Chapter 46
Policy Guidance for Sustainable Aquaculture in the Inland Waters of Iraq

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Abstract Aquaculture is the fastest rising animal-producing area in the world and is probable to do an imperative part in global food source. The notion of sustainable aquaculture is increasingly known to comprise both the seasonal and geographical ranges of environmental, economic, and social limitations. Sustainable aquaculture growth must be gradual in a manner that is environmentally sustainable and that shelters the features of the environment for other users, while it is equally significant for people to guard the best of the environment for aquaculture. This chapter offers a brief review of the policy and strategies of the increasing sustainable aquaculture so as to be adopted by aquaculture businesses in Iraq, they build an environment-friendly aquaculture commercial. To conclude the chapter, a key suggestions are given, containing what should be the next applied steps.

46.1 Introduction

Aquaculture will be expected to have this important role due to the exploitation of the fisheries to their sustainable limit and beyond. On the negative side, aquaculture has become one of the main factors that can have an influence on the habitat and natural incomes that urge worries of both environmental activists and scientists (Naylor et al. 2000). Boyd (2003) has recognised the following utmost severe impacts, which can be seen through the devastation of swamps, and other subtle aquatic environment by aquaculture plans; changing of agricultural land to ponds; water pollution ensuing from pond wastes; extreme use of ground water and other freshwater provisions for filling ponds, and this concern has appealed to the greatest official attention in most nations (Boyd and Tucker 2000).

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In different parts of the world, the initiation of aquaculture into areas conventionally used mainly for commercial fisheries and a variety of recreational events have occasionally concurred with eager user group struggle. To overwhelm this difference a prearranged, stable and comprehensive community method to rural economic and social development is necessary**.**

At the present time, there are many aquaculture projects all of which are managed by the private sectors. Such enterprises, when they were created, have no scientific requirements and rules of establishing the proper aquaculture business. These aquaculture corporations did not even follow any guidelines or policies in regard to the environment or the biodiversity. Therefore, giving the correct guidelines and policies for establishing a suitable aquaculture enterprises are essential for the future of the aquaculture industry in Iraq. Based on the status of aquaculture in Iraq, the scope of this chapter includes a short review of how to develop a sustainable aquaculture in Iraq to aid those who are interested in developing such businesses.

46.2 Sustainable Aquaculture

Sustainability signifies to the ability of a people, ecosystem, or any such on-going system to bear working into the infinite future deprived of being pushed into incapacity through exhaustion or overcapacity of key resources on which that system depends**.** In general, the notion of sustainable development is reasonable and imperative, but translating it into precise standards or measures is hard, frequently particular, and tainted.

46.3 Benefits of Aquaculture

Frankic and Hershner (2003) have stated the following welfares of aquaculture:

1. Upsurge household food source and advance nutrition.
2. Upsurge household income through variation of revenue and food supplies.
3. Reinforce marginal financial status by growing employment and decreasing foodcosts.
4. Enhance water supply and nutrient administration at household or communitystages.
5. Preserve aquatic variety through re-supplying, and improving of endangered species.
6. Decrease impact on fishery assets if done sustainably.
7. Adjusting/augmenting habitats.
8. Inspires research and technology growth.
9. Upsurge education and environmental consciousness.

46.4 Risks of Aquaculture

The following risks that can be resulted from aquaculture have been adopted from Frankic and Hershner (2003) with slight variation to match the aquaculture status in Iraq.

1. Sediment hypoxia/anoxia consequential from organic enhancement.
2. Carbon/nutrient upgrading of the water column and benthos.
3. Decreased rates of dissolved oxygen in a water column.
4. Chemical, pharmaceutical, and toxicant contributions to sediments and water column.
5. Concerns of 'redistributions', containing bioinvasions, pathogens, and disease.
6. Variations in trophic ('food web') relations and productivity.
7. Fluctuations in variety of plants and animals.

46.5 Codes of Conduct

A large number of governmental and non-governmental agencies have put forward guidelines for aquaculture. These strategies are set of regulatory codes comprising of broad statements about how administration and other working events should be engaged. Utmost aquaculture programs refer to those regulations concerning fisheries given by the Food and Agriculture Organization (FAO) of the United Nations (FAO 1997)**.** The majority codes do not have any legal effect, and acceptance usually is intentional. Literally, rules may be recognised in situations where either governmental strategies do not occur or are not compulsory such the case of Iraq. The objective of following rules frequently is to show environmental care for drives of improving the image of an industry. This is surely one of the purposes in aquaculture.

46.6 Best Management Practices

A best management practices (BMP) are revealed to be the top obtainable and practical resources of avoiding a particular environmental influence while still allowing production to be done in an economically active manner. A scheme of several BMPs usually must be mounted to stop water pollution and achieve resource management aims. There has been wide application of BMPs in old-style agriculture to avert soil erosion and ensuing turbidity and sedimentation in streams, and other water bodies.

Amongst the significant BMPs those prerequisites to be stated here are: Erosion of pond watersheds, embankments, bottoms, and discharge canals may be a vital

source of suspended soil particles in seepages. These particles can increase turbidity and cause sedimentation in receiptof waters.

The use of BMPs as a foundation for official governmental rules of aquaculture run-offs in developing countries seems more possible than use of effluent standards and permits. Though it would need considerable work to inflict a regulatory system based on BMPs, the volume of assets, manpower, and expertise would be much less than for administration of effluent permits with water quality criteria. It should be conceivable by an annual review by a competent professional to determine if BMPs have been applied on a farm. Certainly, specific guidelines requisite be documented about the actions to be taken in case of non-compliance, just as is necessary in enforcement of effluent permits (Frankic and Hershner (2003).

46.7 Recommendations

Grounded on current national and international determinations to endorse sustainable aquaculture, here is a list of main rules and strategies that should endure to be used, developed, and applied (Frankic and Hershner (2003)):

1. Creating combined coastal and rural/community administration plans (IUCN 2000).
2. Locating appropriateness standards and indicators for aquaculture.
3. Placing observing and assessment tools.
4. Creating quality standards (certifications) for environmentally friendly practice, dispensation and sale in the aquaculture industry.
5. Growing finfish aquaculture industry.
6. Developing united farming systems—integrated aquaculture–agriculture (FAO 2000).
7. Increasing widespread polyculture performs (Naylor et al. 2000).
8. Environmental observing reviews should use the best obtainable methods and technologies for the environmental monitoring of influences and modelling of carrying capacity at farm sites (Frankic 1998).

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