

**Annex 8: OUTCOMES FROM THE ORNAMENTAL FISH VALUE CHAIN
ANALYSIS**
**Workshop: Evaluation of Value Chains for the Bio-commerce Project
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**CONTEXT AND PROBLEMS FACED ALONG THE ORNAMENTAL FISH
CHAIN IN BRAZIL**

Considering the current situation, Brazil's main problem in the ornamental fish trade is the lack of competitiveness with other producing countries which is due to the problems in the following four areas.

1. Problems of social and economic organization

- a. The lack of effective organization in the productive and business sectors of ornamental fish (ACEPOAM, ACEPOPA, ABREA).
- b. The lack of marketing by the parties involved along the product chain; both the private and public sectors.
- c. The unfamiliarity of productive chain as a whole; each stakeholder seems to be only aware of the problems face at the point of the chain in which he/she is involved.
- d. There is a lack of partnerships among the different links of the productive chain.
- e. An ornamental fishery census does not exist in the country (i.e., how many people are involved).
- f. Air carriers do not always maintain the flight schedules.

2. Problems of legislation

- a. The current legislation contemplates only one very small parcel of the requested products for the market (the list allowed for the IBAMA includes only 180 species and Brazil has more than 2,000 potential species).
- b. There is a perception of a lack of scientific/technical data concerning the species explored or under-explored that can be used for decision making by the regulating agencies (lack of dialogue between regulating agencies and the scientific community).
- c. Difficulty of Brazilian breeders and exporters in breeding fish not included in the existing legislation.
- d. High and increasing level of requirements for licensing and commercialization of the product (in Brazil as well as in the importing countries).

3. Problems of husbandry

- a. Low level of qualification for management along the product chain.
- b. Low level of the product quality control along the product chain.
- c. Inadequacy of the installations and transportation.
- d. Low level of qualification of the professionals who work in the area in fish health.
- e. Lack of qualification of the inspection agents.

4. Problems related to the environment

- a. Lack of mapping of the focal areas of ornamental fishing.
- b. The activities and perturbations of the environment that most influence the product negatively are: Dams, mining, agriculture, urbanization, cattle, deforestation, introduction of exotic fish, and destructive fishing practices.

RECOMMENDED ACTIONS FOR THE FOUR SETS OF PROBLEMS IDENTIFIED AND STAKEHOLDERS AFFECTED:

1. Social and Economic Organization

- **Present (to 3 years):**
 - a. Survey the number of people involved in the activity. (Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)
 - b. Promote the formation of fishing colonies in the main ornamental fisheries. (Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP),

- research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)
- c. Establish a government program focused on the question of ornamental fish commerce. (Export Promotion Agency (APEX), Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, Labor Ministry, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities)
 - d. Participation in trade fairs in consumer markets (national and international). (Export Promotion Agency (APEX), Exporter Associations, NGOs, Ministry of Development, Industry and Commerce (MDIC)) and
 - e. Establish training courses for regulatory agents along the trade chain. (Ministry of Science and Technology (MCT), Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)
 - f. Stimulate ecological tourism for ornamental fish. (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities, Ministry of Tourism (EMBRATUR))
 - g. Seek out emerging markets (i.e., Asia). (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Research institutes, NGOs, Ministry of Development, Industry and Commerce (MDIC))
- **Future (to 10 years)**
 - a. Continue training courses. (Ministry of Science and Technology (MCT), Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)
 - b. Update the census of the activity. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural

- Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)
- c. Perform market research. (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Research institutes, NGOs, Ministry of Development, Industry and Commerce (MDIC))
 - d. Periodic evaluation of governmental programs. (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, Labor Ministry, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities)
 - e. Evaluate the social, economic and cultural impacts of fisheries. (Ministry of Science And Technology (MCT), Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, Labor Ministry, State environmental protection organs, Fisher associations, municipalities)

2. Legislation

- **Present (up to 3 years)**
 - a. Establish working groups or technical teams in charged with supplying to technical assistance to manage fish resources. (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, Labor Ministry, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities)
 - b. Ensure annual revision of the normative instructions. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)

- c. Improve the collection of commercial and fishery data and statistics. (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, Labor Ministry, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities)
 - d. Export data must be made available in the public domain. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities)
 - e. Establish a monitoring program. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)
 - f. Systematize and streamline the requirements for requests to include species of ornamental fish not included in the current normative instruction. (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), State environmental protection organs, municipalities)
- **Future (to 10 years)**
 - a. Establish a research program to subsidize the strategic management of ornamental fish resources: population studies, taxonomy, dynamics, diversity, and zoning. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)

3. Husbandry

- **Present (up to 3 years)**
 - a. Courses for qualification of collectors (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)
 - i. Distribution of pamphlets on the adequate handling of product
 - b. Courses for qualification of exporters (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Small Business Administration (SEBRAE))
 - i. Courses of English, consumer service, computer science, ictio-health, and marketing
 - c. Courses of qualification for regulatory agents
 - i. Courses of qualification for IBAMA and State environmental agents in the identification of fish and animal welfare. (Ministry of Science and Technology (MCT), Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Research institutes)
 - ii. Courses of qualification for veterinarians of the Ministry of Agriculture in the identification of fish and ictio-health. (Ministry of Science and Technology (MCT), Ministry of Agriculture, Research institutes, NGOs)
 - iii. Produce a manual of identification and inspection for regulatory agents. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs)
- **Future (up to 10 years)**
 - a. Implement eco-labeling/certification program. (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, Labor Ministry, Ministry of Development, Industry and Commerce (MDIC), State

- environmental protection organs, Fisher associations, municipalities)
- b. Standardize the minimum ictio-sanitary criteria for the sector. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities)
 - c. Continue courses for all along the trade chain. (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, Labor Ministry, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities)
 - d. Definition of areas and seasons for the prohibition of fish collection. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, Labor Ministry, State environmental protection organs, Fisher associations, municipalities)

4. Environment: habitat destruction

- **Present (up to 3 years)**
 - a. Initiate a program of mapping of the priority areas of ornamental fish. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)
 - b. Calculate the waste of biodiversity caused by the dams, mining, agriculture, urbanization, cattle and deforestation. (Ministry of Science and Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)
 - c. Perform surveys of the introduction of exotic species and their impact and to develop legislation. (Ministry of Science and

- Technology (MCT), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities, Ministry of Science and Technology (MCT))
- d. Prohibit predatory fishing practices. (Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), State environmental protection organs, municipalities)-
- **Future (up to 10 years)**
 - a. Monitoring of fishing and commerce (Ministry of Science and Technology (MCT), Export Promotion Agency (APEX), Exporter Associations, Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Ministry of Agriculture, Special Secretary to the President for Aquaculture and Fisheries (SEAP), Revenue Service, Research institutes, NGOs, Labor Ministry, Ministry of Development, Industry and Commerce (MDIC), State environmental protection organs, Fisher associations, municipalities)
 - b. Evaluate environmental impacts. (Ministry of Science and Technology (MCT), Institute of Natural Resources/Ministry of the Environment (IBAMA/MMA), Special Secretary to the President for Aquaculture and Fisheries (SEAP), Research institutes, NGOs, State environmental protection organs, Fisher associations, municipalities)

CONCLUSIONS AND FUTURE STEPS

The potential for use of Brazilian ictio-faunal biodiversity is greater than neighboring countries. The lack of competitiveness with other countries can only be resolved with pragmatic policies of the sustainable use of the country's resources. The problems identified and the analysis made during this Workshop can be summarized in following short and long actions in stated periods.

- **Present (up to 3 years)**
 - To create working groups to provide to technical support.
 - To revise the normative instructions annually.
 - To improve the collection of statistical data and to establish a monitoring program.
 - Systematization of the requirements for requests to increase the number of species of ornamental fish that can be legally exported.

- **Future (up to 10 years)**
 - To adopt a pragmatic and flexible economic strategy which conforms to the dynamic marketplace.
 - To create a research program to subsidize the management of ornamental fish resources.