Developing capacity in the Ecosystem Approach to Aquaculture Management (EAAM)

Threats and issues in aquaculture

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Module objectives

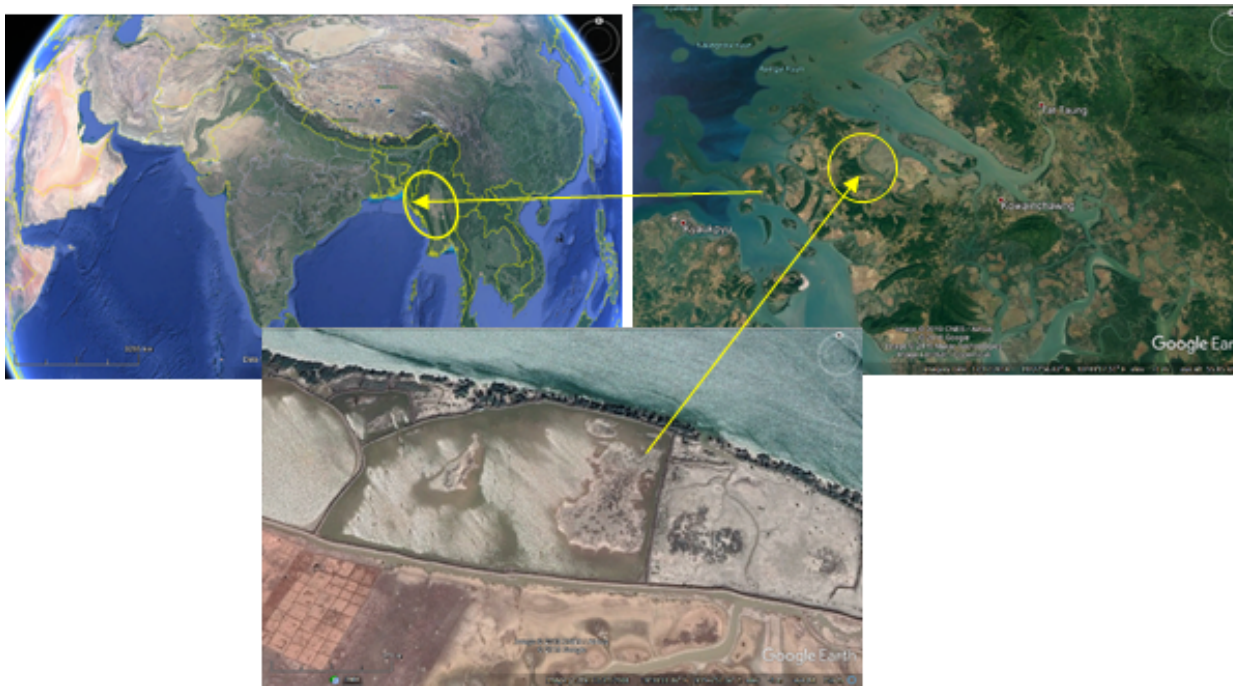
After this session you will be able to:

- Identify the threats and issues faced by aquaculture and associated ecosystems

What levels for threats and issues?

The threads and issues in the aquaculture sector vary depending on the system boundaries

1. Local/district
2. Watershed
   - National
   - Regional
3. Global



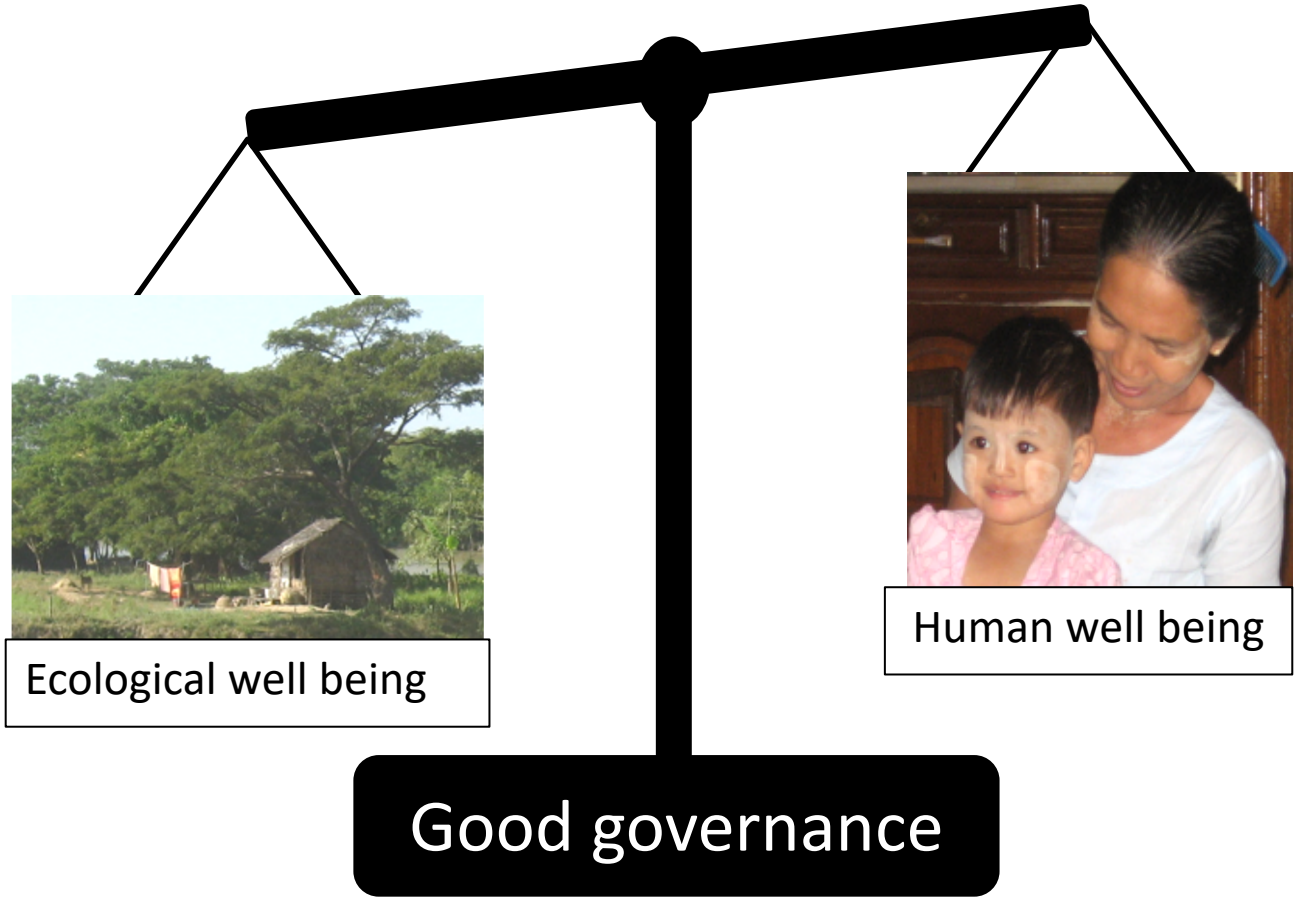
What threats and issues?

Informant stakeholders from:

- Different backgrounds
- Different social levels
- Other sectors affected or affecting aquaculture

What threats and issues?

Three areas to consider:



Ecological well-being

Impacts on aquaculture

Pollution

- Human or industrial activities
- Chemical contamination
- Agriculture run-off
- Eutrophication
- Algal blooms in the sea

Ecological well-being

Impacts on aquaculture

Environmental damages

- Deforestation
- Soil disruption
- Erosion
- Water turbidity
- Loss of natural habitats for natural recruitment of species

Ecological well-being

Impacts on aquaculture

Diseases

- Spread of diseases among countries
  - For increased temperatures
  - for lack of controls
- Cross-infection of natural stocks with farmed animals (cage aquaculture)

Ecological well-being

Impacts on aquaculture

Competition for resources

Water

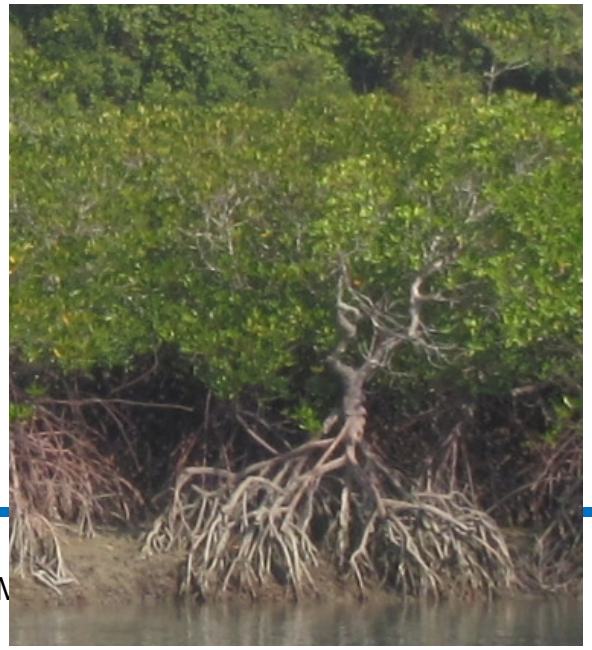
- Dams (no access)
- Mining (heavy metals)
- Energy (no access)
- Agriculture (no access, contamination, conflict uses)

Ecological well-being

Impacts on the ecosystem

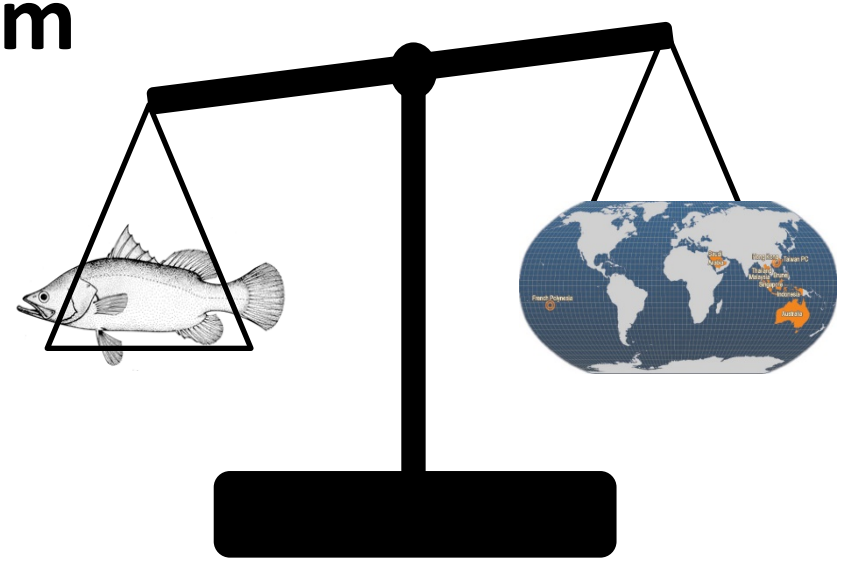
Environmental damages

- Environmental disruption of natural habitats for aquaculture
- Effect on soil (acidification)
- Mangrove deforestation
- Fish meal (feed)
- Benthic impact (cage)



Ecological well-being

Impacts on the ecosystem



Carrying capacity

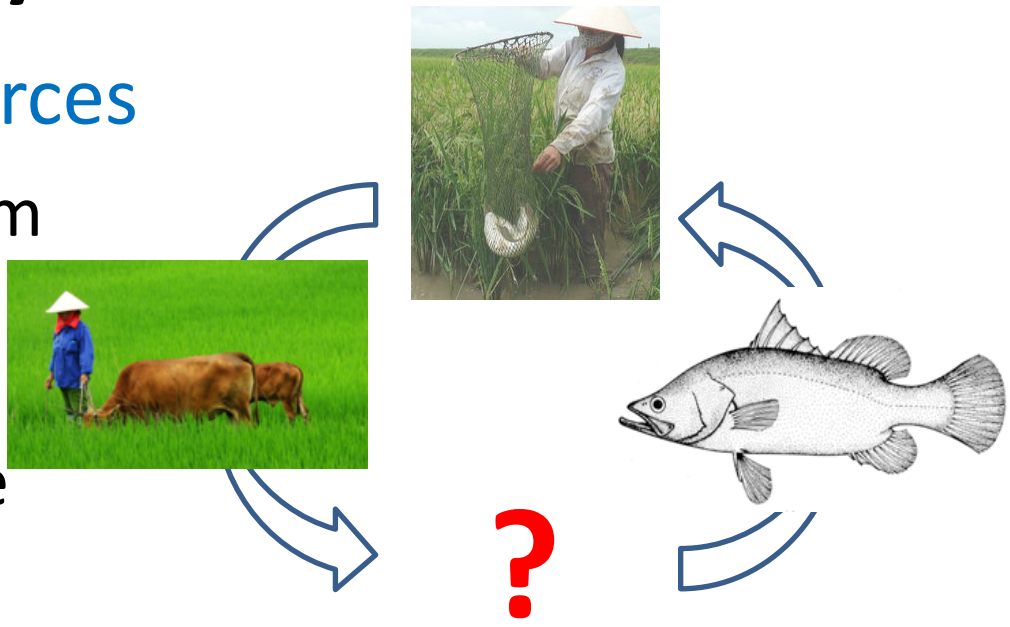
- Not determined a-priori
- Cumulative effect from other contaminants (sewage) and effect the water in lakes, seas
- Limits above the tolerable limits bring to pollution and even death of fish

Ecological well-being

Impacts on the ecosystem

Inefficient use of resources

- No use of by-products from agriculture, industry, aquaculture
- No integrated aquaculture systems



Ecological well-being

Impacts on the ecosystem

Impact on wild animals

- Genetic pollution of farmed fish
- Exotic species imported
- New diseases

Ecological well-being

Impacts on the ecosystem

Pollution

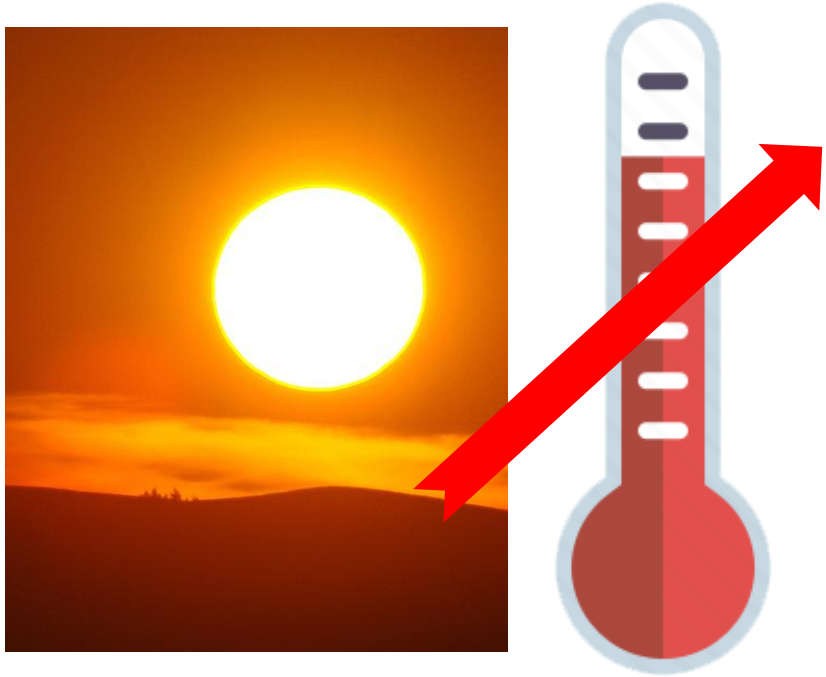
- Eutrophication
- Benthic pollution
- Aquaculture chemicals
- antibiotics

Ecological well-being

Climate change

Increased temperatures

- More risk of diseases
- Higher level of the seas
- Salinization of coastal freshwater
- Not favourable growth of animals
- Spawning seasons shifted

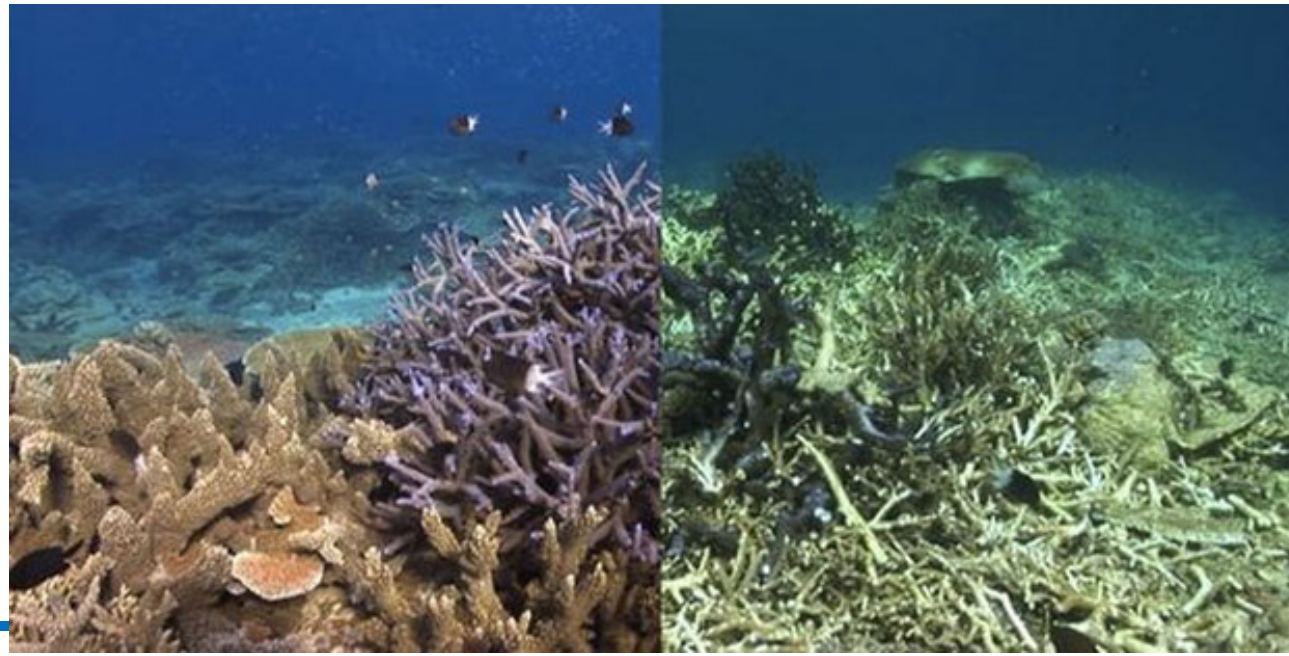


Ecological well-being

Climate change

Acidification of oceans

- Increase of carbon dioxide in the water
- Problems on the whole ecosystem
- Loss of habitats



Ecological well-being

Climate change

Loss of biodiversity

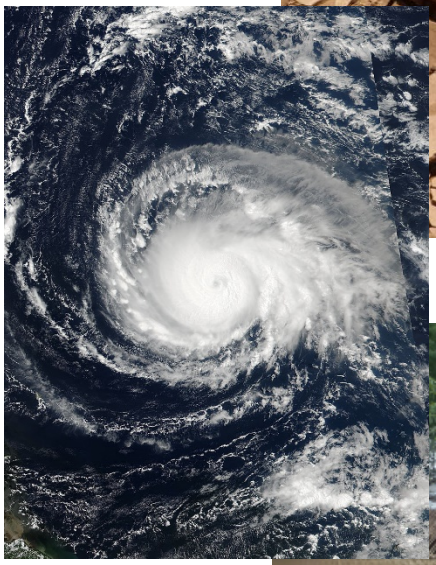
- Living conditions/climate not more compatible for many species who disappear

Ecological well-being

Climate change

Climate unpredictability

- Seasons' shifts
- Droughts



Extreme phenomena

- Cyclones
- Flooding
- High tides

Human well-being

Food access

Food demand

- Increase in population
- Changed consume patterns (pulse to meat)

Food security

- Need of more food output
- Unpredictable harvests
- Global competition with market price drops

Human well-being

Workforce

emigration

- Not enough workers in farms
- Other more profitable jobs

Education

- Low education
- No TVET for farms
- technological divide

Human well-being

Gender

- processing and marketing fish
- near-shore aquatic resources
- impact on women's livelihood from changes
- Need capacity building, skill development
- Entrepreneurships
- strong force for advocating sustainable aquaculture

Human well-being

Access to technology

- Tech helps productivity
- Uneven access to technologies due to costs

Conflicts

- Among different stakeholders for resources
- Armed/ethnic conflicts

Human well-being

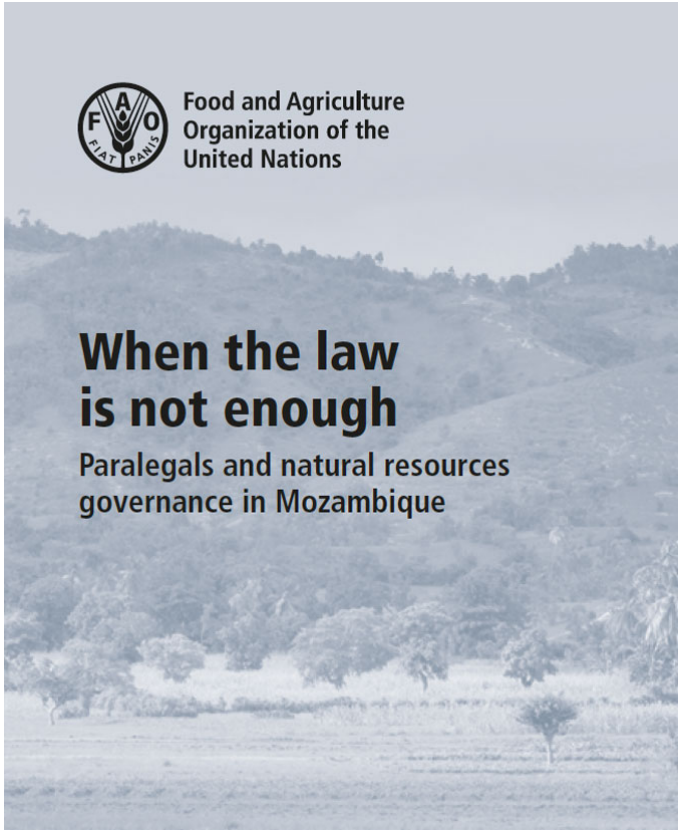
Climate related threats to resilience and vulnerability to natural disasters

- Vulnerability to natural disasters (storms/cyclones, tsunamis)
- Destabilization of rural populations
- Increased migration
- Access to freshwater

Governance

Aquaculture policies and laws

- Lack of legislation on sustainable development of the aquaculture
- very long time for legislation
- Change of governments and policies
- Lack of connection with other sectors



Governance

Monitoring and enforcement

- Lack of enforcement
- Lack of legal authority
- Lack of budget

Governance

Decentralization

- Lack of vision and holistic approach of local administrations
- Institutional capacity
- Not adequate skills

Governance

Access to inputs

Credit

- High interests
- No rural funds for aquaculture

Land access

- ownership

Land use

- Rural vs aquaculture

Governance

Markets

- Falling prices
- No alternative productions
- Incentives for processing
- No established value chains
- trade wars

Governance

Sustainable management of conflicts

Move away from production-only approaches that impact sustainability

Stakeholder participation

- Inclusion of people
- coordination between stakeholders and decision makers

Activity: Identifying threats and issues

- Discuss threats or issues relating to your local fisheries and the associated ecosystem
- Write each issue or threat on a SEPARATE card, think of as many as you can
- Place the cards on a flipchart
- Move around so you can see other group's work

Note: You will be using these cards again later

Essential EAAM

To download all materials please visit:

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