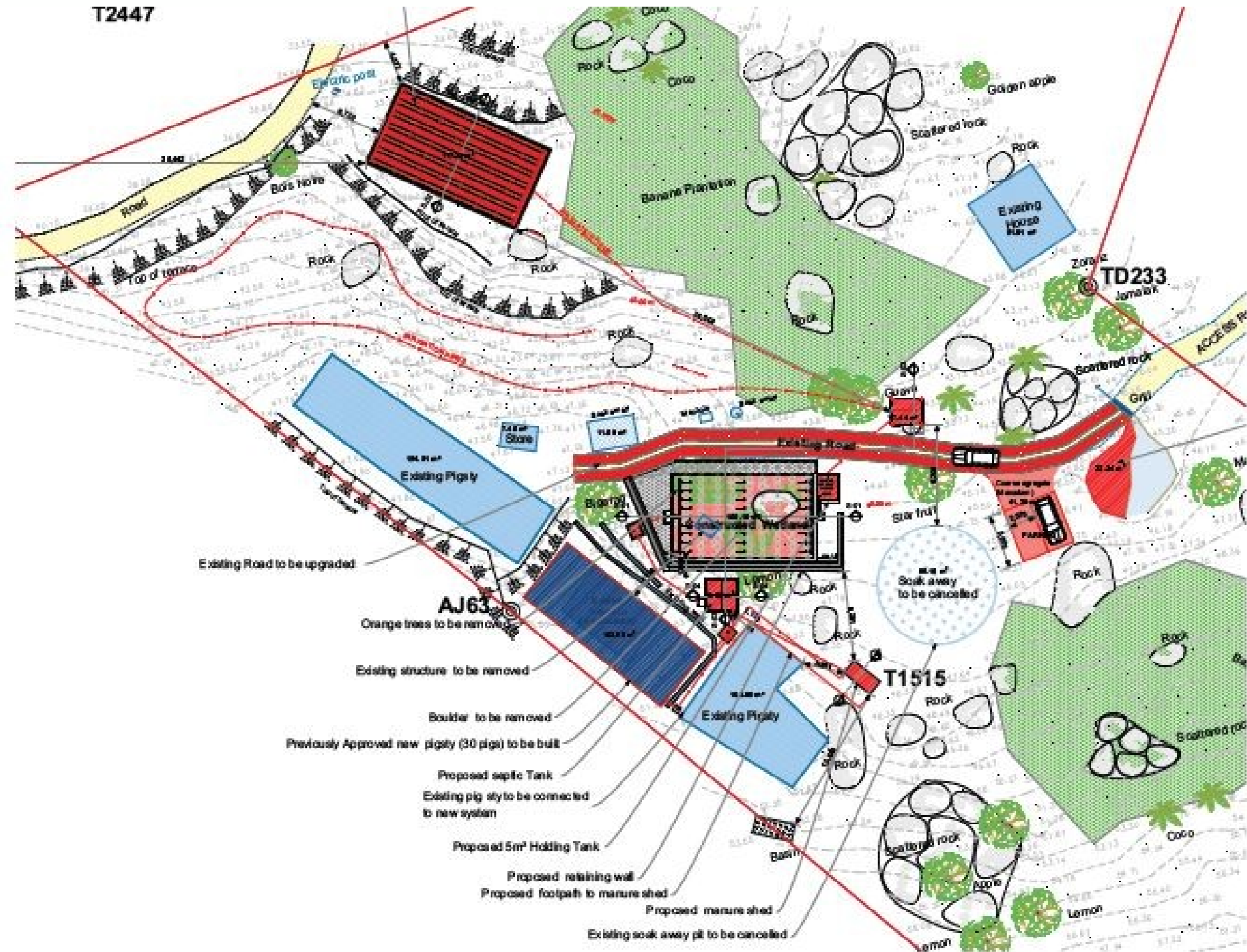
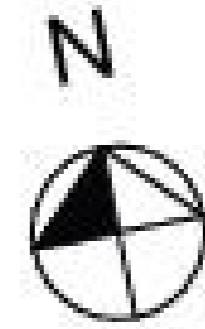
## Shade house for crops





# Site Plan

READ ALL CONDITIONS OF APPROVAL ATTACHED



- Existing Road to be upgraded
- Existing Pigsty
- Existing structure to be removed
- Boulder to be removed
- Previously Approved new pigsty (30 pigs) to be built
- Proposed septic Tank
- Existing pig sty to be connected to new system
- Proposed 5m<sup>3</sup> Holding Tank
- Proposed retaining wall
- Proposed footpath to manure shed
- Proposed manure shed
- Existing soak away pit to be cancelled





# Key Lessons Learnt

- **Project Progress and Infrastructure Completion**

- Although the constructed wetland is not yet operational, significant progress has been made. Major infrastructure—including the constructed wetland, manure shed, pump room, septic tanks, and holding tank—has been successfully built.

- **Lengthy Tender Process**

- The tendering process was lengthy, requiring a renegotiation of the contract sum for construction, which delayed project commencement.

- **Contractor Challenges**

- The contractor experienced delays at the start of the project due to slow mobilization. Additionally, an **unexpected weather event** in Seychelles further slowed progress.

- **Challenging Site Conditions**

- The construction site posed difficulties due to the **rocky terrain**, making excavation and site preparation time-intensive and laborious. Significant effort was required to break through rocks before proceeding with construction.

- **Design Adjustments**

- During construction, design reviews were necessary to address the challenges posed by the rocky site conditions. These adjustments resulted in additional delays but were critical to ensuring project feasibility and success.





# Project Sustainability

- **Collaboration with the University of Seychelles**

We will partner with the University of Seychelles to conduct water quality testing and assess crop efficiency. This will ensure that the project is guided by scientific research and contributes to knowledge-sharing and capacity-building.

- **Agreement with Farmers**

A formal agreement will be signed with the farmer to maintain and monitor the constructed wetland. This partnership will promote ownership, ensure proper management, and enhance long-term functionality

- **Data-Driven Duplication**

Following the analysis of water quality and crop production data, the constructed wetland can be replicated on another farm. This step aims to scale the project while using evidence-based results to ensure success in other locations





# Thank for your attention

Fredrick Kinloch  
Ministry of Agriculture, Climate Change and Environment  
Department of Environment  
f.kinloch@env.gov.sc  
Tel: +2484670500/+2482823061

