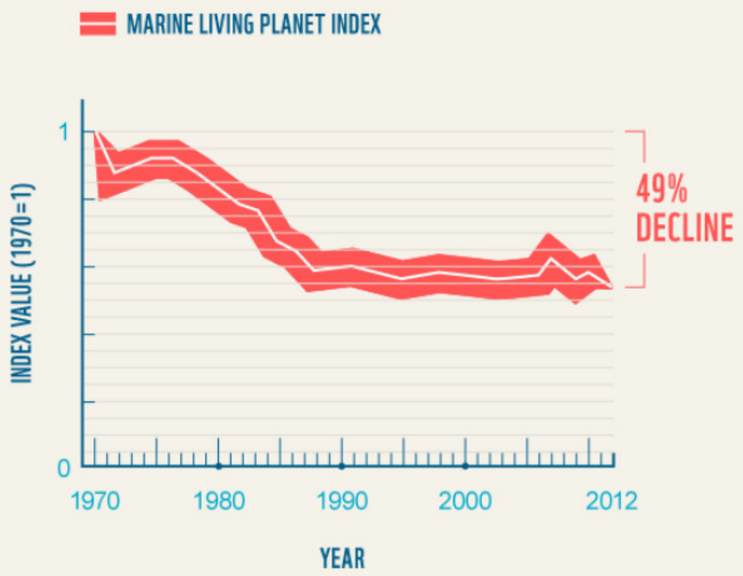
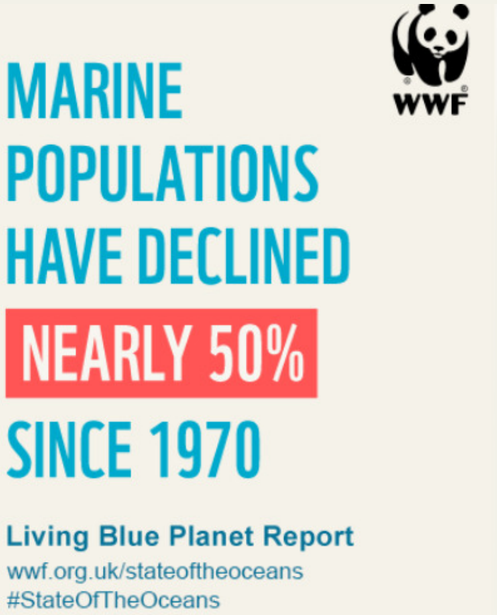
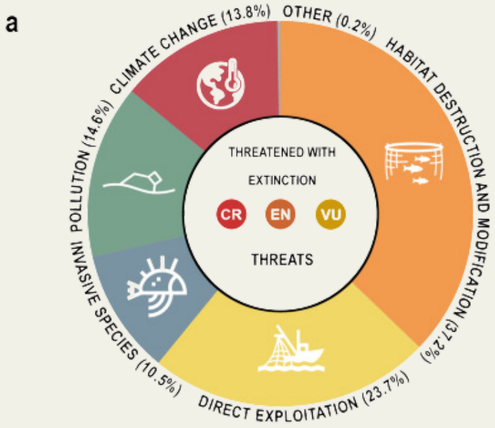
GREENERIEE
Smart Regenerative Aquaculture by using ML and IOT

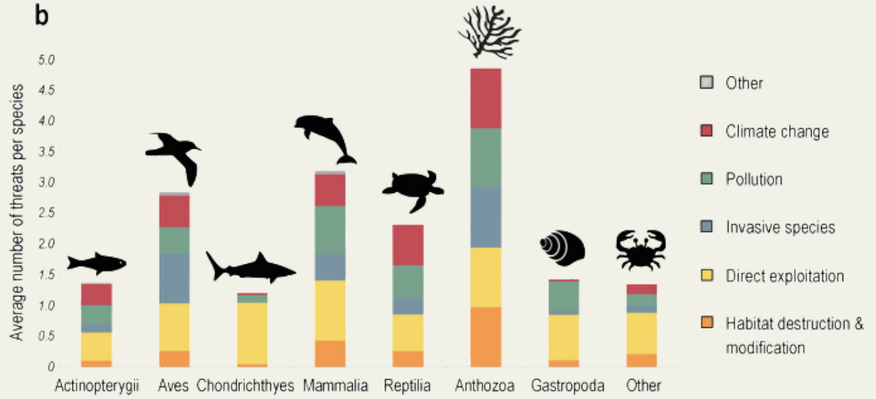
INSIGHT

how climate change effect marine biodiversity









source(s) : WWF UK, Status of Marine Biodiversity in the Anthropocene

INSIGHT

food security statistics

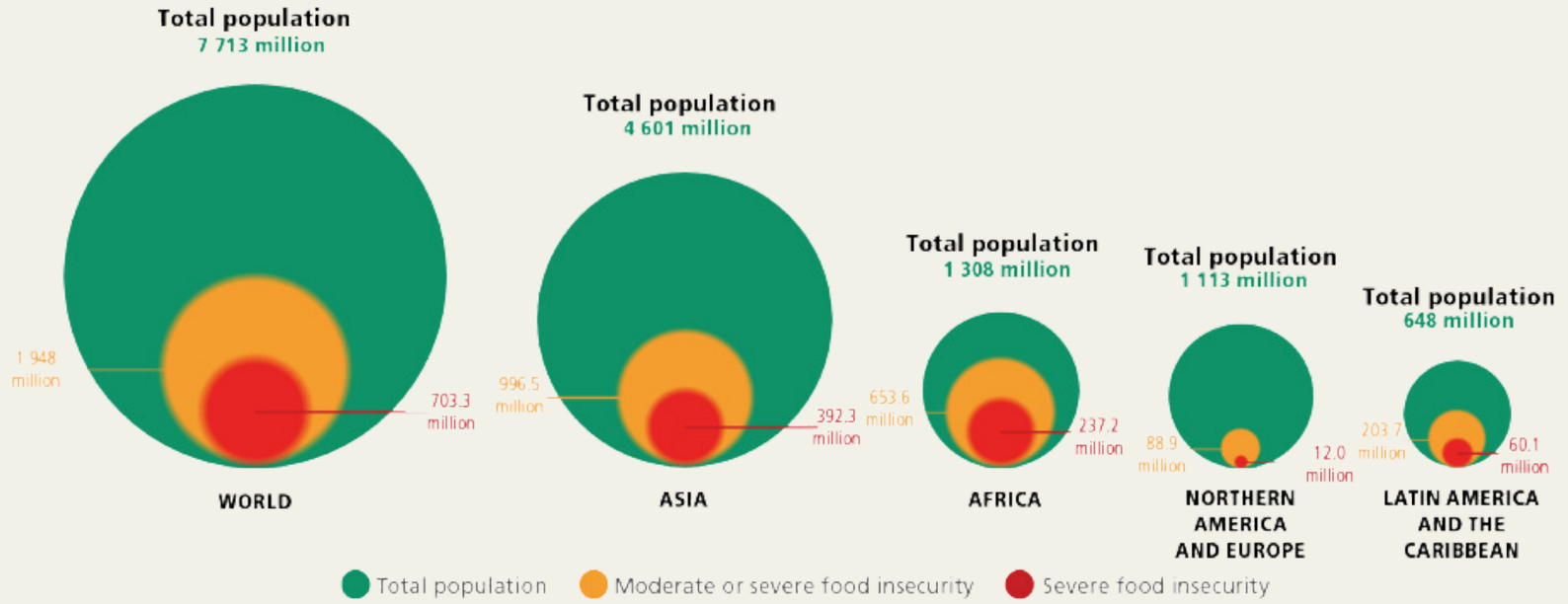


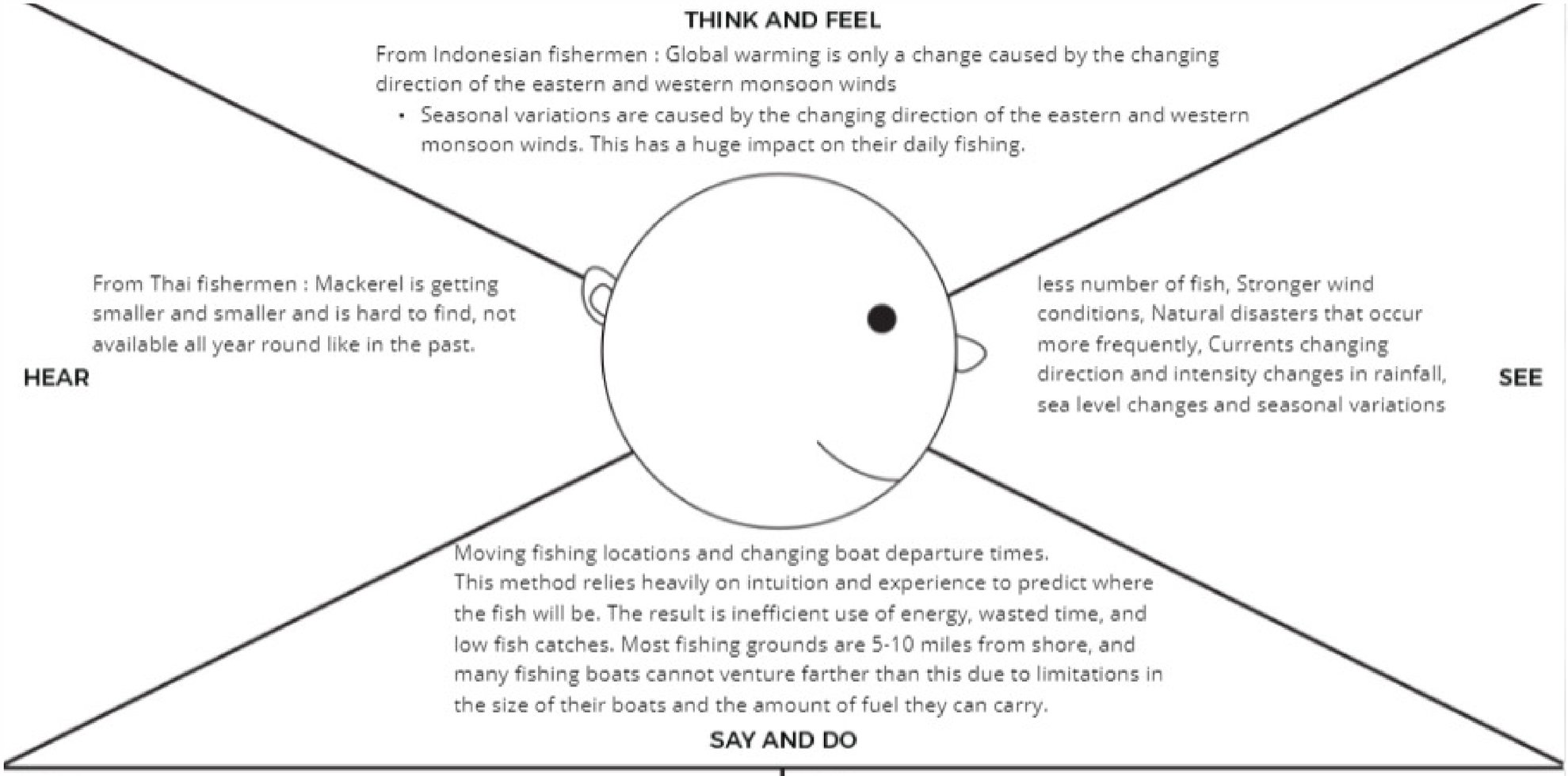
Figure 1: Concentration and distribution of food insecurity by severity across the world regions (2019).
Source: FAO, IFAD, UNICEF, WFP and WHO. 2020; United Nations, Department of Economic and Social Affairs, Population Division. 2019.

DECADE OF ACTION

PERSONAR

Name : Omar
Gender : Male
Age : 45-year-old
Location : small coastal village Thailand
Occupation : fisher man

PROBLEM ANALYSIS



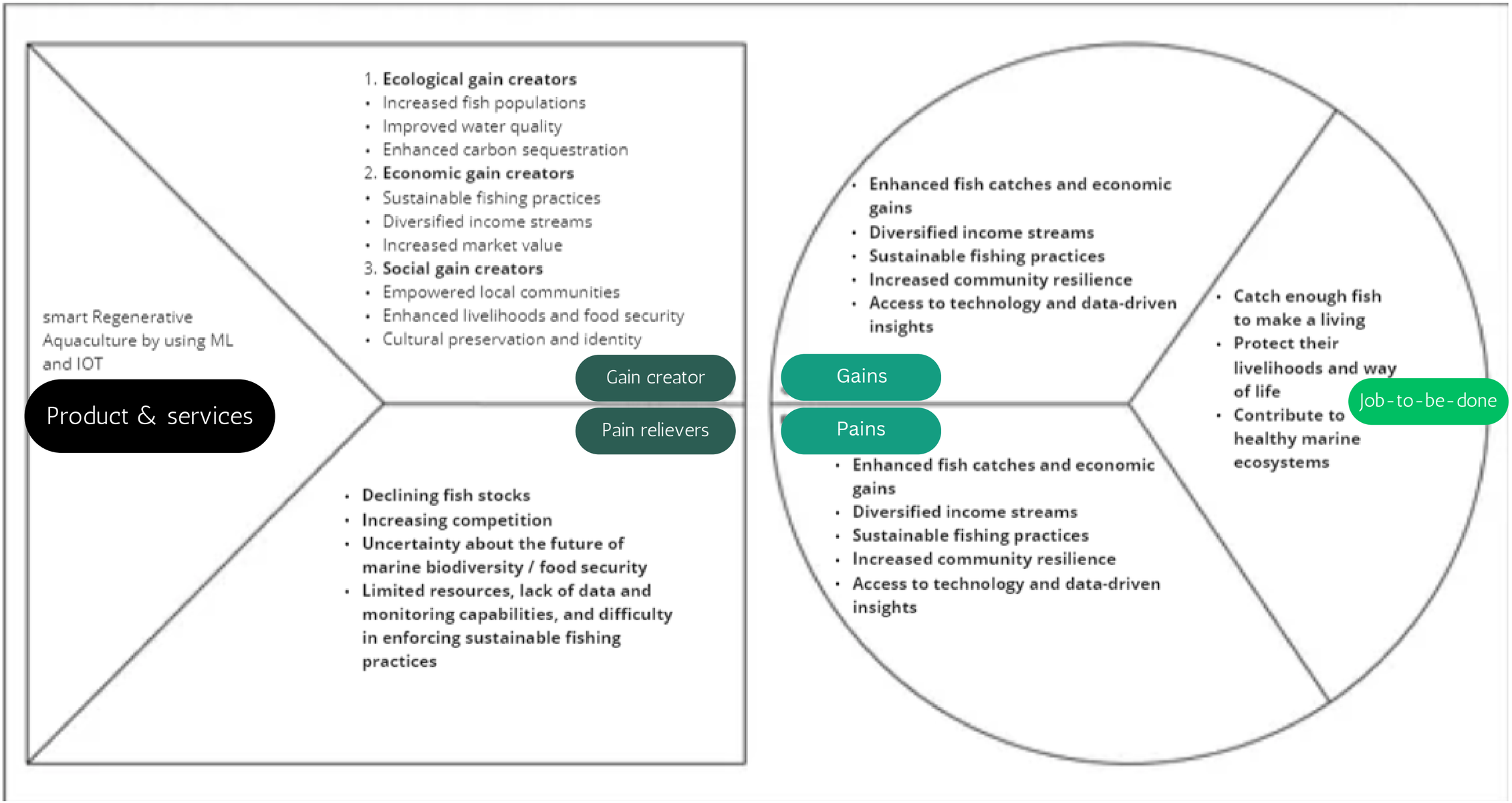
PAIN
fears, frustrations, obstacles

Loss of income from fishing, Food insecurity, Damage to their homes and boats, Loss of their traditional way of life, Uncertainty about the future

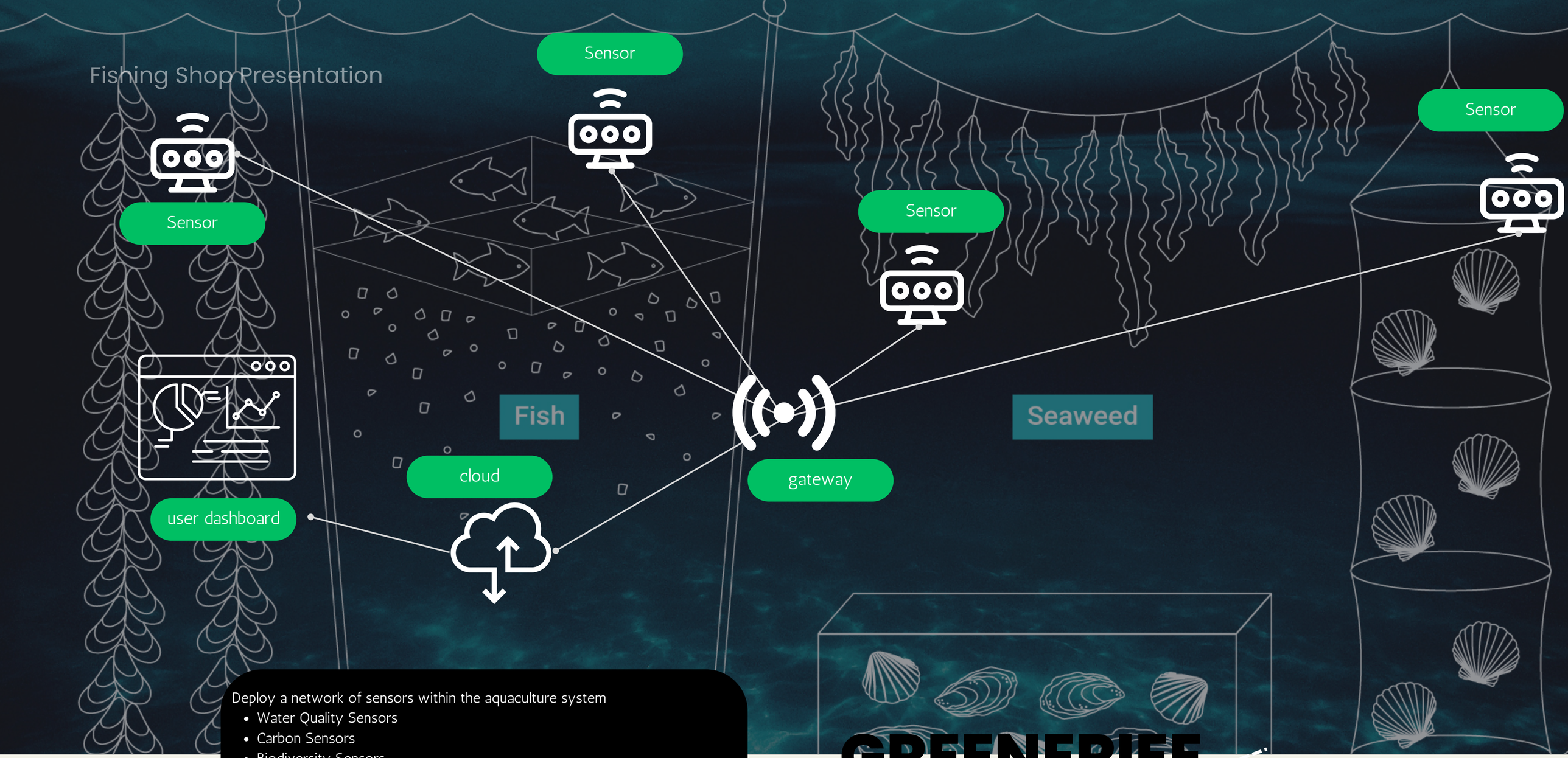
GAIN
wants, needs, measure of success

Increased fish stocks and improved livelihoods for local fishermen, Protected marine ecosystems and reduced impacts of climate change on local communities, Improved livelihoods and adaptation to climate change, Empowered local communities with informed decision-making

PROBLEM ANALYSIS



Fishing Shop Presentation



Deploy a network of sensors within the aquaculture system

- Water Quality Sensors
- Carbon Sensors
- Biodiversity Sensors
- Use IoT communication protocols (e.g., MQTT, LoRaWAN) to transmit real-time data to a central hub.
- Machine Learning Models: Biodiversity Prediction, Carbon Sequestration Estimation, Anomaly Detection,

GREENERIEE

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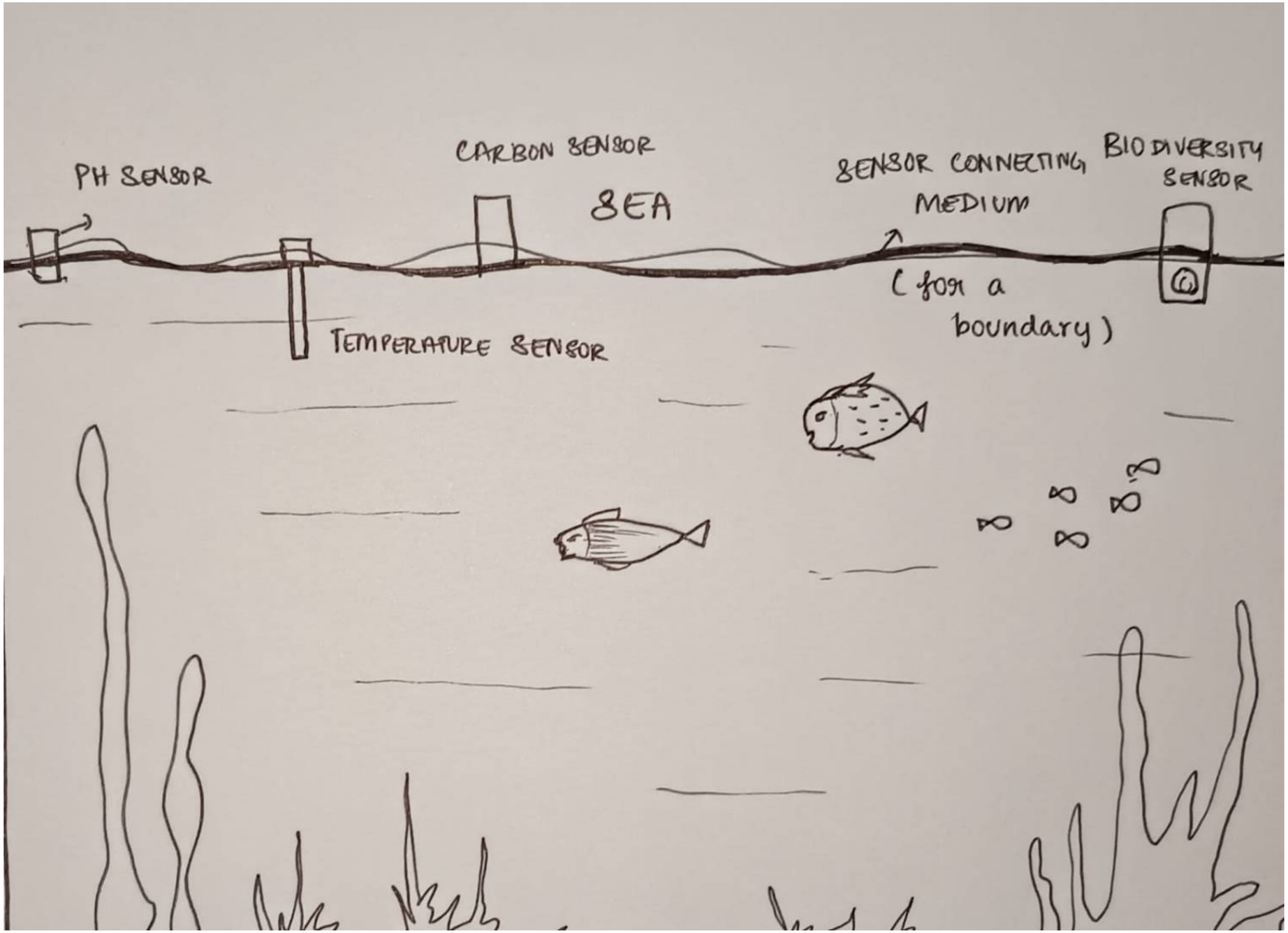
BASED ON ML PREDICTIONS AND REAL-TIME DATA

Features

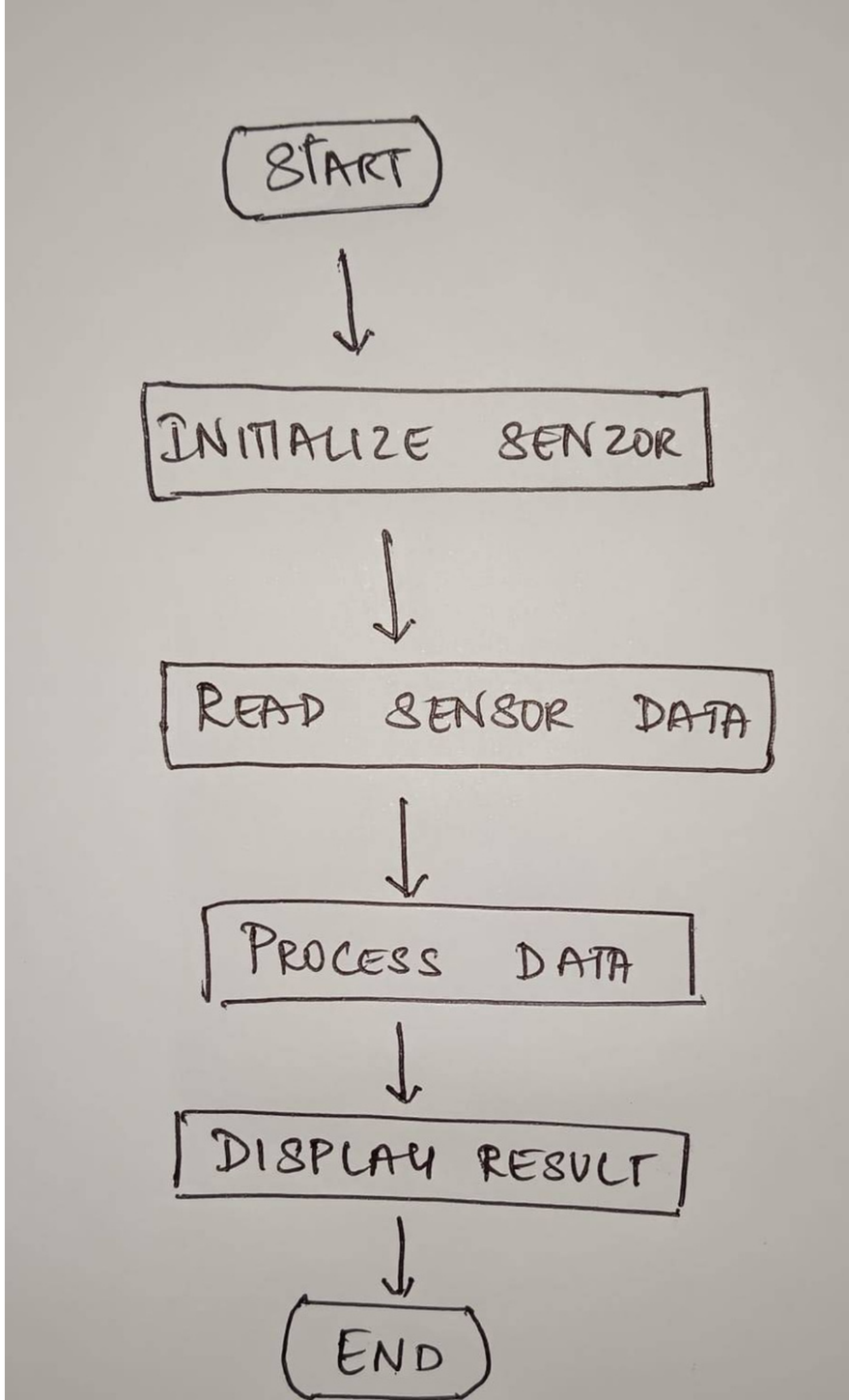
- Optimal Feeding: Adjust feeding schedules based on nutrient levels and fish behavior.
- Carbon Capture Strategies: Optimize seagrass growth.
- Use actuators (e.g., pumps, valves) for control.
- Alerts and Notifications



FLOW CHART

Explaination

- Start: The flowchart begins here.
- Initialize Sensor: Initialize the sensor (e.g., connect to it, set parameters).
- Read Sensor Data: Retrieve data from the sensor (e.g., temperature, humidity, light intensity).
- Process Data: Perform any necessary calculations or data manipulation (e.g., filtering, averaging).
- Display Result: Show the processed data (e.g., print to console, visualize on a graph).
- End: The flowchart concludes here.



BUSINESS & FINCIAL MODEL

PROBLEM

Local fisheries are facing a challenges, including declining fish stocks, increasing competition, rising costs, and uncertainty about the future of marine biodiversity. These challenges are threatening the livelihoods of local fishermen and the sustainability of marine ecosystems.

SOLUTION

smart Regenerative Aquaculture by using ML and IOT

KEY METRICS

List the key numbers that tell you how your business is doing.

- Number of local fishermen adopting regenerative ocean farming practices
- Increase in fish catches
- income streams for local fishermen
- Increase in marine biodiversity
- Reduction in carbon emissions

UNIQUE VALUE PROPOSITION

Local fishermen: Regenerative ocean farming can help local fishermen to increase their fish catches, reduce their costs, and diversify their income streams. ML and IoT solutions can provide fishermen with real-time data on fish movements, water quality, and environmental conditions, enabling them to make more informed decisions about their fishing operations

Governments and NGOs: Regenerative ocean farming can help governments and NGOs to restore marine ecosystems and promote sustainable fishing practices. ML and IoT solutions can provide them with data and tools to monitor the health of marine ecosystems

UNFAIR ADVANTAGE

- Using ML models and IOT to increase efficiency in collecting and analyzing data to increase efficiency.
- increased blood carbon sequestration that makes the user benefit in terms of the carbon mechanism.

CHANNELS

1. **Partnerships**
   - **Organizations working with local fishermen**
   - **Technology providers**
   - **Research institutions:** Partnering with research institutions
   - **Investment firms and impact investors:** Engaging with investment firms and impact investors can secure funding for the development
2. **Online Platforms**
   - **E-commerce platforms**
   - **Educational platforms**
   - **Data visualization and sharing platforms:** Developing or utilizing online platforms for data visualization and sharing can provide real-time data
   - **Social media and online communities:** Engaging in social media marketing and building online communities can connect with potential customers and stakeholders

CUSTOMER SEGMENTS

- Local Fisheries
- Governments and NGOs

EARLY ADOPTERS

- Local Fisheries

COST STRUCTURE

- Seaweed cultivation materials and equipment
- Shellfish restoration materials and equipment
- ML and IoT technology costs
- Training and education costs
- Monitoring and evaluation costs
- Marketing and outreach costs
- Administrative and overhead costs

REVENUE STREAMS

- Selling solutions to fishermen
- Data and Analytics Services (subscription)
- Carbon Sequestration Credits