Water Quality Parameters

TEMPERATURE influences fish metabolism, growth, reproduction, & immune function
(25 – 33°C, depends on species)

pH indicates the acidity or alkalinity of the pond water
(6.5 – 8.5)

WATER CLARITY shows the degree to which light can penetrate & travel through the water column
(Secchi depth of 25 – 35 cm)

DISSOLVED OXYGEN (DO) informs adequate oxygen levels are essential for fish respiration and overall health
(4–8 mg/L, depends on species)

AMMONIA (NH_3/NH_4^+) is a toxic waste product of fish metabolism & decomposing organic matter
(Below 0.5 mg/L)

NITRITE (NO_2^-) is produced by the bacterial breakdown of ammonia in the nitrification process
(Not greater than 0.5 mg/L)

NITRATE (NO_3^-) is the end product of the nitrification process & can negatively impact fish health
(0.2 – 10mg/L)

BIOLOGICAL OXYGEN DEMAND (BOD) presents the amount of oxygen required to decompose organic matter in water
(Below 6 mg/L at surface water)

Gender Equality

Gender message #1

Gender message #2

About NGA-Myanmar

NGA-Myanmar supports micro, small, and medium enterprises (MSMEs) engaged in aquaculture production –including fish/shrimp farming households, in the Yangon – Ayeyarwady aquaculture corridor to access and adopt cleaner production practices and green technologies. This will help them to increase their productivity and to better manage waste, thereby reducing water pollution and carbon emissions in the Ayeyarwady delta ecosystem.

Any Questions or Feedback?

Please do not hesitate to contact us through:
Phone/SMS: xxxxx
Or through our team members

NGA MYANMAR

switchasia GRANTS PROGRAMME

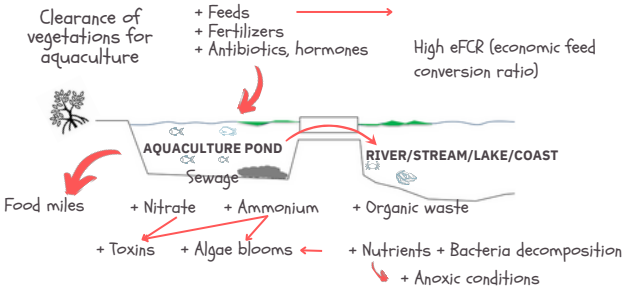
Funded by the European Union

Nurturing Green Aquaculture in Myanmar

Daung Capital

Village Link

THE KEY ENVIRONMENTAL ISSUES OF AQUACULTURE



NEGATIVE CONSEQUENCES:

Biodiversity losses

Disruption of ecosystem processes

Water contamination

Pollutants entering food chains

Low aquaculture productivity

Greenhouse gas emissions

Green Aquaculture Practices

SELECT & MANAGE POND SITE

Choose a site wisely:
- Reliable & sustainable water source,
- Suitable topography,
- Accessible for transportation, inputs & market distribution.

Preserving natural habitats like forests & mangroves:
- If applicable, consider integrated mangrove aquaculture,
- If habitat destruction is unavoidable, implement habitat restoration.

Carry out proper pond design & construction:
- Settling basin (including proper cleaning & drying),
- Inlet & outlet with filtration & screen,
- Buffer zones around the pond as protective barriers.

Regularly check the pond environment.

USE RESOURCES EFFICIENTLY

Reuse, recycle or recirculate your pond's water & other resources for other use.

Regularly monitor water quality & respond promptly:

Utilize water treatment technologies.

Implement proper feeding management:
- Use feed with improved formulation,
- Use floating and pelleted feed,
- Regular visual monitoring to check fish movements, and their feeding behaviors,
- Optimize natural feed use:
  - Nurture and use natural 'green water' as natural feed,
  - Use feed that is produced from sustainable sources (local agricultural waste, etc.),
  - Explore the use of alternative sources of protein for fishmeal (black soldier fly, etc.)

Regularly monitor and analyze the feed conversion ratio (FCR) & make improvement to minimize nutrient excretion.

Applying recommended stocking density & acclimatizing fingerlings/larvae when transferring.

LIMIT CHEMICAL USE

Limit the use of any antibiotic, pesticides, & herbicides.

Applying lime appropriately.

Applying fertilizers appropriately to support the production of natural feed (i.e. 'green water' of fitoplanktons).

MANAGE WASTE

Minimize the impact of waste discharge on the environment:

Prevent/minimize oil/diesel leakage.

Opt for reusable alternatives instead of single-use plastics.

UTILIZE RENEWABLE ENERGY SOURCES

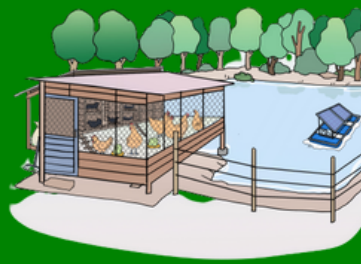
Use energy-efficient technologies.

Use renewable energy sources, such as solar pump.

Explore available funding opportunities & incentives for renewable energy transition.

APPLY INTEGRATED SYSTEMS

Adopt integrated system to promote nutrient cycling & waste management:
- Integrated fish & livestock or poultry systems,
- Integrated fish & crops systems,
- Combination of both systems.



OPT FOR RESPONSIBLE SEED SOURCES

Not using any invasive species.

Source fingerlings or larvae from hatcheries or nurseries that use responsible practices.

Select & use breeds with desirable traits to reduce the environmental footprint of aquaculture:
- Faster growth,
- Disease resistance,
- Improved feed conversion.

ADOPT INTEGRATED PEST MANAGEMENT

Early detection of diseases to prevent disease outbreak.

Utilize biological control methods (such as natural predators) to manage pests, diseases & algae blooms.

Use of probiotics, prebiotic, & Other natural remedies.

Use 'bathing' method as part of an IPM strategy.