
AQUASOL

Problem Statement

Renewable/ Sustainable Energy

ID: SM966

Organisation: AICTE

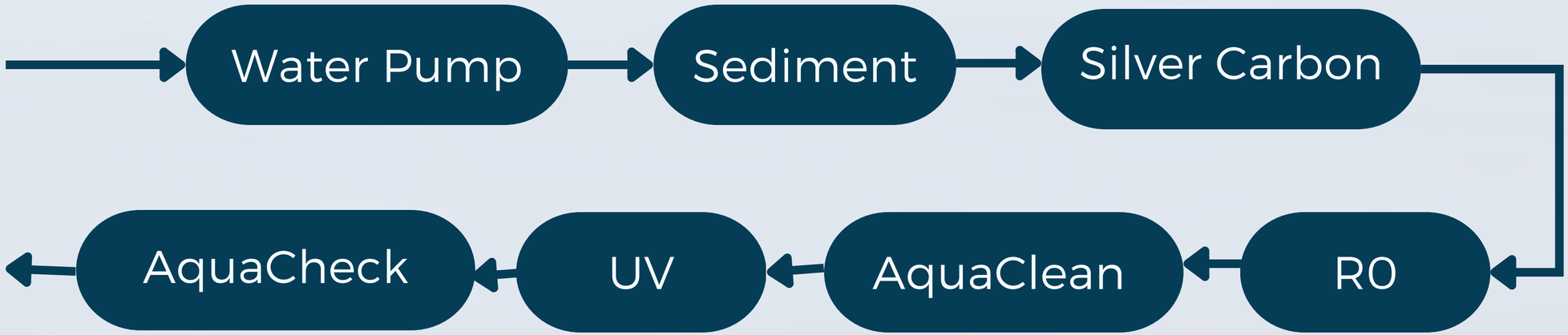
What are we Upto?

Ever wondered the amount of water being wasted as grey water from commercial areas, Hotels, Restaurants, Laundry sectors etc. containing soapy water with unwanted pathogens and having no solution to treat this global crisis ?

Here we are with a simple yet effective solution for the issue developed by the team AquaSol.

Our Idea

Using an assembly of filters to purify grey water into reusable and further drinkable water



Silver carbon

- THMs (by-products from chlorine).
- Pesticides
- Herbicides including 2,4-D and Atrazine.
- Chlorine
- PFOS including PFAS, PFOA and PFNA.
- Phosphates and nitrates
- Lithium

RO

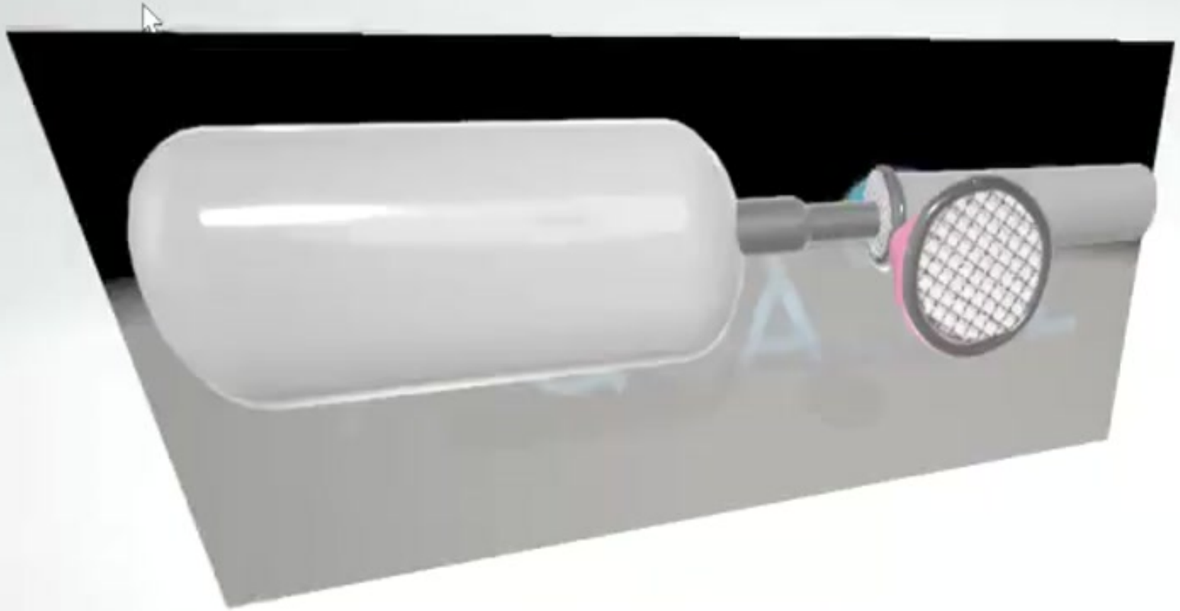
- Fluoride
- Salt
- Sediment
- Chlorine
- Arsenic
- VOCs (Volatile Organic Compounds)
- Herbicides and Pesticides

UV

Pathogens from water

Aquaclean

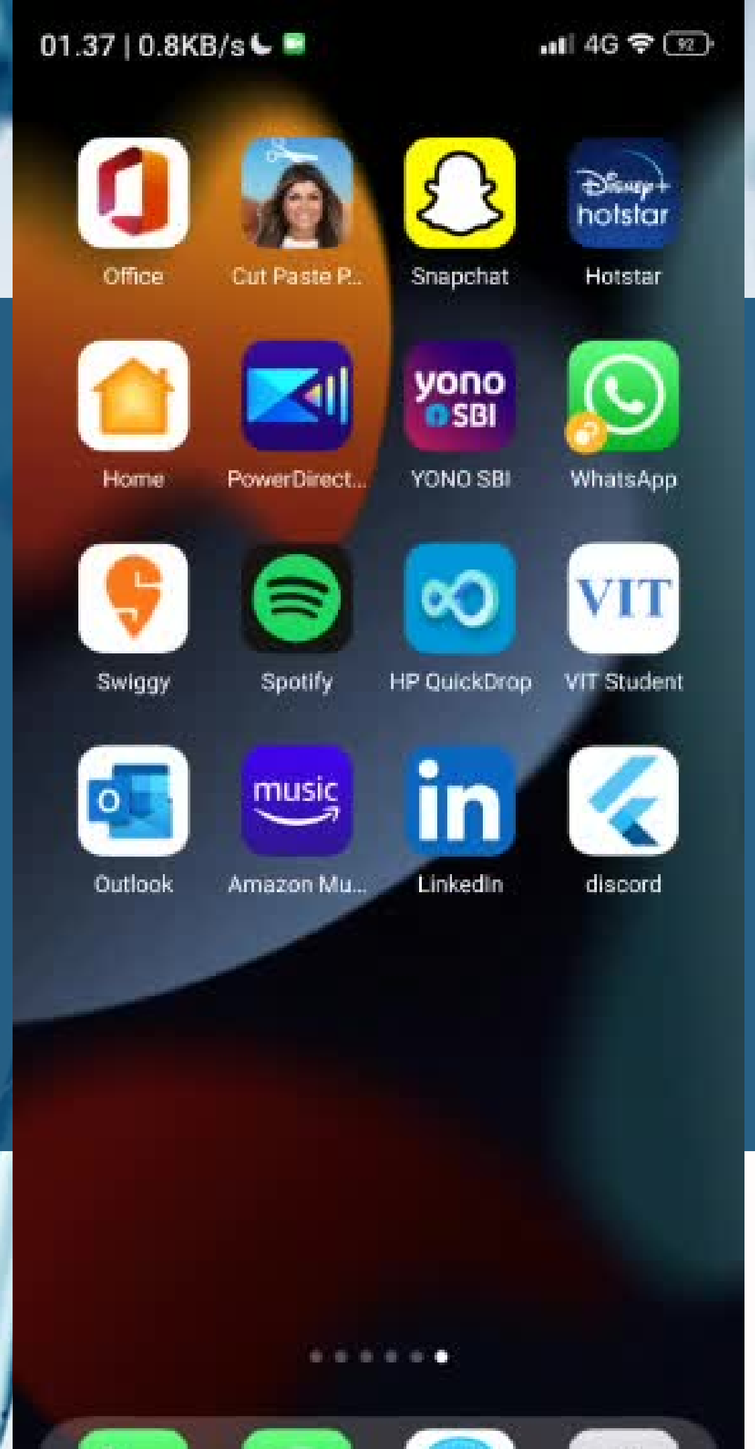
- Asbestos
- Benzene
- Cadmium
- Chlorine
- Copper
- Lead
- Mercury
- Zinc



Pre - Filter Mesh


AQUASOL

AQUACHECK APP



Cost Estimation

Name of the component	Cost
Primary Mesh	100
Water Pump	2000
Sediment filter	400
Carbon filter	600
RO	1000
Aquaclen	1000
UV Filter	1000
AquaCheck	6100
Outer Casing	500
Miscellaneous*	1000
Total Cost	**13700**
Selling Price	**15000**
Profit Margin	**1300**

Total Selling Cost: Rs. 15000

Profit Margin: Rs. 1800

AquaCheck System Breakdown	
Name of the component	**Cost**
Arduino Mega	1100
Bluetooth Module	300
TDS Sensor Kit	650
Turbidity Sensor Kit	650
pH Sensor Kit	1200
Temperature Sensor Kit	50
Oxygen Sensor Kit	2000
Bread Board and Wires	150
Total Cost	**6100**

***includes labour charges, management of the app, pipes, copper wires etc.**

Maintenance Cost

Per Year

Name of the component	Cost	Count	Total
Sediment Filter	400	2	800
Carbon Filter	300	2	600
RO (Membrane)	600	2	1200
AquaClean	1000	2	2000
UV Filter (lamp)	500	1	500
Miscellaneous			1000
Total Cost	**6100**		

ELECTRICITY COST

Per Hour

Power Consumption: 0.029 KW-H

Cost Incurred: Rs. 0.25

Per Day (10 working hours)

Power Consumption: 0.29 KW-H

Cost Incurred After Tax: Rs .2.5 (@ Rs. 8.23/unit)

Per Cycle (15 min)

Power Consumption: 0.00725 KW-H

Cost Incurred : Rs. 0.0625 (@ Rs. 8.23/unit)

WATER COST (COMMERCIAL USE)

Water cost per 1000 L: Rs. 31.20 (*Source: The Hindu*)

Water cost per litre: 0.0312

Water cost per cycle (150 L): Rs. 4.68

1 cycle = 15 min. approx. = 0.25hr

Total cycles per day (for 10hr): 0.25 * 4 * 10

= 40 cycles

Water cost per day(For 6000 L): Cycles per day * Water cost per cycle

= 40 * 4.68

= Rs. 187.2

Water cost per month: Rs. 5616

TOTAL COST ESTIMATION

Product Cost (One-Time): Rs.15,000

Monthly cost of electricity: Rs. 75

Yearly cost of electricity: Rs. 900

Yearly maintenance cost: Rs. 6100

Yearly recurring cost borne by customer: Rs. 7000

Yearly cost borne by customer for water: 5616 * 12
= Rs. 67,392

TOTAL COST ESTIMATION CONT.

Water Cost (First Cycle, commercial water): 67392/5

= Rs. 13,478

Yearly cost : 7000 + 13,478

= Rs. 20,478

Yearly cost of water: 67,392

Net Savings by customer: 67,392 - 20,478

= Rs. 46,914*

*Second Year Onwards (in first year one time cost of unit will be included)

Cost Per litre: 0.01004

Cost Per 1000 litres: Rs. 10

In the first year

Why US ?

AquaSol not only saves upto 95% water from being wasted but also provides additional benefits to its stakeholders and users. Government being a part of our expandable business towards a green and bright future would be providing with subsidiary allowances and certificates that can upscale the business of many.

LEED Certification

Our stakeholders : Hotels , Restaurants , Laundary sector and grey water related factories.

Future Scope

A Compact, light and easy to maintain tech is what everyone desires. Hence, here is our future scope for refining the model which constitutes of lesser number of filter, lesser non renewable resource, greater efficiency with greater purity level

Being further drinkable at this stage to a fully certified drinkable water would be our aim.

Introducing a green energy for the working of our product.

Customizing filters for Residential Buildings.

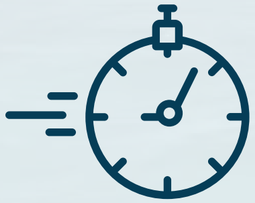
ASSURED

Affordable

Scalable

Sustainable

Universal



Rapid

Excellent

Distinctive


THANK YOU