Krishi Inspiro

Journey towards a Sustainable tomorrow!

Team: The One

Krishi Inspiro

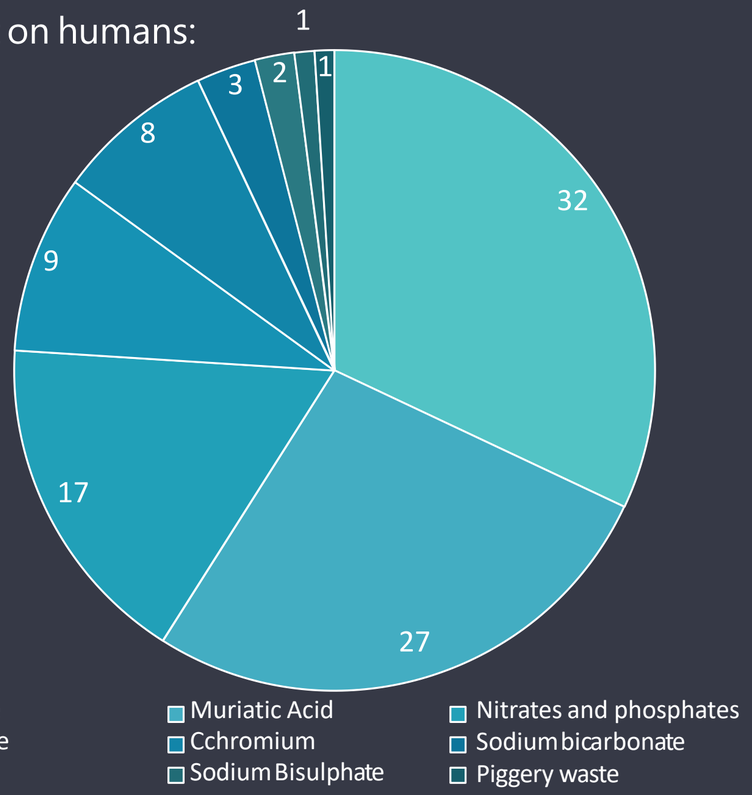
NATURE'S PURFIER

Problem Statement

Do you know the effects of micronutrients and harsh chemicals?

As per WHO survey

1.2 billion people are significantly compromised as industries dump **300 - 400 MT** of effluents each year Apart from chlorine, these chemicals were found to have a toxic effect on humans:



Incomplete filtration

Only **59.26%** of water is treated, the rest of the **micronutrients** along with **chemical treatments** remain and enter water bodies and domestic waters.

Eutrophication

Deposition of these chemicals leads to the **degradation of water bodies, groundwater table**, and disruption in the food chain by **biomagnification**.

Lack of crop microclimate knowledge

It is a scientific parameter that determines:

- Water for irrigation
- Nutritional Requirements

Health Hazards

Water with even the slightest change in ppm causes:

- **Skin abnormalities**
- **Digestive and renal problems**

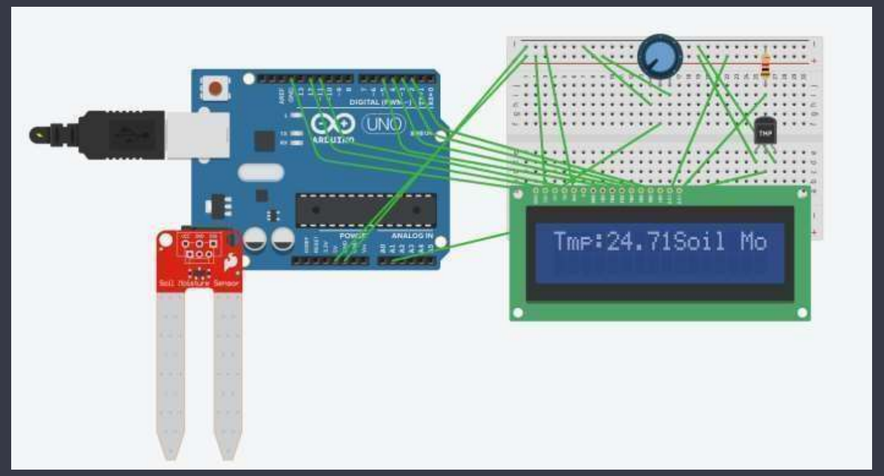
https://www.who.int/news-room/fact-sheets/detail/drinking-water#:~:text=Key%20facts,water%20source%20contaminated%20with%20faeces.

Solution

Our holistic approach is based on **bio-purification**.

We have created a prototype of an automated aerobic tank:

- Regulated by a microcontroller
- Integrated with the combination of different algae which purifies water.



Conceptual simulation

Prototype

01

Polyethylene Tanks

- Primary tank holds effluent water and algae.
- Secondary tank stores filtered water.

02

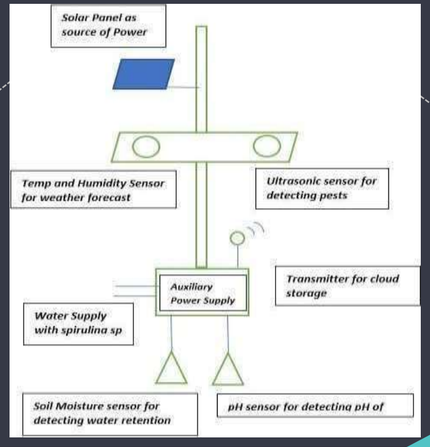
Recombinational algae

The USP of our product which filters the water by absorbing chemicals (biosorption)

03

Microcontroller

For automation and less human intervention, we have set up a smart system

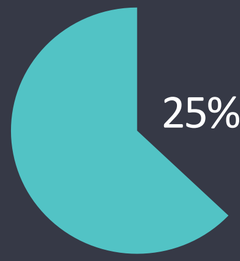


04

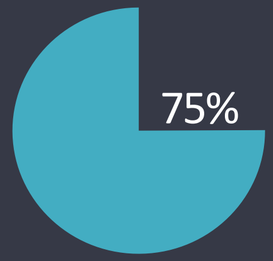
Sensors

humidity pH, temperature and soil moisture sensors sends microclimate data to controller which will send require message for user

Differentiator S.W.O.T Analysis

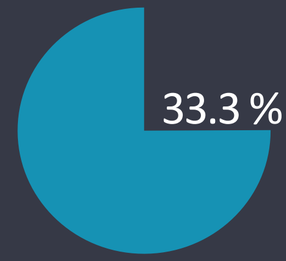


Reduction in dependence on resources



Increase in health and employability

Water saving



Increase in yeild

FACTORS / COMPETITORS	PRICE Of filtrate	EFFICIENCY	POWER CONSUMPTION	FELEXIBILITY	SERVICE
KRISHI INSPIRO	750/-	8/10	2.5 kwatt/hour	Ratio of algae can be modified depending on industry	Subscription
SUEZ	2150/-	4/10	15 kwatt/hour	LIMITED	One time installment+ maintenance
BIO ROCK	1500/-	9/10	5 kwatt/hour	Fixed, no changes	Subscription

Strengths/USP

- Customized Filtration and analysis to cater to different industries
- Low Power and Low wastage
- Smart water, fertilizer, and pesticide allocation
- Eco Friendly and Sustainable

Weakness

- Adoption requires extensive marketing
- Process is slightly time-consuming

Opportunity

- Caters a huge market of 30.9 Billion USD or 20,000 Crore INR
- Paves the way to open algal farms and establish cosmetic products

Threats

Suez and BioRock company are currently working with similar products

https://platform.tracxn.com/a/d/company/Sj7skCyhATdfoB7th8ns8MPmb6S-LHyw5OS7mPGLqk/suez.com

https://platform.tracxn.com/a/d/company/_j4eEilzwxO8CHmshT8HkgOpD8umpB7KNu3QPHkjN8U/bioroc#a:key-metrics

Razor blade Business Model

Nature of business: **B2B**
Target audience: **PetrochemicalandTextileindustries**
The average cost of product: **Rs 5500/-**

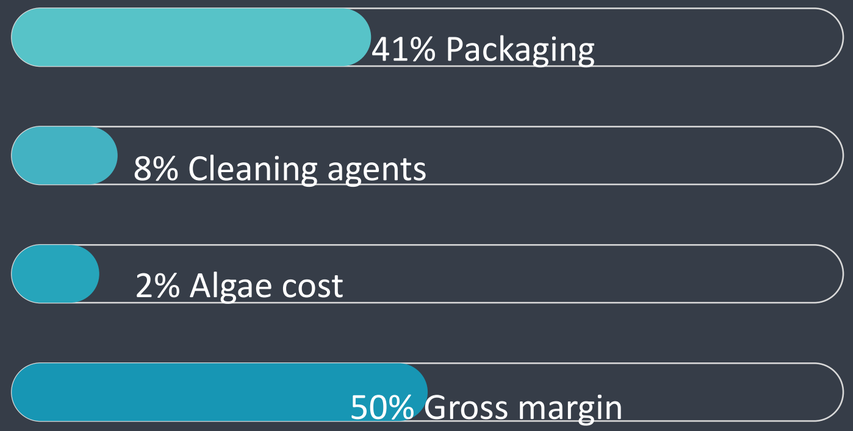
Services:

1. **Tank installation(razor)**
2. **Algae subscription(blade/repeatorders)**

Overall running cost for full operation

Sc.no	Item	Year 1	Year 2	Year 3
1	Logistic cost	1,50,000	4,00,000	10,00,000
2	Raw material	3,00,000	9.00,000	15,00,000
3	Cost for office operation	1,00,000	1,50,000	2,00,000
4	Electrification and installation	2,00,000	2,00,000	2,00,000
6	Variable operation cost	1,00,000	2,00,000	4,00,000
6	Maintenance	50,000	80,000	1,50,000
7	Licence and Registration	2,00,000	2,00,000	2,00,000
8	R & D	10,00,000	15,00,000	25,00,000
9	1 Manager + 2 Supervisors	6,00,000	7,00,000	9,00,000
10	5 workers	9,00,000	10,00,000	12,00,000
Total	sum	36,00,000	53,30,000	82,50,000

Unit Economics

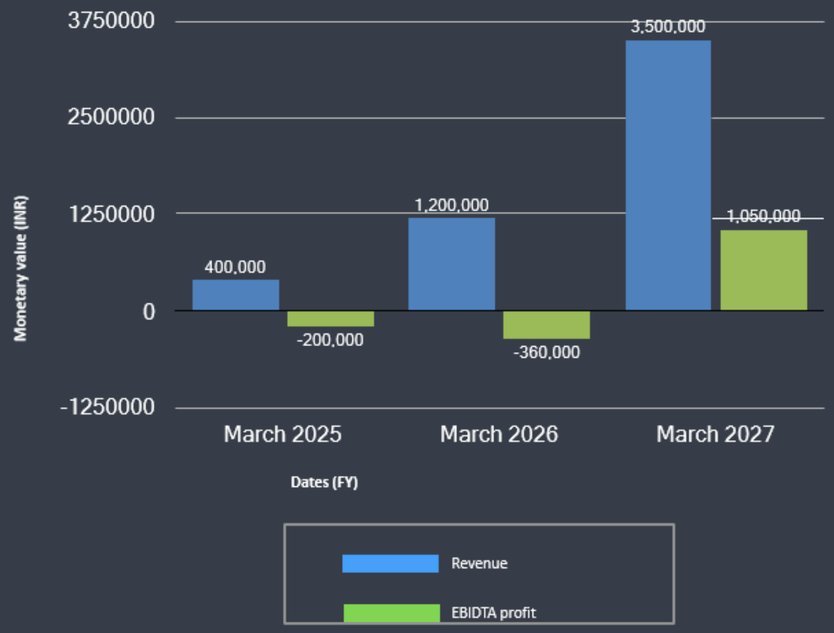


Manufacturing Cost

- Tank cost: 60 Rs/kg
- Sensors: 350 Rs
- Microcontroller: 600 Rs
- Mesh Valve: 150 Rs
- Aerator: 350 Rs

Algae cost: 400 Rs/kg

Packaging cost: 50 Rs



Road Map

January 2025

Proof of stage

To validate the product and test its viability

Creating MVP

To create standardized market ready product

Pilot feedback

Incorporate feedback for effective use

Apply under Jal Shakti Abhiyan

For subsidies up to 600 per product

June 2025

Tech setup

Website and automation assembly

And machine learning algorithms

Aggressive Marketing

Free demonstrations and brand awareness through endorsements

Distribution and Sales

Connections through SDG, CFTRI, and NGOs for a larger audience.

October 2025

Expand demography

Establish connections in neighboring cities

Collaboration

The team thanks the Department of plant cell biotechnology (PCBT), CSIR-CFTRI, Mysuru for providing spirulina culture (CFR/SP6) culture and providing resources

Achievements

The team has won B plan and technical competitions in IIT Madras, IIT Bombay Eureka, SIIB, IBS Pune.

References:

Our Website link: **https://willowy-cat-2473ab.netlify.app/**

My research IEEE research paper**: (paste only in google)**

https://drive.google.com/drive/folders/1kwEsBmp44616KGcmPlGenhjckqEjxSLZ?usp=sharing

www.ellenmacarthurfoundation.org

Wikipedia www.researchgate.net