

Business Proposal for a Year-Round Smart RAS Whiteleg Shrimp Farm

— **Korea's First, Built on Proven Technology**

Whiteleg Shrimp **Year-Round Production** **AI Smart RAS Farm**

Beyond the Limits of Climate, Disease, and Season,
Transforming Aquaculture into a **High-Value**
Manufacturing Industry



Proven Technology



**Stable Year-Round
Production**



**Eco-Friendly
Antibiotic-Free**



**AI Automated
Control**



SMART RAS AQUACULTURE TECHNOLOGY - INNOVATION & SUSTAINABILITY.

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PROBLEM

Structural Limitations and Risks of Conventional Whiteleg Shrimp Farming

Traditional farming methods are vulnerable to external environmental variables, making stable industrialization impossible.



Disease Spread Risk

Risk of Mass Mortality

When viruses such as EMS (Early Mortality Syndrome) are introduced, containment is impossible, posing a constant risk of total annual crop loss.



Seasonal & Climate Dependency

No Year-Round Production

Highly sensitive to changes in air and water temperature, production is only possible for 4–5 months a year, with mandatory shutdown in winter.



Antibiotic Use

Declining Consumer Trust

The unavoidable use of drugs and antibiotics for disease prevention is increasing consumer anxiety about food safety.



Water Quality Management Limits

Increasing Productivity Variation

Outdoor/pond-based farming makes precise water quality control difficult, leading to reduced growth rates and inconsistent quality.

“ The aquaculture industry no longer needs uncertain management ”
— complete control is the answer.



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OPPORTUNITY

From Uncertain Farming to a Controllable Industry

RAS is not simply 'better-equipped farming' — it is the technology that transforms aquaculture from fishing into manufacturing.



Investable, Financeable & Insurable Model Risk Premium Elimination

Minimizing investment risk through disease control
Attractive investment target in smart farm & agri-tech sectors
Easy access to policy funds and ESG investment



Year-Round Stable Supply A Contractable Industry

Year-round production enables a 'contractable industry' model
Replacing imported frozen shrimp with freshness advantage
Entering premium dining markets such as hotels & franchises



System-Based Safety Trustworthy Protein

Safety guaranteed by systems, not people (antibiotic-free)
Premium markets including school meals, hospitals & eco markets
Strong competitiveness in strict quarantine & customs for export



Standardized & Validated Brand Product Standardization Possible

Enables proprietary branding through production uniformity
Standardized products with consistent size, texture & freshness
Consistent quality enables easy franchise supply

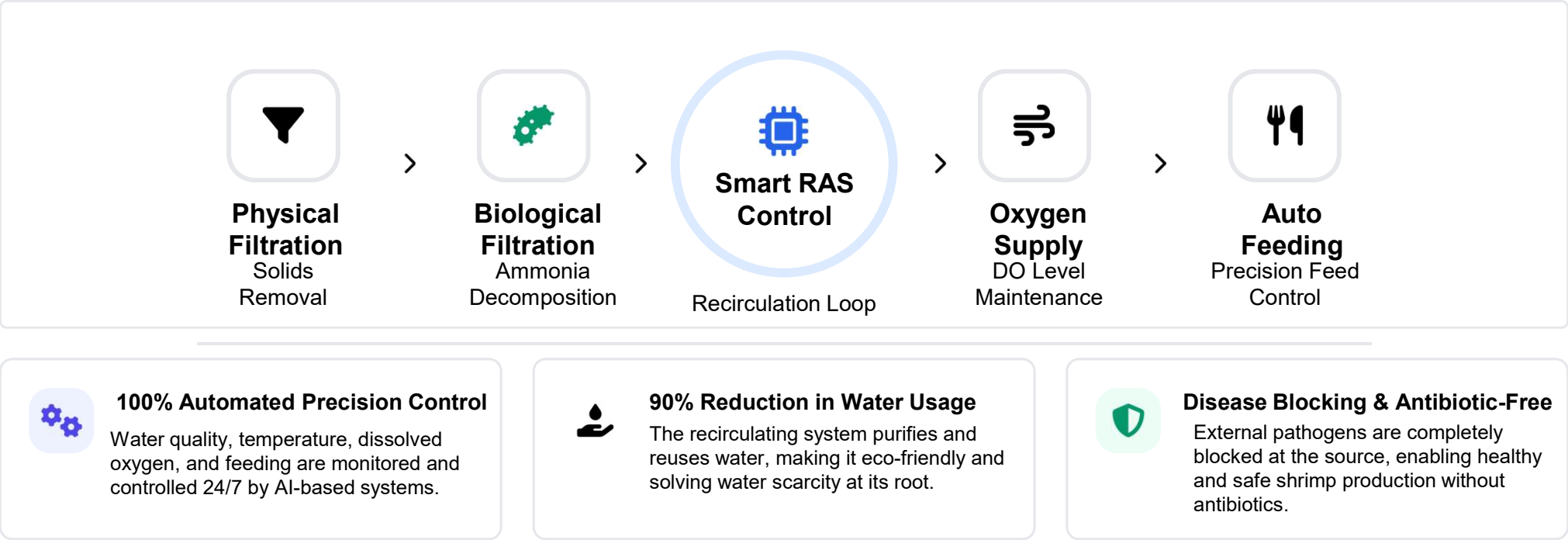


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SOLUTION

Smart RAS Aquaculture System

A state-of-the-art land-based Recirculating Aquaculture System (RAS) completely isolated from the external environment. We transform weather-dependent primary industries into advanced manufacturing processes controlled by data.



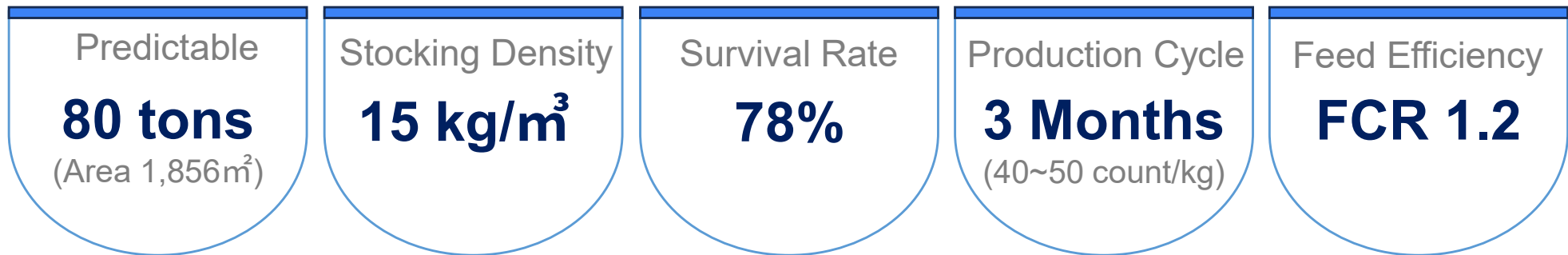
Not just aquaculture — an 'advanced production process operating 365 days a year' is what we deliver.

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TECHNOLOGY

Already Proven Technology and Data

Not a lab experiment or concept stage — technology and data acquired through over 1 year of all-season operational validation at a real aquaculture facility.



Water Quality Control Stability

- Growth Environment Data

12 Consecutive Months 'Safe'

Consistent water quality maintained across all four seasons

Mass Production Protocol

- Standard Manual Established

100% Complete

Full process standardized from stocking to harvest

Economic Analysis Complete

- Profit Margin vs. Korean Market Price

30% Achieved

Profitability verified based on actual operational data

"This is not an investment in uncertain technology — it is the 'expansion' of a system that is already working."



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An indoor RAS whiteleg shrimp farm currently shipping year-round, with a fully automated system and remote monitoring in place, producing 90 tons annually with just 1 resident staff member.



Auto Shrimp Molt Collector



Adult Rearing Tank



Collected Molt



Juvenile Rearing Tank



Adult Rearing Tank



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INNOVATION

Enabling 'Visible Aquaculture' with Clear-Water RAS Technology

Key Differentiators from Conventional Methods



Stable, High-Quality Production

Clear-Water RAS dramatically reduces disease, odor, and variables, producing stable, uniform-quality shrimp consistently.



Foundation for AI Vision Technology

By securing underwater visibility, it serves as the only base system capable of applying AI vision fusion technology directly to real-world aquaculture environments.

CORE SPECS

Core Requirements for Clear-Water RAS



Strict Solids Removal

Waste removed from tank within 1 hour



Biological Water Quality Stabilization

Turbidity maintained below 1 NTU



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INNOVATION

Core Technology Overcoming the Limits of Conventional Aquaculture

Our 5 core proprietary technologies fundamentally control organic matter, ammonia, and pathogens, delivering an integrated water quality control solution for a highly transparent, highly stable Clear-Water RAS environment.



Molt Collection Device

01

Shell Collector

Uses water flow inside the tank to gather molts into a specific zone and automatically collects and discharges them.

- Reduces organic load ↓, prevents turbidity increase



Uniform Feed Dispersion Technology

02

Auto Feeding

Evenly disperses feed across the entire tank surface to ensure all individuals consume equal portions.

- Reduces feeding competition, maximizes FCR efficiency



Ammonia removal technology

03

Bio Technology

Development of ammonia removal technology optimized for shrimp. Rapidly neutralizes ammonia and nitrite using only a compact bio-tank.

- Biological stabilization, reduced chemical treatment costs ↓



Incoming Water Sterilization System

04

Sterilization System

Applies a combination of semi-permanent micro-filters (0.03μm), UV, and electrolysis technology to powerfully sterilize incoming water.

- Blocks pathogens (WSSV), ensures clean environment



Waste-Solidifying Feed Technology

05

Solid Waste Control

Special binding agents are mixed in to transform shrimp waste into firm, round solid pellet form.

- Filtration efficiency 90% ↑, dramatic turbidity improvement



Eco-Friendly Wastewater Treatment

06

Eco-friendly Treatment

Generated wastewater is treated by separating and discharging sludge, minimizing environmental pollution.

- Blocks marine pollution, enables eco-friendly aquaculture



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INNOVATION

Clear-Water RAS Precision Aquaculture Platform Enabling AI Vision Analysis

Clear-Water RAS secures underwater visibility to enable AI vision analysis, and serves as the core infrastructure for precision aquaculture, realizing real-time growth, feeding optimization, and early disease detection.

Real-Time Shrimp Size Measurement AI

Computer Vision Technology

Using high-resolution cameras and computer vision (CV) technology, the system extracts shrimp contours while they swim, precisely estimating length and weight.

EFFECT Precision feed management, growth rate (ADG) analysis

Shrimp Surface Image Analysis for Disease Surveillance

Anomaly Detection AI

An AI trained on surface patterns of healthy and infected individuals detects early visual changes such as white spots, necrosis, and abnormal swimming behavior.

EFFECT Early disease detection, activity monitoring

Expected Benefits

01

Productivity Maximization

Through precision feeding and optimal environment maintenance: improved FCR, reduced labor costs

02

Economic Viability

Enhanced growth rate and increased survival rate
Reduced mortality risk from disease

03

Sustainability

Minimizing water use and reducing pollution discharge for eco-friendly aquaculture



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INNOVATION

Dramatically Reducing Heating Costs with Patented Energy Recovery System

We drastically reduce heating costs, which account for the largest portion of aquaculture farm operating expenses, through an energy recovery system specialized for aquaculture farms (technology patent and certification as a new marine technology by the Korean government).

ERT System

Energy Recovery Turbo System

This innovative technology recycles waste thermal energy to heat water tanks, completely resolving the inefficiencies associated with conventional heating methods..



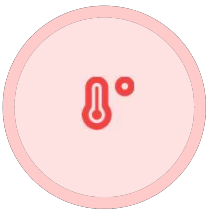
Certification

Holds technology patents



Authorized

New Technology Certification from the Ministry of Oceans and Fisheries



**Discharged
thermal
energy**



Heat exchange
recovery



**Heating the
rearing water
in the tank**



**Reduction of heating power
consumption**

Reduction of over **50%**

Drastically reduces energy consumption compared to conventional electric heating systems, minimizing the burden of winter electricity costs.



Energy recycling

100% Recycling

An eco-friendly technology that utilizes waste heat recovery to directly maintain the water temperature of the tank.



**Cost Structure
Innovation**

OPEX Optimization

Enhancing profitability by structurally improving energy costs, which account for the largest share of fish farm operating expenses.



BUSINESS

The Revenue Revolution **Created by Year-Round Production**



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PRODUCT

Not Just 'Shrimp' — Premium Culinary Ingredients

A High-Value FoodTech Brand Beyond Ordinary Seafood



Zero Antibiotics

Antibiotics & growth promoters
Zero Certified



100% Traceability

Full traceability from
seedling to harvest



Order-Based Fresh Delivery

Not frozen —
same-day fresh harvest delivery



High-End Restaurants & Hotels

Demand for top-tier ingredients



Premium Food Halls / Department Stores

High-value branded products



Eco-Friendly Meal Services (Schools/Corporate)

Supply of safe food



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ESG & POLICY

An Industry Where Capital and Policy Converge

Policy, finance, and market trends all point in the same direction.



Eco-Friendly Fisheries Policy Beneficiary

- ✓ Concentrated government subsidies and policy funds for smart aquaculture cluster development projects
- ✓ Eligibility for regulatory-free zone benefits



Water & Energy Efficiency Maximized

- ✓ Over 90% reduction in water usage through RAS system implementation
- ✓ Minimized carbon emissions via energy recovery system



Fully Meets ESG Investment Standards

- E** Zero marine pollution eco-friendly production
- S** Supply of safe food
- G** Transparent data-driven management

“ ESG · Smart Farm · Food Security. We grow with an unstoppable tide of our time.

ESG: Environmental, Social, Governance



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SCALABILITY

A Replicable Standard Farm Model

Beyond a single success — we build an infinitely scalable system. Standardized systems expand beyond a single farm into a global platform

01

BUSINESS MODEL FIT

Standardization

Standard

Establishing a replicable standard farm model.
Minimizing construction time and cost through modular RAS design

02

GEO-REPLICATION

Expansion

Expansion

Expanding footholds by region and country.
Rapid localization through standardized equipment and manuals

03

VALUE CHAIN

Integration

Integration

Completing vertical integration from farming (production) to processing and distribution.
Maximizing value-added and margin

04

TECH SOLUTION

Platform

Platform

Remote monitoring and operations solutions connecting farms worldwide.
Data-driven subscription model

→ Evolution from hardware (facility) expansion to software (operations solution) business



SMART RAS AQUACULTURE TECHNOLOGY - INNOVATION & SUSTAINABILITY.



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FINANCE LOGIC

Not Volatility — Predictable Cash Flow

The core is 'stability' and 'recurring revenue'.

This business realizes stable recurring revenue through eco-friendly smart RAS facilities, predictable production, and long-term contracted sales.

OPERATION TIME
365 Days / 24 Hours

95%
Utilization Rate

EFFICIENCY
Maximized ROI



High Utilization Rate Relative to Fixed Costs



RAS facilities operate 365 days, 24 hours, maximizing fixed cost efficiency.



Predictable Production Volume



Controlling disease and environmental variables to forecast output within an acceptable margin.



Long-Term Contract-Based Revenue Structure



Annual supply contracts with major distributors and catering companies secure confirmed revenue.



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ABOUT US

KLIS Global Co., Ltd. — Leader in Recirculating Aquaculture System (RAS) Technology

KLIS Global Co., Ltd. is a specialized RAS aquaculture company providing an All-in-One Solution encompassing the entire project lifecycle — from consulting and design to construction and after-sales management. A team of diverse technical experts is innovating the paradigm of the conventional aquaculture industry and opening the future of sustainable fisheries.

CORE COMPETENCIES



End-to-End Solution

Integrated process from initial planning and design to construction and operations management for aquaculture farms and aquariums



Smart RAS Expertise

Manufacturing and installation of advanced aquaculture equipment, SCADA-based control systems, smart RAS/LSS planning and design

BUSINESS AREAS



Smart Farm Design & Construction

Domestic and international land-based RAS farm project execution and engineering



Aquarium Engineering

Construction of large-scale and display tank Life Support Systems (LSS)



Aquaculture Equipment Manufacturing & Distribution

Supply of in-house developed drum filters and high-efficiency water treatment equipment



ICT Convergence Consulting

Consulting for IT-integrated automation systems and smart farm construction

GROWTH HISTORY



2022

- SCADA Control System Implementation
- Ornamental Fish Farm Construction



2023

- RAS Core Technology Advancement
- In-House R&D Lab Capability Enhancement



2024

- Expanded Global Market Entry
- Smart Solution Advancement



2025

- Smart Shrimp Farm Implementation
- Proprietary Technology Development & Commercialization



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Smart RAS Farm — Interior Bird's Eye View



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Smart RAS Farm — Exterior Bird's Eye View



SMART RAS AQUACULTURE TECHNOLOGY - INNOVATION & SUSTAINABILITY.



Thank You

We will be your partner for a successful investment.
Please feel free to contact us anytime for further inquiries.



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