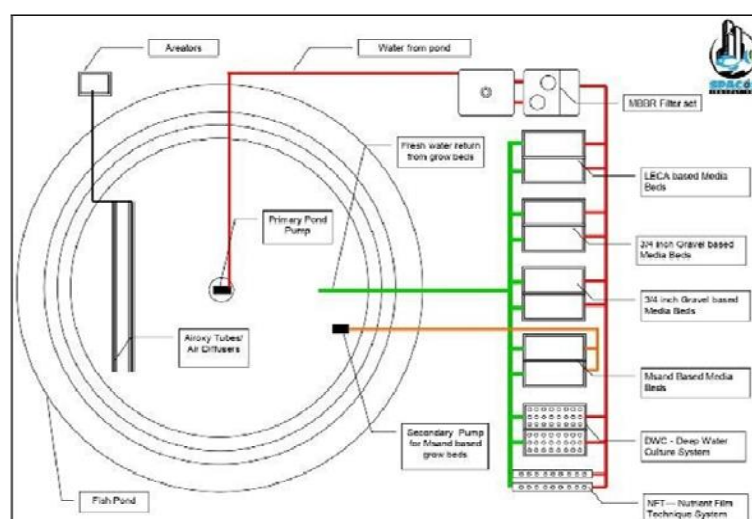


Model Unit

Fish Pond/Tank: Area required for construction of the fish pond/tank is 80 m²; diameter of the circular tank is 7.2 m, having a volume of 60 m³ (60,000 litre), with effective water depth of 1.68 m and maximum depth of 2.13 m (centre of the pond/tank). The system is designed to handle more than 50 fish/m³ (total 3000 fish). Details of design of pond/tank are as follows:

Sl.No.	Particulars	Unit
1	Total Land Area required	Maximum of 150 m ²
2	Tank Area	80 m ²
3	Circular Tank Diameter	7.2 m
4	Tank Volume	60 m ³ (60,000 litre)
5	Effective Depth	1.68 m
6	Maximum Depth	2.13 (centre of the pond)

B) Plant Grow-Beds: Number of grow-beds in FRP Tanks 10, dimension of each grow- bed 6 x 2 x 1 ft (1.83 x 0.61 x 0.30 m); different kinds of solid media such as gravel or expanded clay pebbles (hydrotons) or lightweight expanded clay aggregate (LECA) are used to grow plants, through which water from fish tank passes. Design and layout of the fish tank and grow-beds is shown below:



Layout of Small-scale Aquaponics Unit

C) Moving Bed Biofilm Reactor & Filtration: One Moving Bed Biofilm Reactor (MBBR) and Filtration Unit is installed for water treatment in the Aquaponic System.



D) Stocking and Yield: Although stocking densities should be determined by species requirements and operational considerations, the influence of stocking densities on growth and production has been determined empirically. The indicative stocking and harvest details of fish and plants are as follows:

Sl.No.	Component	Salient Feature
I	Fish Culture	
1	Fish Tank volume	60 m ³
2	Moving Bed Biofilm Reactor & Filtration Unit	One Set
3	Targeted Species	GIFT Tilapia (<i>Oreochromis niloticus</i>) and Pangasius (<i>Pangasiandon hypophthalmus</i>)
4	Fingerling stocking (50/m ³)	3000 nos.
5	Fish Culture period	5-6 months
6	Survival	90% (2700 nos.)
7	Average body weight	750 g
8	Expected Yield/unit/cycle	2700 fish x 750 gm = 2025 kg
9	Total Production/unit/year	2025 kg x 2 cycles = 4050 kg per year

II	Vegetable Cultivation	
1	No. of Plant Grow-beds	10 nos.
2	Plant varieties	Tomato, Mint, Chilly, Lettuce, Basil
3	Planting density	15 – 20 saplings / bed
4	Total no. of Plant	150-200 plants
5	Plant cultivation period	Throughout the year
6	Harvest type	Partial harvest
7	Expected yield /bed/year	5-10 kg/ bed/ year