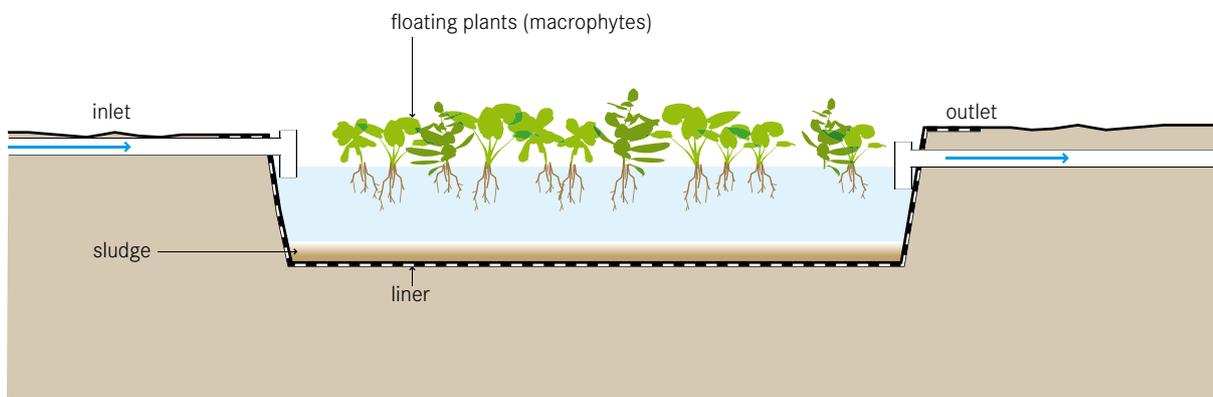


Application Level: <input type="checkbox"/> Household <input checked="" type="checkbox"/> Neighbourhood <input checked="" type="checkbox"/> City	Management Level: <input type="checkbox"/> Household <input checked="" type="checkbox"/> Shared <input checked="" type="checkbox"/> Public	Inputs: <input checked="" type="checkbox"/> Effluent
		Outputs: <input checked="" type="checkbox"/> Biomass



A floating plant pond is a modified maturation pond with floating (macrophyte) plants. Plants such as water hyacinths or duckweed float on the surface while the roots hang down into the water to uptake nutrients and filter the water that flows by.

Water hyacinths are perennial, freshwater, aquatic macrophytes that grow especially fast in wastewater. The plants can grow large: between 0.5 to 1.2 m from top to bottom. The long roots provide a fixed medium for bacteria which in turn degrade the organics in the water passing by.

Duckweed is a fast growing, high protein plant that can be used fresh or dried as a food for fish or poultry. It is tolerant of a variety of conditions and can significantly remove quantities of nutrients from wastewater.

Design Considerations Locally appropriate plants can be selected depending on their availability and the characteristics of the wastewater.

To provide extra oxygen to a floating plant technology, the water can be mechanically aerated but at the cost of increased power and machinery. Aerated ponds can withstand higher loads and can be built with smaller

footprints. Non-aerated ponds should not be too deep otherwise there will be insufficient contact between the bacteria-harboring roots and the wastewater.

Appropriateness A floating plant pond is only appropriate when there is a sufficient amount of land (or pre-existing pond). It is appropriate for warm or tropical climates with no freezing temperatures, and preferably with high rainfall and minimal evaporation. The technology can achieve high removal rates of both BOD and suspended solids, although pathogen removal is not substantial.

Harvested hyacinths can be used as a source of fibre for rope, textiles, baskets, etc. Depending on the income generated, the technology can be cost neutral. Duckweed can be used as the sole food source for some herbivorous fish.

Health Aspects/Acceptance Water hyacinth has attractive, lavender flowers. A well designed and maintained system can add value and interest to otherwise barren land.

Adequate signage and fencing should be used to prevent people and animals from coming in contact with

the water. Workers should wear appropriate protective clothing. WHO guidelines on wastewater and excreta use in aquaculture should be consulted for detailed information and specific guidance.

Operation & Maintenance Floating plants require constant harvesting. The harvested biomass can be used for small artisanal businesses, or it can be composted. Mosquito problems can develop when the plants are not regularly harvested. Depending on the amount of solids that enter the pond, it must be periodically desludged. Trained staff is required to constantly operate and maintain it.

Pros & Cons

- + Water hyacinth grows rapidly and is attractive
- + Potential for local job creation and income generation
- + Relatively low capital costs; operating costs can be offset by revenue
- + High reduction of BOD and solids; low reduction of pathogens
- + Can be built and maintained with locally available materials
- Requires a large land (pond) area
- Some plants can become invasive species if released into natural environments

References & Further Reading

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