

AVA — Scalable Inland Closed -Loop Marine Aquaculture

Transforming seafood production by bringing coastal -quality, traceable, antibiotic -free shrimp and marine fish inland using an optimized Recirculating Aquaculture System (RAS). This presentation explains the technical, environmental, and commercial case for AVA's inland RAS — the engineering choices, biology controls, operational model, and investor -ready economics for industrial implementation.



Why Inland Closed -Loop Marine Aquaculture?



Risk Mitigation

Closed-loop inland RAS eliminates dependency on coastal geography and weather (storms, flooding) and lowers risk of mass die-offs caused by extreme events.



Market Proximity & Price

Producing saltwater species near urban centers reduces logistics, fetches premium fresh-product prices, and lowers transport mortality versus distant coastal supply chains.



Environmental Protection

Zero-discharge RAS prevents nutrient and chemical pollution of coastal ecosystems and conserves wild fisheries by providing alternative supply.



Land -Use Efficiency

Higher stocking densities and controlled environments increase yield per m², unlocking valuable land near demand centers and industrial parks.

AVA RAS: Water, Biology & System Differentiators

Proprietary Water Activation

Dry mineral formulation recreates seawater ionic balance (Ca, Mg, K, Na) plus trace elements — enabling marine species to thrive in freshwater regions. Reusable year-to-year rather than single-cycle replacement.

Extensive Water Reuse

Systems engineered to reuse 90–99% of water, dramatically reducing freshwater intake, effluent discharge, and wastewater treatment costs — a direct OPEX and compliance advantage.

Optimized Tank Geometry & Solids Handling

Conical/sloped bottoms, circular flow to central collection, coarse filters, settling ponds and vegetated raceways for biological filtration — converting waste into usable biomass or fertilizer.

User-centric Engineering

Streamlined equipment and controls to enable operators with limited technical training, combined with modular architecture for contained biosecurity and staged isolation.

Operational Flow: Waste Management & Tank Design

Engineering principles that minimize biomass accumulation and simplify treatment:

01

Tank Geometry

Conical/sloped bottoms with circular flow pattern focus solids to a central drain. This geometry reduces dead zones and eases mechanical removal.

03

Secondary Treatment & Resource Recovery

Settling ponds and net-covered raceways planted with vegetation provide biological filtration and nutrient uptake; solids converted into feedstock for integrated fish ponds or fertiliser for crops.

02

Primary Solids Removal

Central collection → coarse settling → drum or radial filters remove suspended particles before biological treatment, protecting biofilters and reducing DOC load.

04

Recirculation Loop

Filtered water passes to biofilters, UV/ozone disinfection as needed, then returns to ponds. Flow balances oxygenation, NH_3/NH_4 control and stable microbiome maintenance.

Biology & Biosecurity: From Mineral Chemistry to Microbial Management



Water Chemistry Control

Precise dosing of macro - and micro -nutrients (Mg:Ca ratio, potassium, alkalinity buffers) ensures proper molting, shell hardness and long -term animal health — critical when converting freshwater to seawater -like conditions.



Strict Input Biosecurity

Traceable, PCR-screened post -larvae (free of WSSV, EMS/AHPND, EHP, TSV, IMNV). Incoming water, equipment and feed pass UV/ozone/chlorination protocols to prevent pathogen introduction.



Microbial Ecology Over Antibiotics

Bacterial management (Bacillus, Lactobacillus, nitrifiers) creates a biological shield: dominance of beneficial microbes reduces Vibrio risk and supports an antibiotic -free certification pathway.



Early Detection & On -site Lab

Routine water and organism testing, onsite lab capabilities for rapid PCR and water chemistry analysis enable timely interventions and minimize spread in high -density systems.

Production Performance & Economics

90–99%

Water Reuse

Percentage of water reused per production cycle — foundational for lower operating cost and regulatory compliance in water -scarce regions.

>80%

Survival Rate

Typical survival through the growth cycle after process stabilization — a key driver of yield reliability and revenue predictability.

1.2T/pond

Yield per 350 m³ Pond

Average harvest per 350 m³ pond after 3 months under AVA protocols (approx. 1,200 kg/pound).

Example: Six 350 m³ ponds at 1.2 t each → ~7.2 t per cycle. Controlled cycles, year product materially improve project IRR versus commodity frozen supply chains.

120,000 VND/kg

Production Cost

All-in production cost estimate per kg (includes feed, PLs, labor, energy, additives): baseline for financial modeling and margin analysis.

-round production and premium pricing for traceable, fresh

Market Opportunity & Go -to -Market



Demand Centers

2025 global shrimp market estimate USD 74.7–82.5B. High-value markets (China, USA, EU, Japan) favor fresh, traceable, antibiotic -free product — a competitive niche for AVA.



Fresh vs Frozen Advantage

Delivering fresh live/fresh chilled shrimp to urban markets and restaurants commands a premium and reduces quality loss from extended cold chain transport typical of global frozen supply.



Local Success Cases

Hanoi organic shrimp pilot and U.S. pilot in California demonstrated unmet local demand and willingness to pay for clean, fully traceable product.

Scale-Up Model & Capital Outline

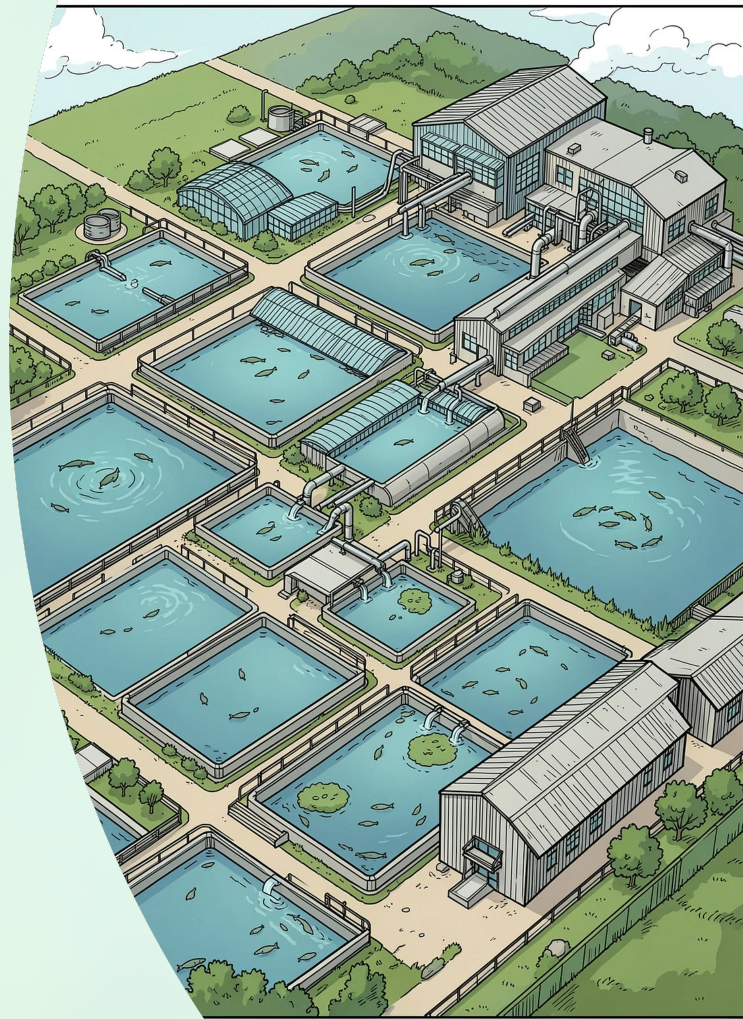
Minimum Industrial -Scale Scope

Greenhouse structure; 10 above-ground ponds of 5,000 m³ each; 2 treatment ponds of 4,000 m³; marine water conditioning products; full set of aquaculture equipment; first -cycle seed stock and feed.

Estimated CapEx

Project setup estimate ~USD 2,000,000 (site prep, ponds, treatment infrastructure, conditioning materials, initial working capital). Detailed cost model available for investor diligence.

- Modular expansion lowers marginal CAPEX for subsequent phases.
- Energy optimization and local cheap energy (e.g., Russia) can reduce OPEX materially.
- Investor needs: regulatory support, distribution channels, and stable financing.





Risk Matrix & Mitigation

1

Pathogen Introduction

Mitigation:
PCR-screened PLs,
UV/ozone/chlorination,
strict quarantine and
supplier traceability.

2

Biofilter & Water Chemistry Failures

Mitigation: Redundant
biofilters, automated
monitoring, and
predefined corrective
dosing schedules for
alkalinity, minerals and
probiotics.

3

Rapid Disease Spread in High Density

Mitigation: Multiple
isolated modules, rapid
cull protocols, onsite lab
for early detection, and
modular shutdown
capabilities to prevent
farm-wide
contamination.

4

Energy & Operational Costs

Mitigation: Energy optimization design, heat recovery, local energy sourcing (advantageous in regions like Russia) and continuous process improvement to reduce kWh/kg.

Next Steps for Investors & Strategic Partners

1

Due Diligence

Review AVA technical dossier: mineral formulation data, survival/yield records, pilot results (Vietnam, California), water chemistry logs and PCR test reports.

2

Pilot to Production Roadmap

Phase 1: Demonstration facility (one greenhouse cluster). Phase 2: Scale to industrial scope (10 × 5,000 m³ ponds). Deliverables: site engineering, permits, supply chain setup, and market contracts.

3

Partnership Needs

Capital partners with regulatory experience and distribution networks; local operator partnerships for logistics; technical partners for energy and automation optimization.

4

Investor Offer

We invite interested investors to review a confidential information memorandum and join AVA in accelerating inland sustainable seafood production. Contact: AVA Investment JSC — Nguyen Hong Anh (Chairman).

❑ Core thesis: AVA converts geographic limits into opportunity — controlled water chemistry, robust biosecurity, and modular engineering enable profitable, environmentally responsible production of marine shrimp and fish far from the sea.





