



AQUA GREEN

ZERO DISCHARGE RAS

PROJECT INDIA

1000 ton x 9 locations



Zero Discharge Recirculating Aquaculture Systems and Service

Zero discharge recirculating aquaculture is a land-based fully enclosed green technology for raising fish, which replaces the traditional method of growing fish in open ponds, tanks or net cages.

Our systems use minimal water resources and are based on principles of low energy usage, with no wastes or effluent released into the surrounding environment.

This also eliminates the bio-hazard risks of non-native species escapes.

Aqua Green's system uses little energy, saves water, meets stringent environmental regulations, and cultivates fish in commercial volumes.

We provide a unique technology solution that effectively opens up all in-land areas worldwide to an economically-viable, resource-efficient and sustainable form of marine aquaculture development.

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Build
The facility



Training
and supervising



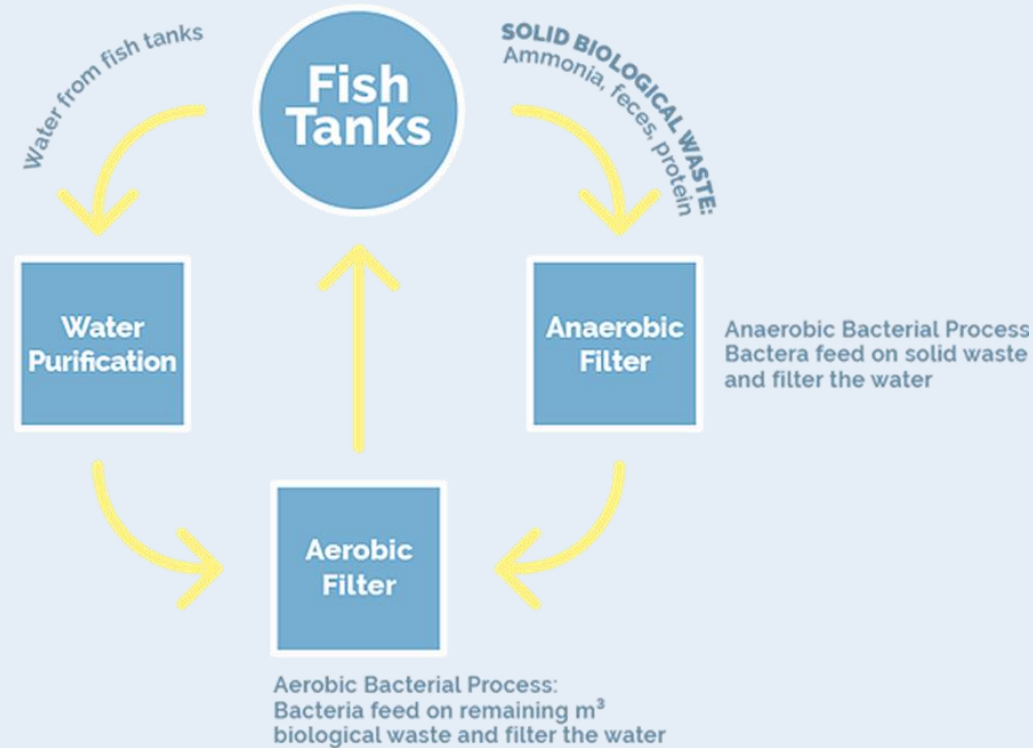
Support
the operation



Aqua Green is a world leader in zero-discharge aquaculture

We operate fully contained, zero-discharge aquaculture facilities. The use of microbial and plant filters allows water and nutrients to circulate through the system.

Water never leaves our system. Our facilities prevent the release of toxic pollutants into the surrounding environment and **keep the consumption of water to a minimum.**



AEROBIC NITRIFICATION $NH_4^+ \rightarrow NO_2^- \rightarrow NO_3^-$


ANEROBIC DENITRIFICATION $NO_3^- \rightarrow NO_2^- \rightarrow NO \rightarrow N_2O \rightarrow N_2$



Fish are grown within a controlled environment, in any location, in any climate.

Fish can be cultivated in the **desert** or in the **coldest climates** with the growing environment controlled by **Aqua Green's energy efficient heating and cooling solutions**



A row of large, white, dome-shaped indoor fish tanks covered in snow. The tanks are arranged in a line, and the snow is piled up in front of them. The sky is blue with some clouds.

Environmentally sound and highly cost effective heating and cooling solutions

Fish can be safely stocked and raised at high densities in fully controllable indoor tanks. Any accreditation (ISO, HACCP, Organic) or statutory requirements (Quarantine, Bio-security) can be easily met when applying Aqua Greens zero-discharge design.

Fish species can be selected to suit site climate or market demand, independent of farm location. We offer flexibility in species choice, as the system can support a variety of either freshwater or saltwater species.

SALT WATER SPECIES



European Sea Bass



Yellowtail



Cobia



Grouper



Flatfish



Barramundi



Gilthead Seabream

FRESH WATER SPECIES



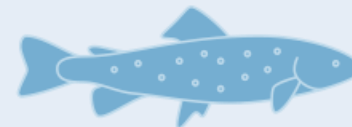
Carp



Red Tilapia



Catfish



Rainbow Trout



Guildenstaali Sturgeon

Aqua Green can also grow local fish



Fresh water Magul



Salt water Pomfret



Fresh Water Ompok



Fresh Water Knife Fish

Salt Water system

Unlike closed systems, suitability is related to location.

Suitable for saltwater fish species that can tolerate the incoming water temperature at the location (see next bulleted item)

Site must be located close to the sea OR close to a saltwater well/river/lake This means that sites must be located no further than a few hundred meters from the site- this is so that water can be easily pumped in.

Growing water is brought in from the sea and returned to the sea after it passes through algae filtration so returned water is clean with similar requirements for freshwater

This type of system can combine fish/shrimps/algae fish-vegetables-flowers

Added value sale of micro and macro-algae AND/ OR salicornia (used as cattle feed, human food) AND / OR mangrove (grows as bushes, trees so can be sold for firewood etc.) can all be grown from filtered water discharged from the system, same for vegetable by-product

Fresh water system

Multi-module system allows growth of multiple species simultaneously. Each module produces 150 metric tons annual production

Capable of growing freshwater or saltwater finfish

Can be located anywhere - does not need to be next to large water bodies; located close to markets

Operators have full control over all culture parameters, including temperature, salinity, ph. water flow rates, production volumes and harvest scheduling

Intensive biosecurity measures (remote quarantining, continuous ozone and UV water treatment) secured and monitored facility, best practice operations protocols) ensure contaminant and disease-free operation.

Fish produced are "day fresh" for market

Pools are tailor-made to any required size

Aqua Green takes care of the design and construction of freshwater or saltwater (marine) zero discharge recirculating fish farm systems and components including filtration, oxygenators and pools.

Polypropylene is our material of choice for cost effectiveness, durability, rapidity and ease of construction. Pools are built using corrosion-proof plastic products while filtration and oxygenation systems are designed for low energy operational usage.



Pipes, Valves, Accessories	10" 6" 4" 2" 1"	600 m	100m
Cal Tubes	Oxygenation		18
Tunnels	Upper,Lower Water	4+	2
Purging Pre-Marketing Tank	PP: Pre-marketing tank, clear water		4
Settling Pond/	Denitrification		2
Oxygen Reduction	Reduces oxygen to zero saturation		2
Lower Water Outflow/	6"	18+	2
Fish Release Pipe/	10" or live fish pump		18
Bridge/	Fish Viewing Walkway	18+	1
Feeders/			18
Fish Tank Dividers/	Creates Raceway		
Framed Nets - Removable/	For Collecting Fish/	5+	3
Emergency Oxygen/	Back Up in case of electricity failure/	18+	1
Upper Water Outflow/		18 +	1
Greenhouse/Heating/Cooling	5000 sq m + 400 sq m		2
Pumps/	400cu.m/hr + 60 cu.m/hr		8+2
Biofilter/	PVC ; Nitrification, ammonia nitrate/		1000m3
BioFilter Water Distribution/	Distributes water to Biofilter/		3
Biofilter Support/	Support for Biofilter media/		3
Electrical Board/	Various Sizes/		10
Foam Fractionator/	Protein skimmer	4+	1
Circulation Pumps/			5
Venturi /			5
Mixer/	Creates clouds of air bubbles/		5
Common Pool/			2
Lighting/	Low lighting/		2
Control System/	For Electricity, Water level, Oxygen/		2
Ozone Generator/	400gr/h+40gr/h	2	1
Blowers/			2
Liquid Oxygen Tank/	Liquid Rental Oxygen / Oxygen Generator		1
Concrete Works/	Up to 500 cu.m./		
Small Forklift/	Electric or Human-Powered/		1 vendor supply
Ice-Making Machine/			1
Fish handling Equipment/	Nets, Graders etc/		
Packing Cartons/	Various Sizes/		
OxyGard/		2	1
Computers + Remote Cameras/			
Laboratory/	Microscope, electrophotometer etc		
Office/			vendor supply
Electricity Generator/	180kva		1
Fresh Drinking Water Supply/			
Equipment Storage/			
Vehicles/			
Access Roads/			
Road Lighting/			
Worker Accommodation/			
Communications Infrastructure/			
Security Alarm System/			
Water Storage Containers/	100 cu.m.		4
Commercial Weighing Equipment/			
Labor Unskilled/			
Quarantine	not included the green house		
Shipping/Freight/			
Miscellaneous/		10%	
supervision	2 for the building time		2

Aqua Green

Modular & Scalable Design

Any production capacity can be realized by multiplying the standard modules, avoiding scaling-up risks.

Our modular- designed system can support parallel growth of different species.

Annual production of 1000 ton freshwater fish require 4 modules
1000 ton annual production requires a land area of 24000sqm

Modular & Scalable Design

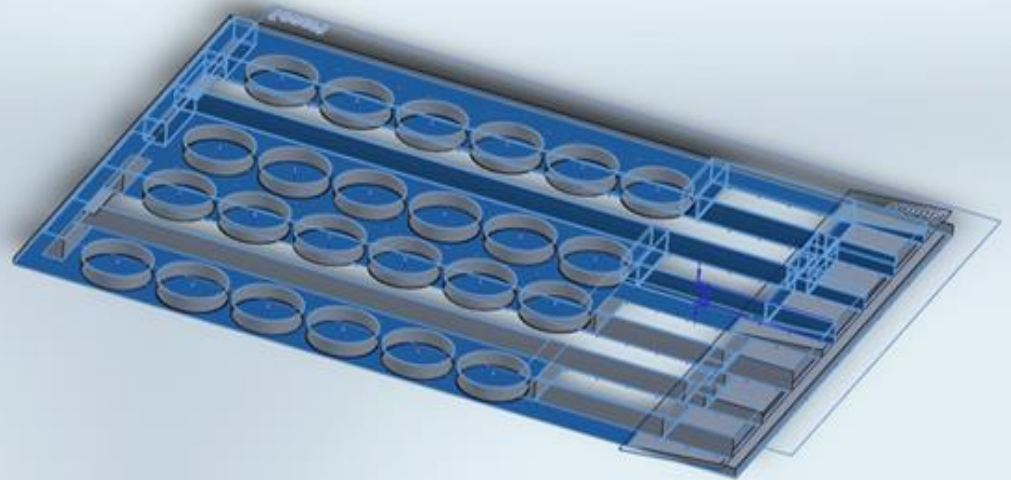
Fish produced in self-contained grow-out modules. Production easily scaled by adding new modules. Fresh or saltwater production.

Modular system with advanced water treatment and decontamination increases biosecurity, and reduces management and operational risk.

System uses automated grading and harvesting for maximum production efficiency and greatly reduced fish stress.

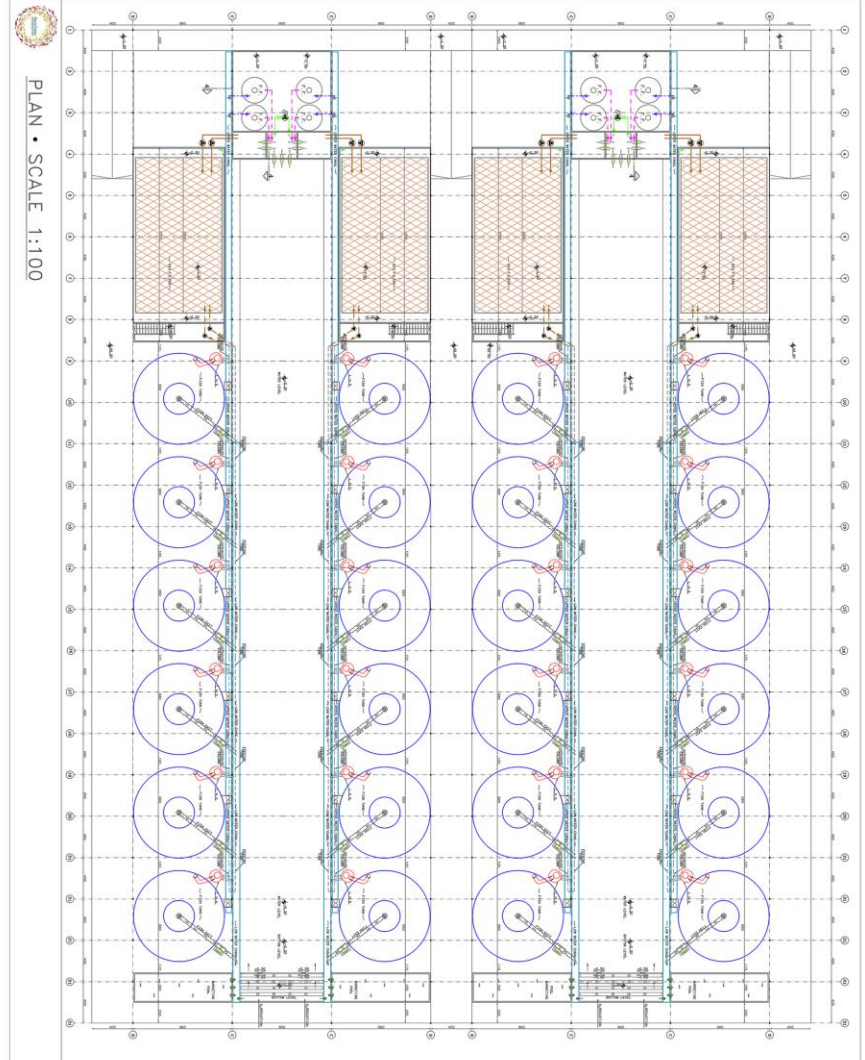
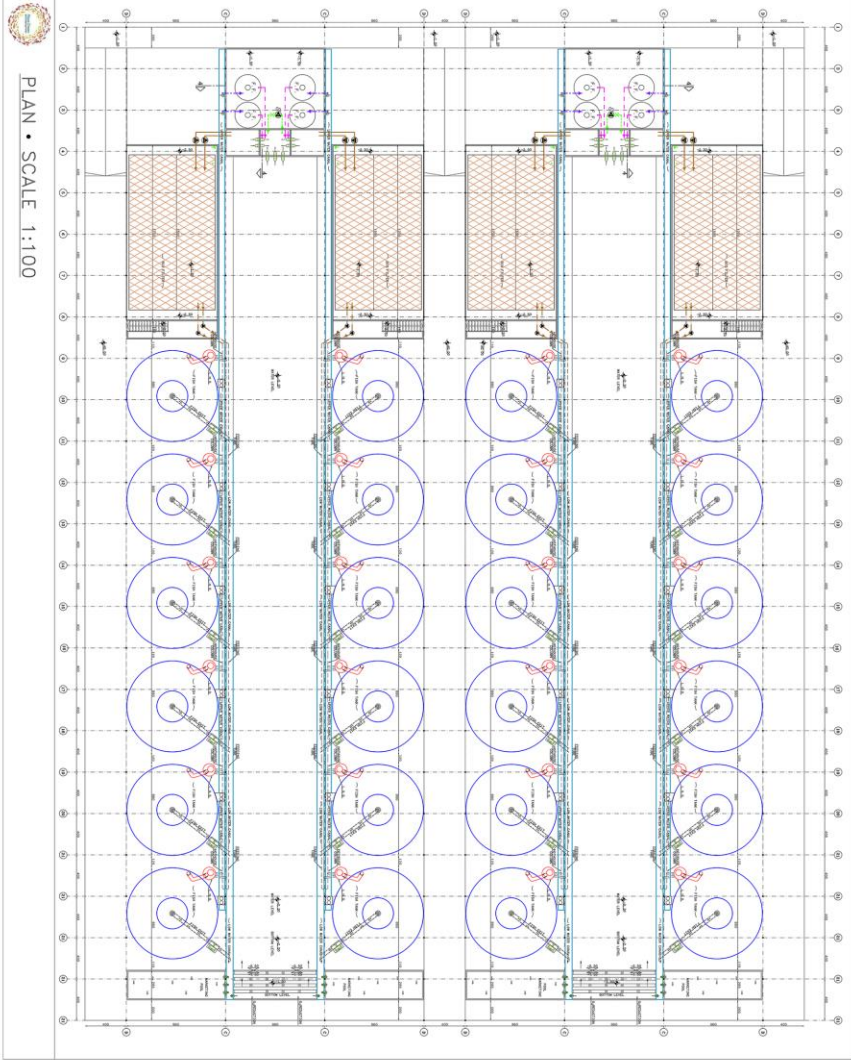
Biosecure Culture Environment

- Grow Out Tanks
- Denitrification Bioreactor
- Aerobic Filter Complex
- Advanced Ozone decontamination



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TOP VIEW FLOOR PLAN
- 1000 TON-



Hatchery > Quarantine | Nursery

Optional production of salt water and fresh water fingerlings – local and / or foreign species.

Ongoing production management, technical support and veterinary services.

Livestock will be put in isolation for a period of observation to ensure they are disease free, acclimatize to the new environment and also to ensure an optimum breeding strategy in order to create an extremely high quality, premium fish product.



Professional Training and Support

For management of the zero discharge system, technical and biological guidance by our dedicated, experienced setup staff.

These services are available for any period required.



**Build
The facility**



**Training
and supervising**




**Support
the operation**



Cost-effective greenhouse construction services

Supplied by a well-established greenhouse construction-dedicated company with an international portfolio of completed agricultural and aquaculture projects.



Species can be grown close to markets

Year round, constant and predictable outputs with the advantage of frequent, up to weekly, fish harvest and supply to market.

Return of Investment

Ingenious, innovative design that results in a very cost effective culture system, with return of capital investment after 2 to 3 growth cycles for most species



AQUA GREEN

Environmental Benefits

ENERGY EFFICIENCY

We develop innovative ways to reduce the consumption of energy including replacing energy intensive processes with energy efficient ones and looking into sources of renewable energy such as solar and wind.

SUPERIOR WATER QUALITY

Monitoring and controlling water quality is critical to our success. The water in our facilities goes through an anaerobic and an aerobic filtration process where microorganisms break down and eliminate biological waste which allows for the recycling of tank water. Superior water quality contributes to the more efficient conversion of feed toward optimum growth and strengthens natural resistance to disease.

LOCAL DISTRIBUTION

The freshness of our product depends on our commitment to local distribution. In addition to the unrivaled quality of our fish and the advantage of offering a premium product, local distribution provides cost savings and contributes to a significantly smaller carbon footprint compared to that of traditional aquaculture distribution.



Environmental Benefits

FRESH, HEALTHY, HIGH-QUALITY FISH

With rising awareness of the health-benefits of sustainable-grown animal protein, our customers recognize the health value of consuming the highest quality, fresh, healthy fish.

Our product meets global and local quality standards and contains below FDA-detectable levels of mercury and lead. The fish we raise is safe to consume as frequently as our customers wish without risk of exposure to toxins or heavy metals. It is our goal to contribute to the health and vitality of the communities where we operate.

RELIABLE SUPPLY OF FISH PROTEIN

Global demand for healthy fish protein combined with the decline of marine fisheries and the health risks posed by traditional aquaculture, creates a growing need for a predictable, sustainable-sourced local supply of salt-water fish. Aqua Green provides the technology and production model to power facilities which will meet local demand consistently and reliably.

GREEN JOB CREATION

Green jobs are expected to fuel economic growth in the next several decades. We at Aqua Green are doing our part by creating new green jobs in the communities where we operate. In addition to providing employment, we offer training and equip our workers with unique skills which support personal and professional growth.

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