

Upscaling and Amplification of the Msingini Wastewater Treatment Facility Model in Chake Chake Town, Pemba.

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Existing Waste Water Treatment System



Project Background

- **Overall Objective**

To reduce land based sources of pollution to the Pemba Channel Conservation Area (PECCA) and associated coastal and marine ecosystems from Chake Chake Municipality using Constructed Wetland System.

- **Specific Objectives**

1. To provide additional wastewater and stormwater drainage capacity for Chake Chake Town to support the existing Mtoni-Msingini Wastewater Treatment System
2. To enhance effluent reduction and discharge efficiency through capacity building and improved cross-sectoral management.
3. To amplify the existing wastewater treatment system through increased adaptive capacity, modified hydraulic operation and more effective plant species.
4. To enhance enforcement and legislative framework, community awareness and payment for ecosystem services schemes by upscaling public and spatial outreach.



Project Background

Project Location

The system is located in the area of Kichungwani on the south west side of Chake Chake Town in Pemba Island, encompassing the neighbourhoods (shehias) of Msingini, Chachani, Kichungwani and Madungu.



Key project partners and their roles

- Department of Environment Zanzibar

Role in project:- project management, overall coordination in Zanzibar in line with the National Designated Authority for the Nairobi Convention, the Vice President's Office of the United Republic of Tanzania.



Roles cont.....

- Zanzibar Environmental Management Authority (ZEMA)

Role in project:- operational support, contribution to new discharge regulations, over-sight in achieving compliance.

- Chake Chake Town Council

Role in project:- project implementation, operational support, technical support with structures and constructions. Responsible for ongoing management of system after project completion.



Roles cont...

- Zanzibar Water Authority (ZAWA)

Role in project:- input to new discharge regulations, and ensuring conservation of freshwater resources and catchments.

- Green Water

Role in project:- Green Water will carry out topographic survey, O&M training, re-design.



Key Planned Activities

- To produce Status report on the current operation of the Constructed Wetland System (CWS)
 - Collect baseline water quality parameters
 - Production of the topographic map of CWS and environs
 - Transpose MHWS and tidal regime onto the map
 - Determine local sea-level rise and add to map.
 - Survey pipeline levels
 - Survey of Households in the catchment area
 - Measure flow of wastewater (existing weir or in-water instruments) in m³ /day
- Modified CWS design the work is ongoing (based on status report)
- Revision of existing Waste Water Discharge regulations
- Production of Map (GIS) present/future households contributing to the CWS
- Revision of existing Waste Water Discharge regulations
- Produce an agreement to define roles/responsibilities of running the CWS with all project partners and communities
- Clear sludge from existing system – take to Vitongoji
- Improve management of sludge at Vitongoji to allow for effective drying and potential re-use



Key Planned Activities cont.....

- Clear existing vegetation (*typha sp.*) from system, assess how best to use.
- Connect additional HH to sewer if capacity of upgraded Constructed Wetland System (CWS) is sufficient.
- Create up to date wastewater discharge regulations.
- Create and implement a Payment for Ecosystem Services (revenue collection scheme to allow sustained maintenance and operation of the system).
- Construct storm channel (100m)



Key Achievements

- The topographic map of CWS and environs produced
- MHWS and tidal regime transposed onto the map
- Local sea-level rise determined and add to map.



Key Achievements

- Topographical survey and leveling measurements conducted.



Key Achievements



Removing wetland plants (*Typha sp.*)

Key Achievements



- Drying typha grass for utilization

Key Achievements

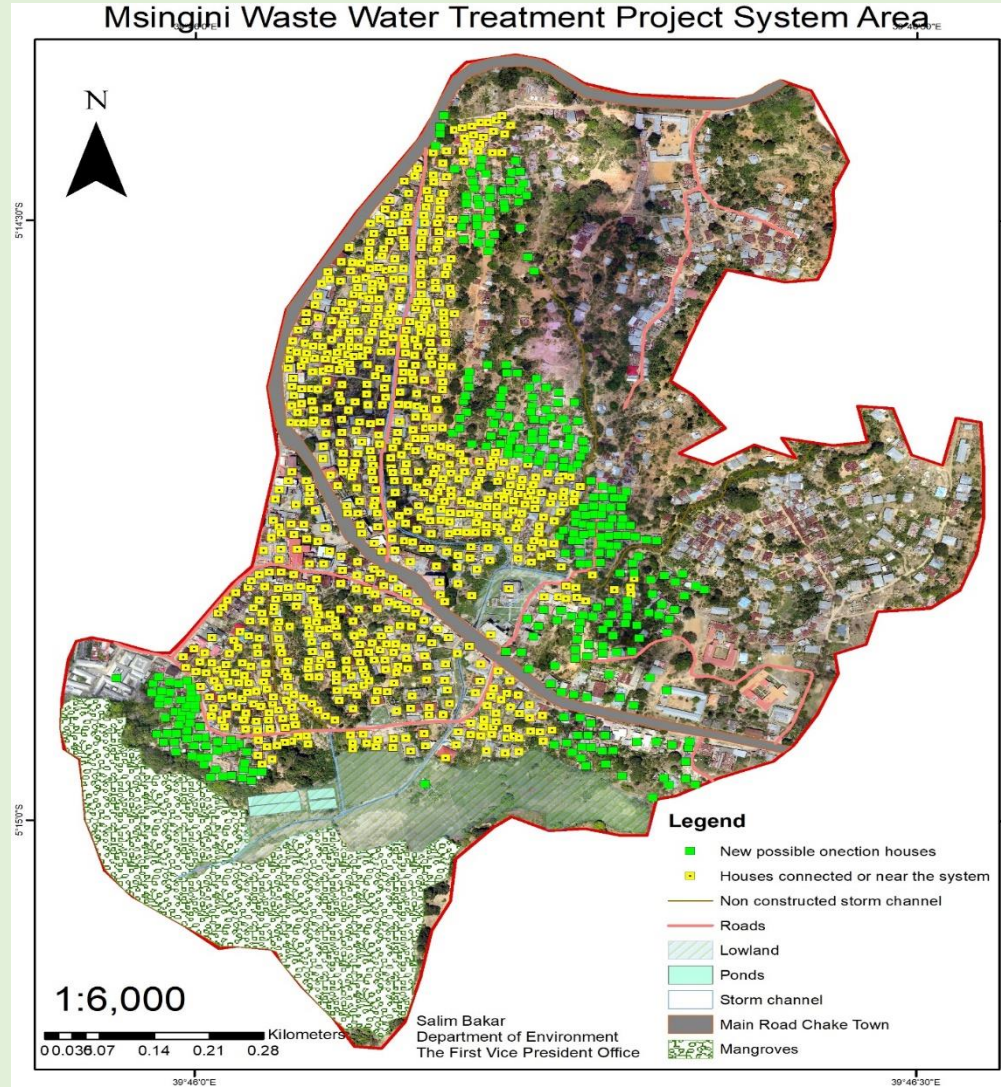
- Clearance of wastewater and sludge and move to Vitongoji for storage



Key Achievements

- A HH survey in the project area was conducted within the 4 shehias.

Shehia	Total no.	Percent
Msingini	221	31.4
Madungu	212	30.1
Chachani	171	24.3
Kichungwani	100	14.2
Total household	704	100.0
Connections		
	Total no.	Percent
Not connected	12	1.7
Connected	692	98.3
Total	704	100.0



Key Achievements cont.....

- Awareness meetings to stakeholders and community around the project area.



Key Achievements cont...

- Removal of gravel and surface soil in wetland.



- Gravel cleaning →



Key Achievements cont.....

- Updating wastewater discharge regulations is ongoing



Key Challenges and Recommendations

Challenges:

- Contract challenges which cause delay to implement some of the activities.
- Lack of permanent road to ponds that makes difficult to transport to the storage and drying area.
- The emergence of other activities during implementation that were not included in the implementation plan, e.g cleaning gravel.

Recommendations:

- Extension of the project period.



Acknowledgements

- UNEP and Nairobi Convention
- Key partners including ZEMA, ZBA, CCTC, PHL
- communities.





*Thank
you!*