



RAIN WATER HARVESTING STORAGE

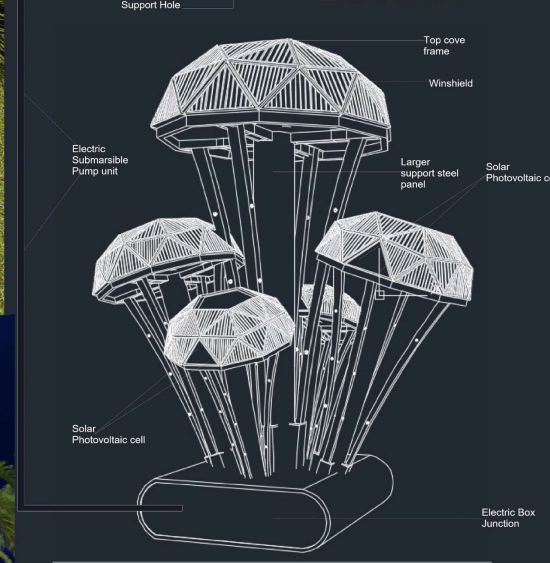
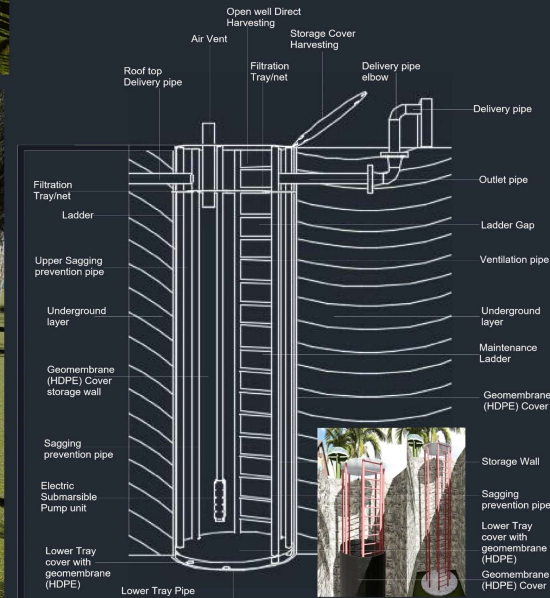
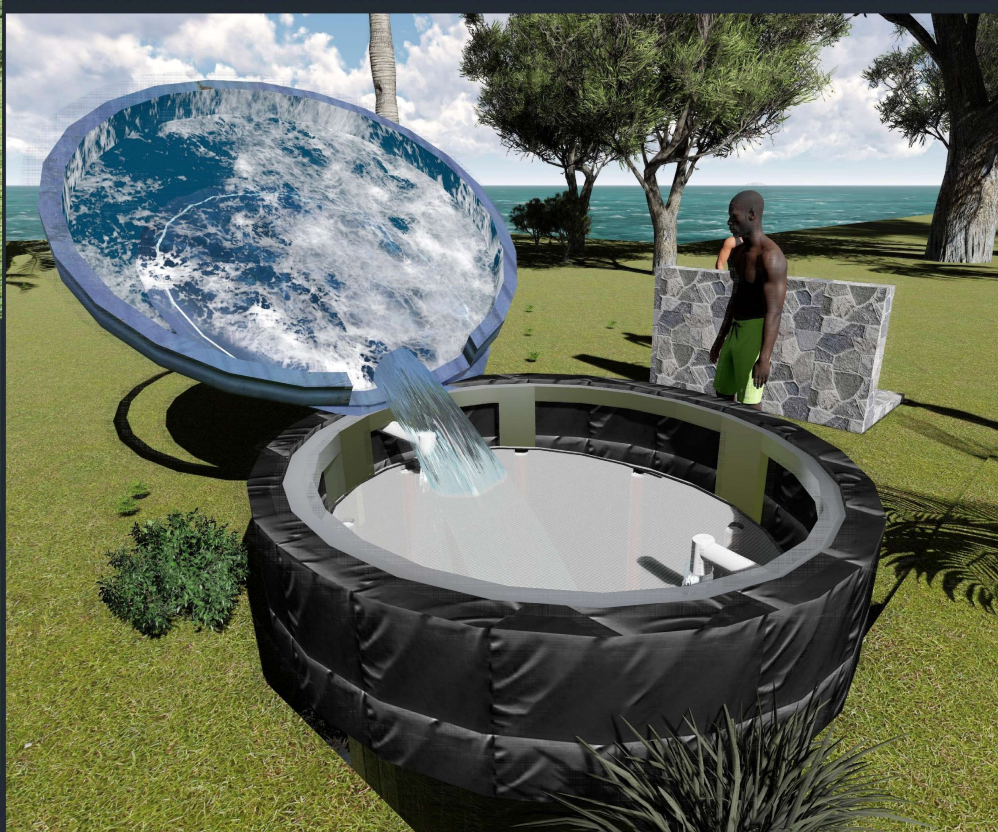
INTRODUCTION

Rainwater harvesting RWH is a simple and effective method of collecting and storing rainwater for various, uses including drinking, irrigation, and washing. In Marou village, Fiji, Rain Water Harvesting RWH can provide a reliable source of clean water, reducing dependence on wells and other water sources. This note focuses on the design and implementation of a rainwater harvesting and storage system using geomembrane HDPE and pipes to protect sagging storage, as well as well protection. Marou village is a coastal community that relies heavily on well as a primary source of water. However, the villages water sources are vulnerable to salt water contamination which can render the water undrinkable and unsuitable for irrigation. The village experiences a rainy season, which provides an opportunity to harvest and store rain water for use during the dry season.

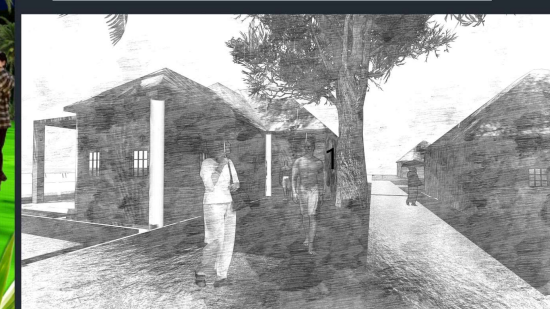
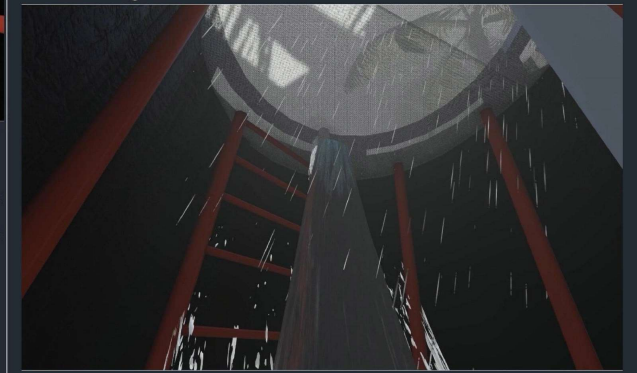
The proposed method involves using an underground storage tank made from geomembrane HDPE, resembling a well, to harvest and store rainwater for use during the dry season. This approach is designed to address the water scarcity issues faced by villages, particularly in regions with limited access to clean water.



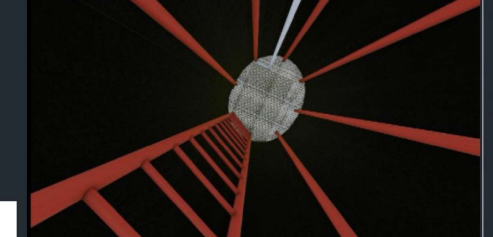
The choice of method and materials for the rainwater harvesting system in Marou village, Fiji, was based on several factors including the village's specific needs, the local climate and geography, and the availability of material and resources. After careful consideration, it was decided to use a cylindrical underground storage tank made from geomembrane HDPE material, with a pipe protection system and steel rail filtration system. The second method involves designing and installing an underground storage tank made from geomembrane HDPE to harvest and store rainwater for use in Marou village. The tank will be designed to mimic a well, with the added innovation of using geomembrane HDPE to prevent saltwater contamination.



Marou village faces a unique challenge due to its proximity to the ocean. The village's water sources are vulnerable to saltwater contamination, which can render the water undrinkable and unsuitable for irrigation. Well-style storage solution; Given the village's reliance on wells as a primary source of water, an underground storage tank that mimics a well was chosen. This design allows for the storage of rainwater harvested during the rainy season, which can then be used during the dry season. Geomembrane HDPE innovation; To address the challenge of saltwater contamination, an innovative solution using geomembrane HDPE material was adapted. This material provides a durable and impermeable barrier that prevents saltwater from contaminating the stored rainwater.



Benefits of Geomembrane HDPE Rain Water Harvesting Storage



1. Impermeable: Geomembrane HDPE is impermeable to saltwater, ensuring that the stored rainwater remains fresh and uncontaminated.
2. Durable: Geomembrane HDPE is highly durable and resistant to corrosion, damage, and harsh underground conditions.
3. Flexible: Geomembrane HDPE is flexible, allowing it to be customized to fit the specific needs of the village.
4. Low-Maintenance: Geomembrane HDPE requires minimal maintenance, reducing the risk of contamination and ensuring a reliable water supply.
5. Water Storage: Geomembrane HDPE-lined storage systems can collect and store significant amounts of rainwater, reducing the reliance on ground water on municipal water supplies.
6. Durability: Geomembranes are resistant to punctures, tears, and UV degradation, ensuring a long lifespan for the storage system.
7. Cost-effective: Geomembrane-based systems can be more cost-effective than traditional concrete or steel storage tanks.