

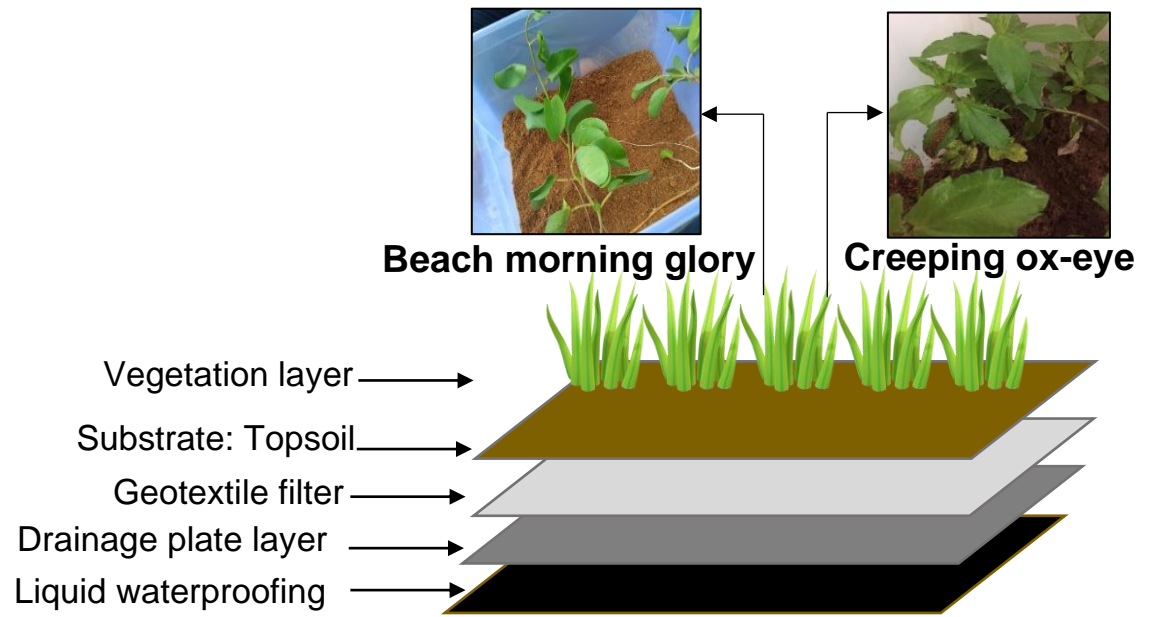
INVENTOR: NOOR SURAYA BINTI ROMALI
FACULTY: FACULTY OF CIVIL ENGINEERING TECHNOLOGY
UNIVERSITY: UNIVERSITI MALAYSIA PAHANG
EMAIL: suraya@ump.edu.my
CO-INVENTORS: ABDUL SYUKOR ABD. RAZAK, SURYATI
SULAIMAN, KHAIRUL ANUAR SHAHID.



Product Background

- Sustainable stormwater management is rapidly gaining acceptance in Malaysia. It is an alternative to the traditional approach which promotes on site collection and conveyance of stormwater from roof to infiltrate into the ground or collect for reuse.
- Enviroof is a green roof system consist of five component layers which capable to reduce the peak runoff and improve the quality of stormwater. Two types of vegetation i.e. beach morning glory (*Ipomea pes-caprae*) and creeping ox-eye (*Wedelia Trilobata*) was tested on the experimental model.

State of the art: The concept of Enviroof



Novelty

- Low cost product as the beach morning glory and creeping ox-eye flowering freely on sandy upper-beach soils in Malaysia.
- Low cost assembly and maintenance.
- Environmental and user friendly product.
- New product in Malaysia besides the limited availability and applicability of green roof in Malaysia.

Benefits & Applicability

- Enviroof is a green, non-polluting product that provide environmental and esthetical value to environment.
- Enviroof has proved its potential as a stormwater management tool where it help reducing the risk of flood and provide better quality of water for environmental sustainability.

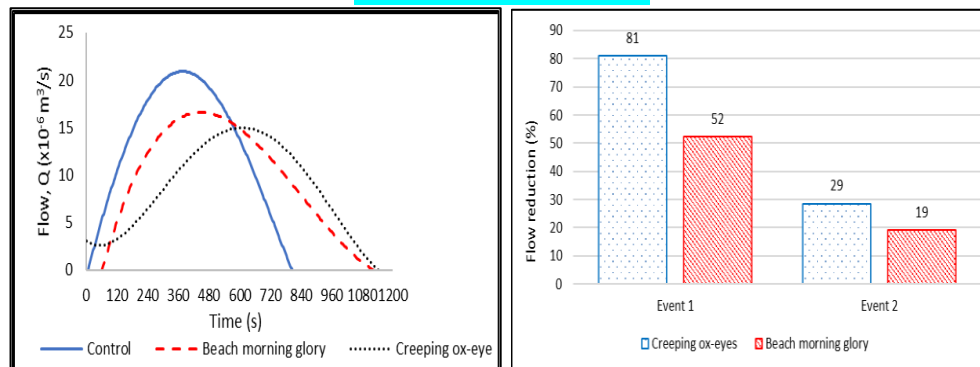
Status of Innovation

- Model - Functionality of Product

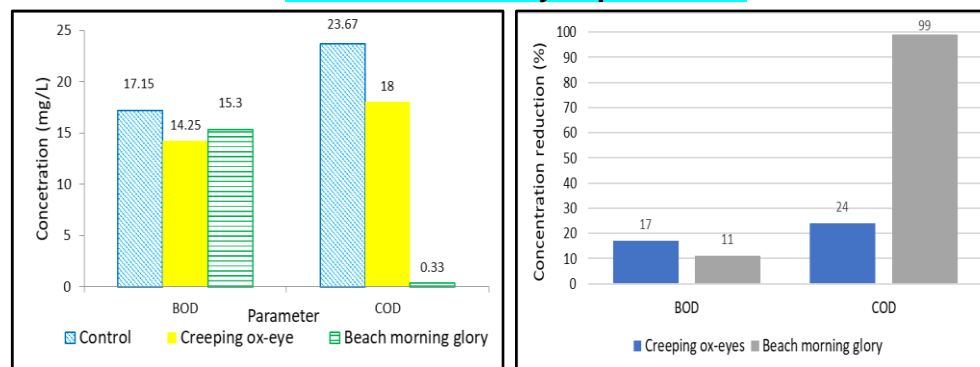
Experimental Results



Peak Flow Reduction



Stormwater Quality Improvement



Environmental Impact

- Capable to reduce the peak flow of stormwater thus help in flood mitigation.
- Capable to improve the quality of stomwater, as well as improving the WQI of river.

Publication

The application of green roof for stormwater quantity and quality improvement. IOP Conference Series: Earth and Environmental Science. (SCOPUS Indexed Proceeding - Expected to publish in Feb 2021). Presented at NCWE 2020.

Marketability & Commercialisation

- A potential Best Management Practice (BMPs) to be considered in MSMA.
- A sustainable green technology in accordance to Green Technology Master Plan (GTMP) 2017 - 2030.
- Installation at flat roof building in Malaysia for aesthetical value.

Cost Analysis

	Price per m ²
Market	RM400
Enviroof	RM250

- Enviroof is cheaper as the planting and maintenance cost for the vegetation is low.

Potential Collaborator:

Division of Urban Storm Water Management (MSMA),
Drainage and Irrigation Department (DID) Malaysia.