

## 22. ECO-FRIENDLY FISHERIES EXTENSION POLICY

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### Introduction

Fisheries are a new profession, which has evolved after a scarcity of fish, was observed in the ocean because of over exploitation of fish from open water bodies. Development has, as such, neglected fisheries, and has concentrated on engineering and agricultural development. As a result over last five decades land based development got saturated. Over exploitation of these resources also had damaged the water-based resources, which might have been neglected because of ignorance. Modern fisheries also have also become intensive. This may again affect the environment. Considering this, fisheries extension policy needs to be developed in such a way that the adverse effects caused by industry and agriculture neither effect fisheries nor fisheries damages the environment. Along with that Fisheries Extension should also adopt the modern approaches of extension.

In order to achieve this, Fisheries Extension should adopt a policy

- To restrict environmental pollutions coming into the water bodies from other sources.
- To control environmental pollutions that might come out from hi-tech fisheries.
- To augment extension effectiveness by adopting modern extension methods, approaches and systems.

### Policies

Table 1 depicts the environmental changes and its impacts on fisheries. It also provides the recommendations that the fisheries department should adopt.

**Table 1 : Impact of environmental changes on capture fisheries**

<b>Environmental changes</b>	<b>Impact on fisheries</b>	<b>Recommendations</b>
Civil Construction	Fish Habitat destruction	Provide consultancy by fisheries experts
Destruction of forest and siltation	Destruction of breeding places	Encourage agro forestry by fishers
Excess catch of fish / juveniles	Shortage of species	Diversify fishers activity
Pollution	Eutrication, oxygen depletion	Getting water treated, organic farming, and Public litigation
Excess water for Irrigation	Water shortage for Aquaculture	Pursue for irrigation channel through Aquaculture area

Aquaculture also has created some impact on environment. For those that are adverse, need to be rectified. Table2 depicts some of the recommendations that the Department of Fisheries should implement.

**Table 2 : Impact of aquaculture on environment**

<b>Changes in fisheries</b>	<b>Impact on Environment</b>	<b>Recommendations</b>
Introduction of new fish species	Shortage of local species	Adaptive trials
Use of ground water	Rise in water table and salinity	Define aquaculture area
Release of effluents by the fishers to the environment	Pollution	Standardize effluent levels and register ponds. Ponds that control effluents need to be rewarded and that does not follow should be penalized
Providing supplementary feeding	Increase of nitrogen and toxic material.	Training on feed management should be provided

Sale of infected seed	Disease	Registering and rewarding good hatcheries providing diseased free seeds and penalizing the hatcheries selling diseased seeds
Using antibiotics to treat the fish	Loss of appetite	Funding research on disease resistance.
Transportation of diseased seed	Disease spread	Establish quarantine Centers
Use of chemicals in the farm	Effects unknown	Defining the Doses
Cage culture	Navigation problem, etc	Register quality. Reward those who do not damage the environment.

Beside doing the regularity work, Department of Fisheries also take up the Extension Education in a very massive scale in order to increase awareness about the modern technologies, policies and legal issues related with fisheries and also to provide feedbacks to the appropriate agencies for modifications. Table 3 depicts the extension methods and activities to be preferred by the fisheries department.

**Table 3 : Extension methods and activities to be preferred by the fisheries Department**

Levels of Extension Administration	Methods of Extension to be preferred	Other Extension Activities to be preferred
Apex	Mass contact	Monitoring and Evaluation cell
Middle	Group contact	Entrepreneurship Development Programme
Bottom	Personal contact	Adaptive trials

The Fisheries Department, besides doing the above should also incorporate the modern theories like Cyber Extension, Privet Extension service, etc. Amongst these privet extension is of immediate need considering the effect of "socialist sickness" in government extension services. Given below are the measures to be taken to start private extension service in fisheries.

## Private extension service

- **Revenue/income generation**
- Advertisement of input and marketing agencies/ industries
- Sale of extension literature
- Service charges
- Sale from adaptive trials
- Training charges
- Consultancy charges, etc
  
- Steps :
  - Documenting the technology
  - Training SMS/Consultants
- Registering good consultants
- Fixing the consultancy charges
- Fixing advertising charges for Consultants
  
- Goals and Objectives
  - State specific measurable objectives
  - State revenue share objectives
- Financial Plan
  - High-level financial plan that defines financial model, pricing assumptions, and reviews yearly-expected sales and profits for the next three years.
  - Use several heads to cover this material appropriately
- Resource Requirements
  - Technology requirements
  - Personnel requirements
  - Resource requirements—Financial, distribution, promotion, etc.
  - External requirements—Products/services/technology required to be purchased outside company

## Risks & Rewards

- Risks
  - Summarize risks of proposed project
- Addressing risk
  - Summarize how risks will be addressed
- Rewards
  - Estimate expected pay-off, particularly if seeking funding

## Key Issues

- Short term
  - Isolate key decisions and issues that need immediate or near-term resolution
- Long term
  - Isolate issues needing long-term resolution
  - State consequences of decision postponement
- If funding is needed, state specifics

## Conclusion

Environmental issues mostly address through legal acts. Therefore, fisheries extension needs to strengthen the linkages with law enforcing agencies for generating awareness about legal aids, beside transferring know how on modern technology in capture and culture fisheries. Environmental pollution is mainly caused due to industrialization that has affected traditional fisheries. Fisheries extension therefore needs to further strengthen people's participation for the implementation for such related legal acts. Secondly, modern aquaculture is seen from its ex-ante consequences on environment by the fisheries department and EIA studies. Thirdly, to encourage eco-friendly cultural practices the department should start adoptive trials. Strengthening of these three steps in Fisheries Extension Policies (FEP) will make fisheries extension more effective. The State Fisheries Departments, further, need to strengthen the extension methods to create greater impact in the area. To begin with, the apex level of the department should concentrate on mass contact methods, besides taking up monitoring and evaluation studies. The middle management should concentrate on group contact methods and entrepreneurship development process, to strengthen the marketing, processing and input delivery system through co-operatives, shelf help groups (of fisherwomen), and private parties. The grass root level of the organization should concentrate on personal contact methods to promote production. The need of the hour is also to strengthen the linkages between extension and research wings (by introducing the concept of technology documentation and subject matter specialists) besides having close working relationship with NGO's. Privatization of the extension services also needs serious considerations.