Crustea

ADVANCING THE FUTURE OF SUSTAINABLE AQUACULTURE

Est September 2022

Crustea

Aquaculture Technology for Sustainable Cultivation

Creating solutions for pond farmers in Indonesia by developing various technologies to increase productivity and efficiency in ponds.

Values of **Crustea**

Creative and Innovative

Respect

Humility

Skillful

Teamwork

Ethics and Integrity

Adaptive

90% farmers in aquaculture

that limit their productivity

70% dead shrimp & fish

uncontrolled dissolved oxygen levels

High fuel cost

Approx Rp 100 mio per month

* based on survey conducted in 2021-2022

Aquaculture is one of Indonesia's economy backbones

70% Commodity Global Trade

2020

- **3rd largest** frozen shrimp exporter
- **881.3K** shrimp production
- 5.2M tons of farmed fish production

2025

- **2M tons** shrimp production
- **8.5%/y** CAGR
- 10%/y CAGR for freshwater fish
- 24.58M tons Fishery production target

GAP to obtain Indonesia Govt's target

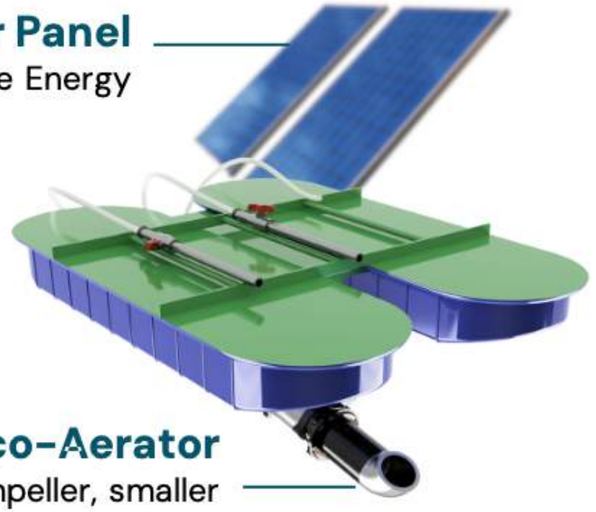
*source: katadata; KBR.id; PPID KKP; Data GoodStats; https://bahteraadijaya.com/id/blogs/strategi-pengembangan-industri-akuakultur-nasional?utm

Crustea Presents Eco-Aerator

Market potential can be specified on several available technologies

EBII system
with 4 parameters:
pH, DO, salinity, &
temperature

Solar Panel
Renewable Energy



Eco-Aerator
with impeller, smaller
bubble, higher oxygen levels

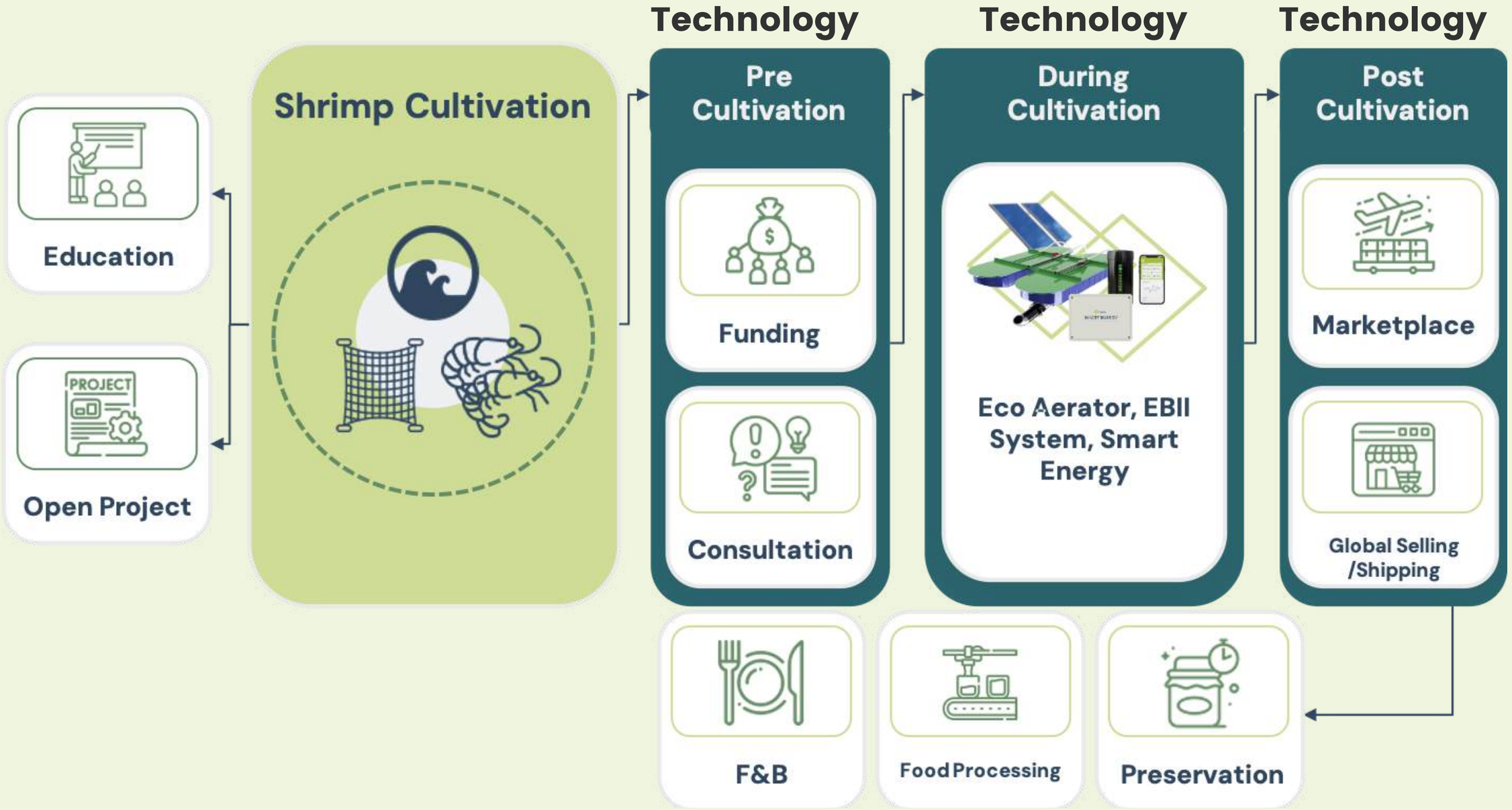
Smart Energy
Monitor & control energy
used on both each or
overall aerator easily
by phone

200%
bigger & higher
quality shrimp

« advantage »

60-80%
operational cost
savings

Business Ecosystem



Business Model

- ❑ Pond Farmers
- ❑ Public/Private Sectors

Products (Technology)

Direct Selling

Leasing

PaaS/ SaaS

Services & Other Revenue:

- Shrimp trading & Processing Products
- Projects
- Consulting & Technical Assistance
- Technology Maintenance & Repair

200 ppm

Production capacity Per month

$40M

Revenue projected in 2030

Up to 35%

Gross Margin

Our impact

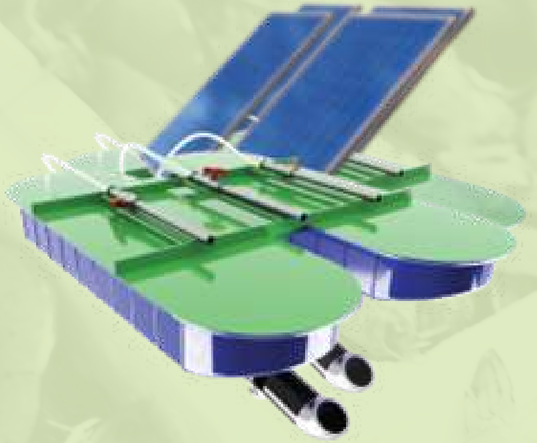
200% Bigger & Higher Quality Shrimp

80% Operational Cost Saving

23k tCO_2e GHG reduction

60% Women Management

Our Products



Eco-Aerator

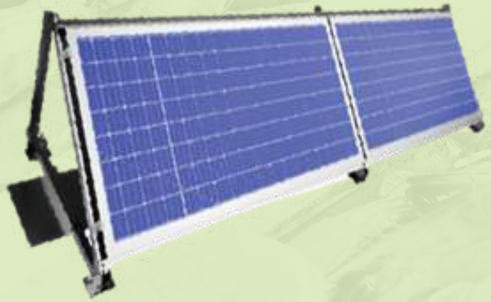
Aerator without the need of PLN electricity

EBII System

Pond monitoring & Controlling system

Smart Energy

Pond energy utilisation monitoring & controlling



Solar Panels

Reducing dependency on conventional power sources and reducing operational costs.

Our Products

Nanobubble

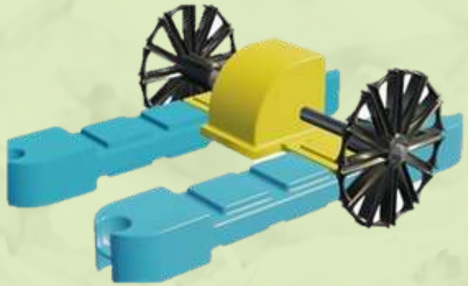
DO at machine z reaches 20 ppm oxygen gas bubbles in water measuring 80 - 200 nanometers.

Turbo Jet Aerator

Efficient aerator ensuring optimal oxygen and water circulation for peak pond productivity

Paddle Wheel

Reliable and energy-efficient paddle aerator to increase dissolved oxygen levels and promote uniform water mixing.



Aerator Brush

Uses less energy and promotes gentle water circulation, preserving pond health and protecting the bottom

Aerator Blower

Ensuring consistent oxygen supply and increasing DO by 30 - 40%

Aerator Mini

Compact and portable aerator perfect for small-scale aquaculture setups, providing efficient oxygenation in limited spaces.

Our Services

Farming Projects with Profit-Sharing Schemes and Pond Development

Crustea conducts farming partnerships with profit-sharing, providing services from pond construction to technology support and market access, in exchange for a share of the harvest, ensuring an efficient and sustainable system.

Consultation Services and Operational Support for Shrimp and Fish Farms

Crustea offers expert guidance in shrimp and fisk farming, from planning to implementation, ensuring optimal harvests and sustainability. It also enhances farm performance with on-site and remote tech support, emphasizing water quality, energy efficiency, and disease prevention.

Energy Management and Optimization

A real-time system for monitoring, managing, and optimizing energy use with efficient devices, automation, and renewable energy. This service reduces electricity costs, enhances energy efficiency, and promotes sustainability while maintaining productivity.

Sustainability and Empowerment project

Crustea ensures efficient aquaculture trade with the best quality and value. The company also creates value-added processed shrimp and fish products through women's empowerment, promoting economic inclusion and sustainability by reducing waste.

Access to Funding Partner

Tailored financial solutions to empower aquaculture projects, ensuring access to resources for scaling and optimizing operations

Access to Markets

Crustea sells high-quality processed shrimp, fish, and waste-based products in the local market and exports them globally, supporting sustainable aquaculture and market expansion

POTENTIAL PROGRAM

- Eco-Aerator Implementation
- Capacity Building in Aquaculture
- Women Empowerment
- Millenial Shrimp Farming
- Technology Based Tilapia Biofloc

Eco-Aerator Implementation

Eco-Aerator Implementation

Eco Friendly & Smart Aerator for Aquaculture

Crustea's sustainable technology solutions (Eco Aerator, EBII, and Smart Energy systems) **enable precise oxygen control in shrimp ponds, boosting productivity and reducing electricity costs by up to 80%.**
Let's achieve more sustainable aquaculture cultivation and increase farmer production through funding support for technology implementation as part of your CSR.

Potential Impact

- 150% bigger shrimp
- 30-50% Saving in electrical fee
- 100 tCO2e GHG Reduction

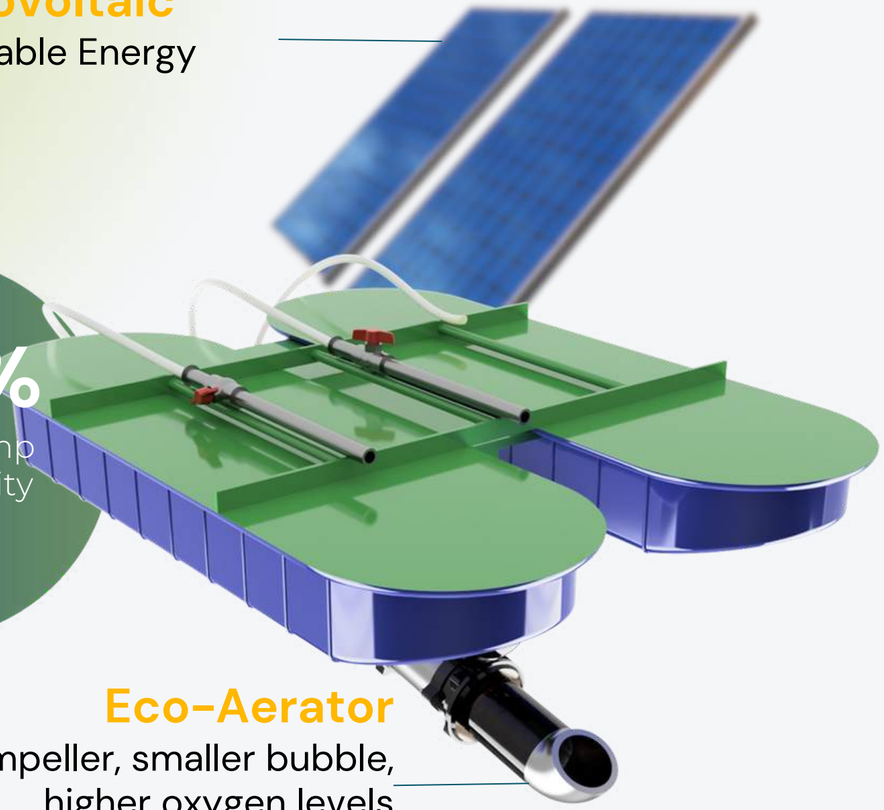
Eco-Aerator Implementation

Eco Friendly & Smart Aerator for Aquaculture

Technology Overview

Photovoltaic

Renewable Energy



200%

Bigger shrimp
Higher quality shrimp

Eco-Aerator

with impeller, smaller bubble, higher oxygen levels

EBII system

with 4 parameters:
pH, DO, salinity, & temperature

23.044 tCO2e

GHG Reduction

Smart Energy

Monitor & control energy used on both each or overall aerator easily by phone

Auto-control the aerator on/off according to EBII System measurement

Capacity Building in Aquaculture

Capacity Building in Aquaculture

Aquaculture Workshop for Shrimp Farmers

Capacity Building

Capacity building in aquaculture is essential for sustainable growth and development in the industry. By enhancing the skills, knowledge, and resources of individuals and organizations involved in aquaculture, we can improve production efficiency, promote innovation, and ensure environmental sustainability. Through targeted training, education, and technology transfer, we empower stakeholders to meet current challenges and seize future opportunities in aquaculture.

Detail

- 1 location 1 module
- 2 Days Training (1st is day in class training and 2nd day is practical knowledge)
- 50-75 target participants in each region (Kelompok Petani Tambak tradisional, semi intensif, dan/atau intensif)

KPI

- **80% of participants** increase in knowledge and preparedness to implement sustainable and renewable energy practices in aquaculture
- **50% of participants** initiate changes or improvements in their aquaculture practices

Capacity Building in Aquaculture

Aquaculture Workshop for Shrimp Farmers

Training Module:

Module 1

"Challenges and Strategies in Dealing with Diseases in Shrimp Farming"

Overview

Diseases are a limiting factor in the success of aquaculture. This is not surprising, as pathogens that cause diseases are inherently present around the shrimp being farmed. Therefore, this module will discuss efforts for the prevention and management of diseases in shrimp farming in ponds.

Potential Speaker

Supito Sumarto, S.Pi., M.Si.
Kepala Balai Besar Pengembangan Budidaya Air Payau (BBPBAP) Jepara, Jawa Tengah

Module 2

"Water Quality Management in Shrimp Farming: The Importance of Probiotics, IoT, and Waste Management in Shrimp Ponds"

Overview

The utilization of innovative and modern technologies aims to enhance the production and profitability of aquaculture. Additionally, these technologies contribute to sustainable aquaculture production in the future. This module will explain how digitization facilitates the management of water quality in shrimp farming.

Potential Speaker

Muh. Azril S.St.Pi., M.Sc
Lecturer of Universitas Tidar
Master of Aquaculture and Marine Resource Management
Wageningen University, The Netherlands

Capacity Building in Aquaculture

Aquaculture Workshop for Shrimp Farmers

Training Module:

Module 3

‘Biosecurity in Shrimp Farming

Overview

The implementation of strict biosecurity measures in shrimp farming is crucial to protect ponds from harmful pathogens that can threaten the health and productivity of shrimp. This module will discuss everything from land preparation to production standards such as CBIB (Good Aquaculture Practices) and international standards, including Global Good Aquaculture Practices (Global GAP) and Aquaculture Stewardship Council (ASC).

Potential Speaker

Haris Muhtadi
Ketua *Shrimp Club Indonesia (SCI)*

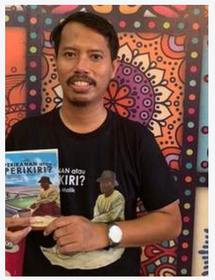
Module 4

“"Mangrove Ecosystem Restoration"

Overview

Various efforts in mangrove ecosystem restoration go beyond planting; they also involve providing suitable habitats for mangroves to grow naturally and effectively. Monitoring and evaluation of planting efforts are also essential. This module will explain the strategies for optimizing and enhancing mangrove restoration efforts, ensuring that they are not just ceremonial planting activities.

Potential Speaker



Idham Malik
Aktivis Lingkungan Mangrove
Yayasan WWF Indonesia

Women Empowerment

Women Empowerment

Advance Potential Role for Women in Aquaculture

Women in Aquaculture

Empowering women in aquaculture is crucial for sustainable development. By providing equal access to resources, training, and opportunities, we can unlock the full potential of women in this vital sector. When women thrive in aquaculture, communities prosper, economies grow, and the environment benefits. Let's work together to ensure women have the support they need to succeed and lead in aquaculture.

Detail

- 1 day training
- Kelompok pengolah dan pemasar (poklahsar)
- 50 - 75 participants (women) in every location

KPI

- **80% of participants** increase in knowledge about possible participation in aquaculture
- **Produces 2 products** that ready to market from shrimp cultivation

Women Empowerment

Advance Potential Role for Women in Aquaculture

Training Module:

Module 1

"Online Marketing Training for Shrimp Processing Business Groups"

Overview

In this training, participants will be taught the fundamentals of Digital Marketing to help make their products more visible to potential buyers, as well as how to leverage e-commerce platforms to facilitate product marketing.

Potential Speaker

Dian Martha Nurrul Amanah
CMO at Crustea Indonesia
Master of Business Administration at UGM

Module 2

"Training on Utilizing Shrimp Pond Harvests to Increase Added Value

Overview

This training will focus on utilizing shrimp harvests to create high-quality shrimp crackers. Additionally, participants will learn how to properly package the products, making them more attractive and extending their shelf life.

Potential Speaker

Roikhanatun Nafi'ah
CEO at Crustea Indonesia
Mater of Industrial Engineering at ITS

Himawan Akhmadin Saputra
CEO at INOMITA

Millenial Shrimp Farming

Millenial Shrimp Farming

Central Java

Millenial Shrimp Farming

Millennial Shrimp Farming (MSF) is an innovative aquaculture initiative launched by Indonesia's Ministry of Marine Affairs and Fisheries (MMAF) to boost national shrimp production and engage the younger generation in sustainable shrimp farming practices. This program focuses on cultivating vannamei shrimp (Litopenaeus vannamei) using advanced technologies and modern methodologies.

Program Prospects

- Millennial Shrimppreneur Program, Training and mentorship for young generations to become entrepreneurs in the vannamei shrimp farming sector, covering technical aspects, business management, access to financing, and digital-based marketing.
- Collaboration with universities, research institutions, and technology startups to develop eco-friendly innovations in shrimp farming
- Digital Supply Chain & Export Readiness, A digital platform to streamline the shrimp supply chain and provide export training, helping young farmers navigate regulations and global market opportunities.

Technology Based Tilapia Biofloc

Technology Based Tilapia Biofloc

Tilapia Farming Using Biofloc Method

Tilapia biofloc

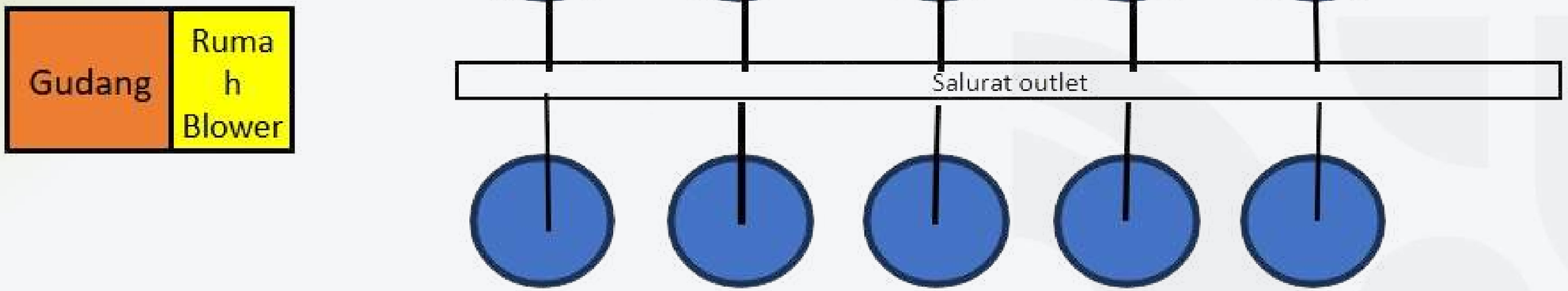
Tilapia biofloc is a tilapia cultivation system that utilizes clumps of microorganisms that decompose fish waste into fish feed. This system can make tilapia grow faster and harvest faster.

Program Prospects

- Becoming a global research and development center in sustainable aquaculture that implements advanced technology.
- Integrating IoT solutions and developing a network of Smart Aquaculture Parks in various residential areas in major cities.
- Engaging the public in learning about fish farming, sustainability, and opening new business opportunities.

Technology Based Tilapia Biofloc

Tilapia Farming Using Biofloc Method



- The number of cultivation ponds is 10 units with a diameter size of 3m.
- The distance between the ponds is 2m.
- The distance from the ponds to the drainage/outlet is 2m.
- The width of the outlet channel is approximately 40-50cm.
- The central drain pipe is located at the center of the pond.
- The central drain pipe uses AW pipe type, size 2.5 inches.

Our Partners

- **Early adopters**

- **Indonesia private sectors, governments, academics, and community**

ASTRA international · PERTAMINA · agree · SHRIMP CLUB INDONESIA · ITS Institut Teknologi Sepuluh Nopember · PLN · PJCI · Kementerian Perindustrian Republik Indonesia · KEMENKOPUKM · mandiri

- **International Stakeholders**

1. **Ocean Proposal Project - Singapore**

2. **Cawil.ai - Philippines**

CAWIL.ai

Awards

National and international (2022 - 2024)

2nd winner APEC, USA

Gold Medal
ASEAN Digital Awards

Winner
Startup World Cup

Entrepreneur Award

Archipelagic & Island States
Forum

Winner of Astranauts

Our Team

Roikhanatun Nafi'ah
Founder & CEO

+5yr in Mgmt & Innovation

Prisma Riashuda
Co-founder & Head of Tech

+2yr in Tech & Aquaculture

Dian Martha N. A
CMO

+5 yr in asset management credit verification
+1 yr as digital business lecturer

Ardiansyah
Head of Operational Excellence

+9 year in Engineering, Project Management, and Government Policies

Ade Novia Putri
Head of Digital Marketing

+5 yr in Marine Conservation
+5 yr Business Development & Digital Marketing

Reza Siskana Lia
Finance & Business Analyst

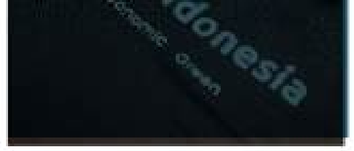
+3 yr in Action Plan & Human Resources

Additional: 10 Part-Time Employees

Advisor

Andi K
Farm's Owner
+15yr Aquaculture Practitioners

Lucky Esa
Start-up coach



Thank You

https://crustea.id

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