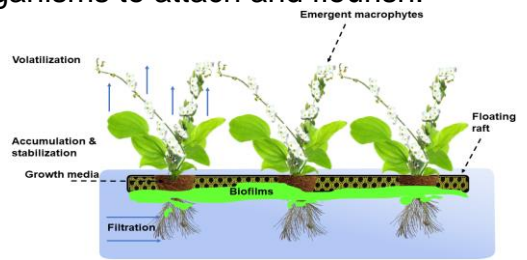


GUIDELINES FOR INSTALLING CONSTRUCTED FLOATING WETLANDS

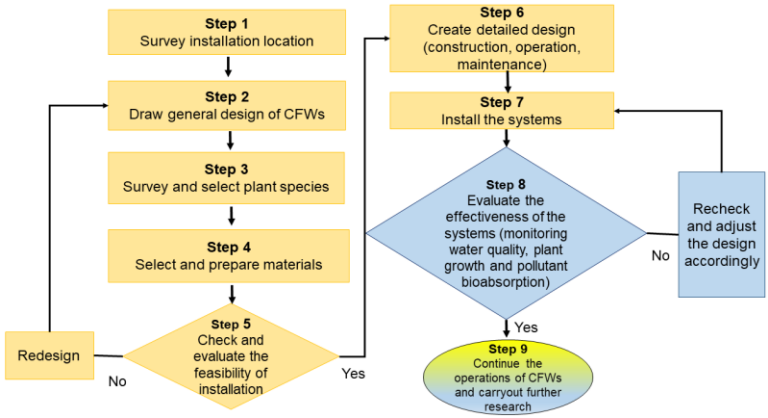
1. Introduction to Constructed Floating Wetlands

Constructed Floating Wetlands (CFWs), also known as floating treatment wetlands, represent innovative man-made structures designed to facilitate the growth of aquatic plants above the water's surface to remove the pollutants present in the water. These structures allow aquatic plants to thrive in deeper waters than their natural root systems would typically allow. The roots of these plants extend throughout the floating platform, creating a robust and extensive root network. This intricate system offers an ample surface area, providing an ideal environment for microorganisms to attach and flourish.



2. Instructions

2.1. Evaluation steps for the installation of CFWs



2.2. Site assessment and selection

Tailoring the placement of the floating wetland rafts to align with their intended purpose is vital. First, determine the specific objectives of your CFWs project. Whether it's wastewater treatment, biodiversity enhancement, or aesthetic improvement, the purpose will guide your site selection. For urban wastewater treatment initiatives, existing water bodies within the city, including ponds, lakes, rivers, and canals, offer potential sites.

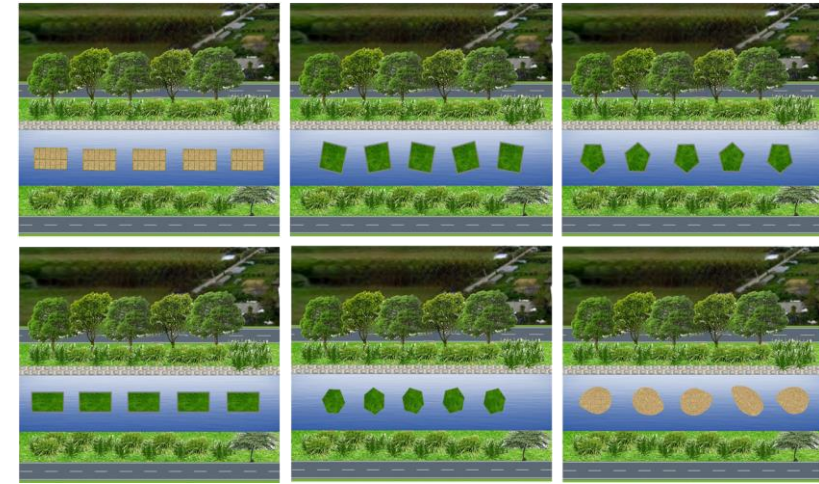
2.3. Selection of plant species

Choosing the right plant species for your floating rafts is a pivotal decision that significantly influences the overall effectiveness and success of your Constructed Floating Wetlands (CFWs) project. Opt for aquatic macrophytes that exhibit emergent growth characteristics. These plants are well-suited for floating rafts as they extend above the water's surface, interacting effectively with both the air and water environments.



2.4. Sizing and shaping the floating rafts

Five percent of the water's surface area to be occupied by rafts for optimal nutrient treatment efficacy. Plant life should ultimately blanket no less than 50% of the raft's surface. PVC pipes, bamboo, coir mats are used to make the raft.



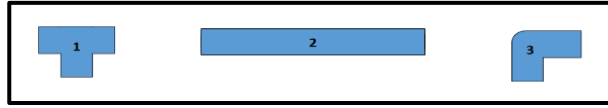
2.5. Instructions to install CFWs

2.5.1. Materials and tools for making a raft



2.5.2. Steps to design rafts

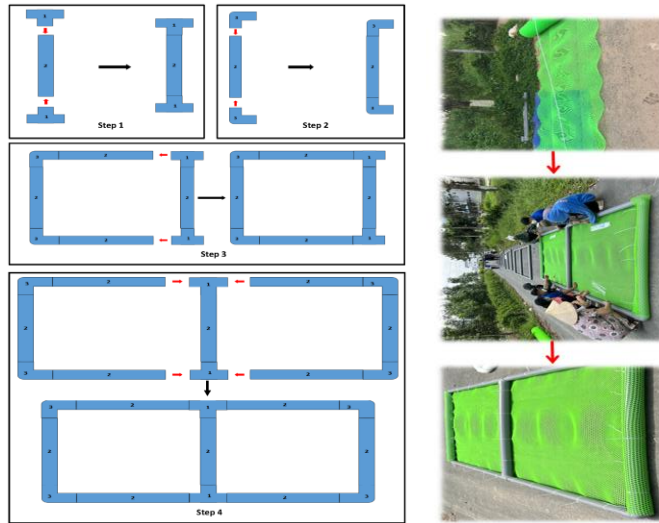
- Step 1: Number the PVC pipes and cores



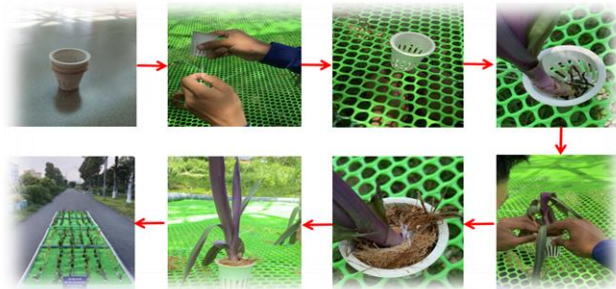
- Step 2: Place the pipes on the ground and check their sizes

- Step 3: Glue the joints and pipes to form the frame

- Step 4: Fix the net to the raft frame



- Step 5: Fix the baskets and place the plants into the baskets

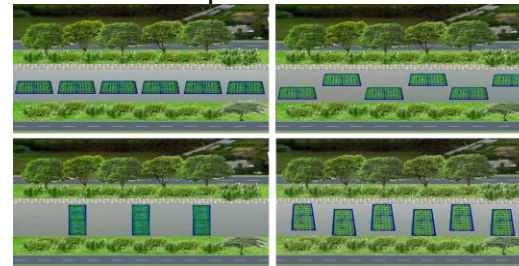


2.6. Deploying and anchoring the rafts

Anchor the raft in close quarters to the point where the wastewater enters the water body. This augments the rafts' potential to absorb pollutants.



Position the rafts perpendicular to the water flow. Do not allow water to flow parallel to the rafts.



3. Operation and maintenance protocol

Operating a CFW is very simple, you just need to launch the raft into the water body to be treated. The raft works by itself by filtering the pollutants through the roots of the plants. However, to increase the efficiency of nutrient uptake by the plants, the raft should be taken out from the water after about 2 months of operation and pruning to reduce the plant biomass should be carried out. Please leave around 2-3 shoots/cluster for the plants to regenerate without needing to replace them.



4. Impacts of CFWs

- Creating beautiful landscapes and protecting the water environment



- Providing habitats for local wildlife (Biodiversity)



- Involving stakeholders



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Project funded by APN-GCR:
CRRP2021-06MY-Jegatheesan

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