

PROJECT KFC

KLEEN FLOATING CELL



ALVARADO | AMOIN | BARITUA | BENSIG | BOS | DEMAISIP | DUGANG | DUNGOG | ESPINA | GANADOS | HAIDER | LEE | MANLANGIT | NAPOLES | NGO | PEDOY | SABANDO

Project KFC (Kleen Floating Cell) aims to provide a solution for the current mismanagement of wastes in the midstream of Mahiga River located at Panagdait, Mandaue City. The proposed short-term solution is a prototype of a river skimmer powered by BioGas.



Overview

The Mahiga river is one of the urban rivers which passes through six (6) barangays in Cebu and Mandaue City. Mahiga river, more specifically its midstream, can be found in close proximity to the F. Cabahug Bridge in Panagdait, Mandaue City.

Currently, the Mahiga river is considered as biologically (or ecologically not sure) dead, wherein there is no presence of biodiversity in the river. Mahiga river is filled with human and material wastes both in the middle of the river and in the riverbanks.

The existence of an immense quantity of wastes in the river is directly related to the improper waste management experienced by residents caused by the lack of consistency of garbage trucks collecting their garbage.

Solution

What is Project KFC (Kleen Floating Cell)?

- 1** Kleen = small
Floating = suspended in water
Cell = bounded space
- 2** Sustainable river skimmer (1x0.5m) powered by biogas fuel from human waste
- 3** Takes advantage of the lack of sewage systems in the area, and turns human waste into energy

What makes KFC a better solution?

- SUSTAINABLE**
utilizes human waste as its fuel source which does not jeopardize the energy needs of the future
- VERSATILE**
with its size, being smaller than other solutions, it can be deployed in any location and river conditions
- EFFICIENT**
collects more waste in a shorter period of time compared to the existing eco fence
- PROFITABLE**
can be a potential revenue stream from selling recycled plastic waste and can be used for funding for the project's procurement
- JOB PROSPECT**
an avenue for employment opportunities for the production, operation, and maintenance

Operation

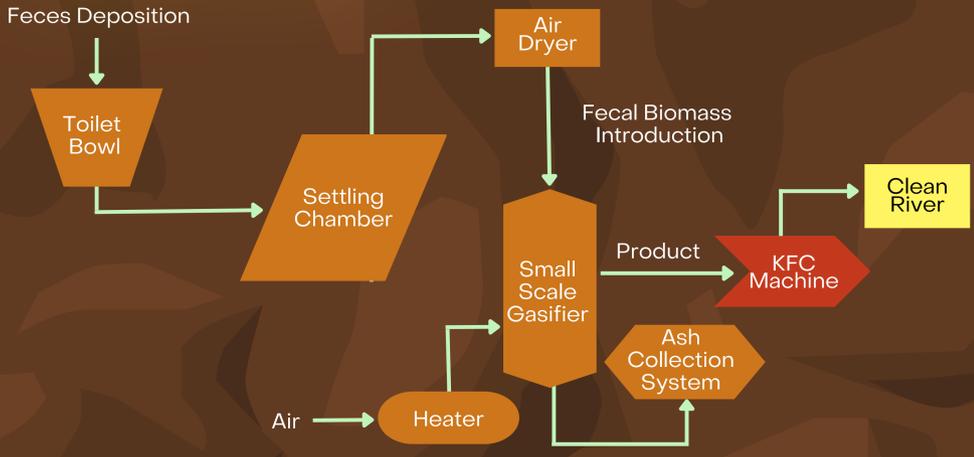


Figure 1. The operation of Project KFC with the flow process of the fecal biomass adopted from Cartmell et al. (2016)

MATERIAL	QTY	ESTIMATED COST (PHP)
Plastic Drum (200L)	2	1,200
Steel Mesh (1mx2m)	2	1,000
Wooden Plank (2m)	2	500
Steel and PVC Pipes (3in dia)	4m, 15m	3,750
Stainless Bolt, Nut, and Bearing	-	1,300
Bamboo	1 doz	250

MATERIAL	QTY	ESTIMATED COST (PHP)
Gearbox	1	3,500
Chain and Sprockets	-	500
Canopy	3m	250
Electric Components	-	6000
Welding and Fabrication	-	5,000
BioGas Storage	-	5,000

Note: For the maintenance fee, it will be taken from the penalties of those people who litter in the river; budget proposal was assumed to be per KFC unit with five (5) covered households for the BioGas storage **TOTAL: 28,250 PHP**

Maintenance

- KFC should be emptied and cleaned every 3-4 hrs
- Weekly inspection of the gasifier, air dryer, and heating unit in the biogas storage. Check the machines for any leaks or other issues
- Residents in the area will receive training on how to clean and maintain the device

Financial Resource

To address this environmental issue in Cebu City and Mandaue City, both LGUs must collaborate and secure funding, while private entities and businesses in the area can also be enlisted as partners to aid the affected areas.

River Revival

Project KFC is a valuable machine that can remove litter and debris, reduce water pollution, and promote sustainable waste management can significantly improve the health of the river and support future research efforts.

Stakeholders

Why would the stakeholders implement Project KFC?



The project's goals are to improve the barangay's aesthetics, promote biodiversity, address flooding, and support the city's policies for rehabilitating the river.