

Ecosystem Approach for the Development of Fisheries in Sri Lanka: Current Status and future trends.

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Introduction

Importance of conservation and protection of the environment has been well identified for the sustainability of fisheries and aquaculture throughout the world.

During the recent past there has been an increasing concern of the society about the sustainability of fisheries and the environment.

According to United Nations' convention of biodiversity, ecosystem approach is the management of ecosystems and natural habitats to meet human requirement of using natural resources while maintaining the biological richness and ecological processes necessary to sustain the composition, structure and function of the ecosystem.

It is a strategy for integrated management of land water and living resources that promote conservation and sustainable use of resources in an equitable manner.

The intention of ecosystem approach to Fisheries is to improve fisheries management to ensure sustainability of fisheries through conservation and protection of environment.

Concepts and Principles

Most of the concepts and principles of an ecosystem approach to fisheries are already contained in a number of codes and conventions directly or indirectly relevant to fisheries. These include the following:

- UN Convention on the law of the sea of 1982
- FAO Code of Conduct for responsible fisheries of 1997
- Ramsar Convention of 1971
- Biodiversity Convention of 1992
- Jakarta Mandate of Marine and Coastal biological diversity

The code of conduct for responsible fisheries synthesizes the requirements for ecosystem and habitat protection, accounting for environmental function and natural variability, reducing impacts of fishing, biodiversity conservation, multi-species management, protection of endangered species, accounting for relationships between fish populations and environment, coastal area management, eliminating ghost fishing, reduction of waste and discards, precautionary approach and reducing land based impacts and pollution.

Issues

However, the implementation of ecosystem approach faces a number of difficulties. These difficulties hamper the effectiveness of conventional fisheries management.

Some of these difficulties are lack of information, lack of scientific assessments, non-appreciation of the role of protected areas, conflicting objectives, insufficient collaboration among institutes in charge of fisheries and environmental management, lack of participation of all stakeholders in decision making, lack of capacity for decentralization and the relations between trade and environment.

Sri Lankan Context

At present in Sri Lanka some studies have been carried out on ecosystem based fisheries management in inland waters. Sustainable levels of fish production in certain reservoirs have been estimated using the mathematical models where environmental parameters are used.

There are some work carried out in brackish water environments relating the ecological characteristics and fishery production. These include research on ecosystem characteristics such as the pollution, water quality, anthropogenic impacts etc.

In today's sessions too several papers on the ecological status of brackish water environment are presented.

The studies relating the environmental and fishing is marine habitats are very scarce.

Although there are many agreements, conventions and codes related to ecosystem approach to fisheries, it appears that the principles contained

in those are not yet widely applied in Sri Lanka. The main reason for this is the lack of institutional capacity to implement them due to limitations in human and financial resources.

In Sri Lanka, there are many graduates who have a good knowledge in the field of fisheries science. However, since they are unemployed, they have not got an opportunity to serve the country using their knowledge. At present the curricula in the Science Faculties of the Universities of Sri Lanka are revised considering the needs of the country and course modules on fisheries biology and fisheries management are offered for the B.Sc. degree in many Universities such as the Universities of Kelaniya, Sri Jayawardenepura, Ruhuna, Peradeniya, Colombo, Jaffna and Eastern.

Fisheries Biology is taught as a subject of the degree programme at Ruhuna University Fisheries Biology degree programmes are offered at NIFNE.

The Universities are producing knowledgeable people in Fisheries science. It is necessary to use their knowledge for the development of fisheries sector in a sustainable manner.

Further, we have in Sri Lanka, the scientists who have expertise knowledge in the field of fisheries science. However, most of the times, they do not get an opportunity to participate in national development programmes. They are confined to the Universities or Research Institutes. When a donor funded development programme is implemented in Sri Lanka, the services of the foreign consultants are sought. Majority those foreign consultants do not have a good knowledge on the conditions of Sri Lanka. When they come here they have to first learn the conditions of Sri Lanka and get the help of local scientists to get the information they need for a very low cost. Ultimately they write a nice report and the authorities accept it. If similar recommendations were made by local scientists, not much attention is paid. We expect that these policies will be changed.

Policy and institutional integration

Many policies and regulations are formulated and enacted in Sri Lanka considering the environment quality. There are rules and regulations for the protection of biodiversity, to prevent the pollution of environment and to prohibit the use of harmful fishing methods are prohibited. Fisheries are given some consideration in industrial development also.

Fisheries concerns should be incorporated in to national development policies. There should be inter-ministerial and inter-institutional bodies to consider these.

Enforcement of rule and regulations should also be strengthened. Although there are rules and regulations, there is little or no enforcement.

Decentralization should also be carried out.

Institutional capacities should be strengthened. Human Resources and Financial Resources should be developed to the institutions concerned.

Scientific Support

There should be scientific support too for ecosystem approach for the development of fisheries in Sri Lanka. More research an ecosystem functioning should be carried out. Information on physical biological and socio economic conditions are essential for these activities. Information on Biological, Physical and Chemical characteristics is available only for some ecosystems. Many papers on these aspects are presented here today too. These include topics such as Trophic status of lagoons, Water quality of lagoons, Trophic relationship of fish communities, Distribution of fish and ornamental plants, Relationship of ornamental plants and breeding of endemic fish Relationship of environmental conditions and distribution of fauna and flora, and Biology of fish in relation to environment

However, not much work on marine habitats is carried out. It is difficult due to nature of the environment and unavailability of resources equipment, human resources.

Recommendations

More research linking the conceptual basis of the ecosystem approach to sustainable fisheries development has to be carried out

It is also necessary to carry out research on Fishing gear that are least harmful to the environment, New fishing grounds, New species that could be used in fisheries and Sustainable levels of exploitation.

Results of these scientific researches should be provided to the fishermen and other stake holders too.

Scientific guideline based on these researches should also be developed.

Use of IT should be enhanced through the development of software packages, systems analysis and modeling.

Social and environmental factors should be given due consideration in management of fisheries. Biological and socio economic indicators should be incorporated into fisheries sector.

Studies on ecosystem approach and livelihood should also be carried out paying special attention to income and health of fishers.

Studies on increasing production of capture and culture fisheries with minimum damage to environment should also be carried out,

Local expertise knowledge available in Universities should be used for the sustainable development of fisheries sector with environmental conservation and protection.

Fisheries is a multi stake holder industry. Politicians, fishermen, fisheries officers, researchers, boat builders are some of the stakeholders. Competing objectives of multiple stakeholders should be resolved.

Clear objectives for fisheries management should be developed. Cost and benefits should be analyzed. Sustainability should also be considered.

The policy decisions are not easily understood by all stakeholders. Therefore, there should be effective communication strategies.

Mechanism to reduce cost should also be developed.

Bottom up management models should be developed. Co management should be encouraged. There are provisions developed in the Acts to establish farmer originations. There is one paper today on the effectiveness of farmer organizations in reducing the disease incidences in shrimp aquaculture. Involvement of grass root level should be encouraged. It is necessary to develop a common vision among all stakeholders.

Conflict Management should also be carried out and Perverse incentives should be removed. In addition, information flow should be enhanced and awareness programmes should be conducted. For this, networks could be established, workshops/dialogues, policy briefs could be conducted. Capacity building, training should also be carried out

Sri Lanka Association for Fisheries and Aquatic Resources (SLAAR) can play a major role in these aspects.

This will undoubtedly lead to sustainable development of the fisheries industry through ecosystem sustainability