



HARMONIZING TRADITION AND TECH: SUSTAINABLE FISH FARMING FOR SUSTAINABLE WATER RESOURCES IN LAKE BATUR



Prepared By:

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1. THE BIG IDEA

1. Project background and context

- Project location
Lake Batur, Batur Geopark, Bangli Regency, Bali, Indonesia.
- Main beneficiary
Fish Farmers that own the fish farming system in Lake Batur.
- Problem statement:
Lake Batur, with significant potential as a clean water source for nearby regions, is currently polluted. One of the factors is due to fishing industry activities, especially the impact of the overbuilding of the floating net cages that produce a lot of waste and nutrients pollution that influenced to increasing of the rate of eutrophication that leading to decreasing of water quality.

2. Project objectives

- Vision statement
Our vision is to utilize the innovative Integrated Multi-Trophic Recirculating Aquaculture (IMTRAS) system to enhance water quality and reduce the fishing industry's environmental impact. We also aspire to promote environmental awareness within communities to foster a sustainable fishing industry rooted in Lake Batur's heritage through transformative fish farming practices.
- Clearly defined and measurable goals
 1. Establish and operate the IMTRAS system in Lake Batur, converting 50% of traditional fish farms within 5 years.
 2. Improve water quality from high-polluted level to low-polluted level within 5 years.
 3. Increase environmental awareness among 80% of the local population through educational workshops and outreach programs within 6 weeks.

3. Project approach and methods

- Describe the approach and methods of your project to address the problem(s) and achieve the objectives (describe your solution!)
To solve the problems, we propose some solutions which are:

A. Build zero waste and a sustainable fish farming system.

According to data from Indonesia's National Research and Innovation Agency in 2023, Lake Batur has seen an excess of floating net cages, totaling around 12,200. These cages significantly impact water quality due to waste and nutrient pollution from traditional fish farming, leading to eutrophication and a decline in water quality. To address this issue, we propose implementing Integrated Multi-Trophic Recirculating Aquaculture (IMTRAS) as a sustainable solution. IMTRAS involves recycling waste from one species to support the growth of others, offering

a natural-based approach to improve fish farming in Lake Batur.

B. Improving the awareness of the local through local wisdom.

In Bali, where the Batur Geopark is located, the cultural philosophy of Tri Hita Karana holds significant importance. This philosophy, emphasizing harmonious relationships with others, nature, and divinity, is deeply ingrained in Balinese culture and believed to preserve cultural and environmental diversity. Leveraging this concept, we aim to raise awareness among local fish farmers about creating a sustainable fish farming system. Additionally, we will conduct workshops involving stakeholders to promote collaboration and awareness among the local community, particularly fish farmers, around Lake Batur.

- Describe how you are going to incorporate digital into your project. We plan to leverage social media, particularly Instagram, to promote our sustainable fish farming initiative at Lake Batur. Through posts, we will showcase IMTRAS technology, its benefits for sustainable fish farming, and our system maintenance practices. Our goal is to educate the public and raise awareness among tourists about UNESCO's sustainable water preservation technologies globally.

4. Project Impacts

- Clearly define and quantify the expected outcomes and impacts. Through the solution that we propose, we believe we will be creating more impact on sustainable fish farming system including some points:
 1. Converting 50% of traditional fish farming system with IMTRAS system within 5 years.
 2. Improve water quality from high-polluted level to low-polluted level within 5 years.
 3. Increasing awareness among at least 80% of the local through educational workshops and outreach programs within 6 weeks.
 4. Increasing 50% of fishing industry production in Lake Batur.

2. THE PILOT

1. The Pilot Project

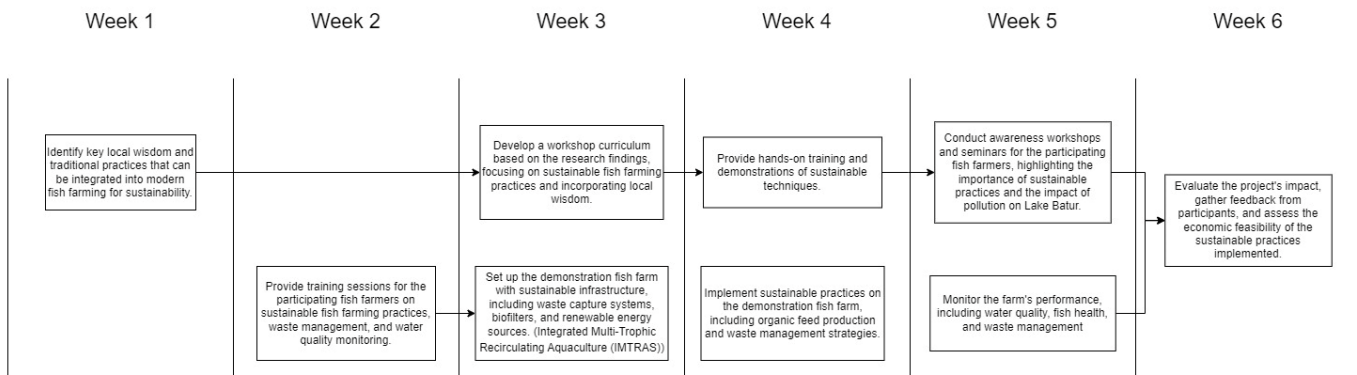
- Describe the concept of a small-scale implementation of your solution that can be done in 6 weeks. For a small-scale implementation that can be done in 6 weeks. Here's a concept for this stage:
 1. Week 1: Preparation and Targeting Participants
 2. Week 2-4: Implement sustainable practices on the demonstration fish farm and monitor performance.
 3. Week 5: Conduct awareness workshops and distribute educational materials.
 4. Week 6: Evaluate the project's impact and gather feedback from participants.

This small-scale implementation concept focuses on practical training and demonstration to quickly introduce sustainable practices and raise awareness among fish farmers. It can serve as a model for future, larger-scale initiatives to address water pollution in Lake Batur.

- Define the scope and the objectives of your pilot project. The pilot project aims to implement and test sustainable fish farming practices in a small-scale operation within the Lake Batur area, focusing on reducing waste and nutrient pollution from traditional methods. It will also integrate local wisdom to enhance environmental and economic sustainability. The project's scope includes establishing a zero-waste system and demonstrating sustainable practices for wider adoption. Additionally, the project will educate local fish farmers on sustainability and monitor its environmental impact. Engaging stakeholders will be crucial for the project's success and broader adoption of sustainable fish farming practices in the region.

2. Pilot Project Timeline

- Workflow and sequence of activity week by week for 6 weeks (March-April) to implement your pilot project.



3. Stakeholder Mapping

- Identify which stakeholder that you need to approach and engage to ensure the success of your pilot project
 1. Fish farmers community;
 2. Local community (Karang Taruna);
 3. Local government authorities (Village Head);
 4. Tourist organization;
 5. Environmental NGOs.

4. Budget Plan

- Cost for site visit and engagement
 - Research and planning = 100 USD; Workshop development = 100 USD; Workshop delivery = 100 USD
- Cost to build (including materials) and implement the pilot project
 1. Materials and construction (labor cost) for IMTRAS = 300 USD
 2. Purchase of equipment and technology = 100 USD
 3. Training for fish farmers = 200 USD