

A Brief for Fisheries Policy Research in Developing Countries

M Ahmed, C Delgado and S Sverdrup-Jensen



International Center
for Living Aquatic
Resources Management

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Management and Coastal
Community Development

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C DELGADO
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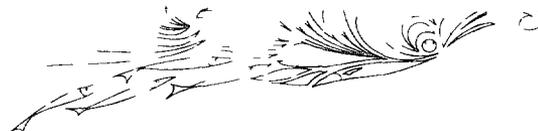
Editor Peter R Gardiner
Associate Editor Joanna Kane Potaka
Managing Editor Marie Sol M Sadorra
Coordinator Rowena Andrea V Santos
Copyeditor Rita Kapadia
Graphic Designers Albert Contemprate and Robbie N Cada
Cover Designer Robbie N Cada

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Contents

Preface	iv
Why Fisheries Policy Research?	1
What can Fisheries Policy Research Do?	3
Setting the Priorities	3
Priority Policy Research Issues	5
Protecting the environment and sustaining resources	5
Achieving growth and equity	6
Strengthening food security	8
Regional distinction	10
Asia	10
Africa	10
Latin America	11
Priorities for Policy Research	11
Recommended topics for fisheries policy research in developing countries	12
Implementation strategy	15
References	16

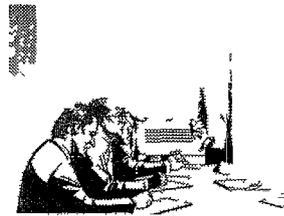
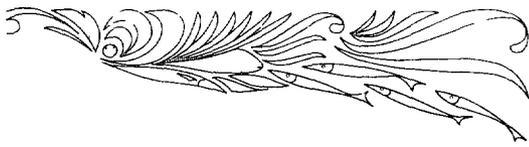


Preface

This brief is an outcome of the International Consultation on Fisheries Policy Research in Developing Countries (the workshop), jointly organized by ICLARM IFPRI and IFM, held on 3 - 5 June 1997 at the North Sea Centre Hirtshals Denmark The workshop was made possible through the generous financial support of DANIDA and the wholehearted cooperation of FAO's Fisheries Department and the Royal Veterinary and Agricultural University (RVAU), Copenhagen The workshop was organized by a committee chaired by Dr Peter R Gardiner (ICLARM) and composed of members Dr Mahfuzuddin Ahmed (ICLARM), Dr Christopher Delgado (IFPRI) Dr Sten Sverdrup-Jensen (IFM), Dr Shakuntala Thilsted (RVAU) and Dr Serge Garcia (FAO) Forty-two scientists, academicians and policymakers from developing countries together with representatives from donor and international organizations contributed to the development of a policy research agenda during the workshop

In the course of this compilation, substantive comments and suggestions were received from Dr Robin Welcomme (FAO), Dr John Dillon (Professor Emeritus, UNE), Dr Per Pinstrup-Andersen (IFPRI) Dr Meryl J Williams (ICLARM) and Dr Gardiner Ms Bing V Santos provided substantial assistance in compiling this brief Typing assistance was provided by Ms Malu Tungala The Publications Unit of ICLARM deserves thanks for the timely publication of this brief





A Brief for Fisheries Policy Research in Developing Countries

Why Fisheries Policy Research?

Fish constitutes an important part of the staple diet and a major source of animal protein in many parts of the world. Agricultural policy research often ignores the fisheries sector in studies of food and nutritional security of poor people in developing countries. However, the aquatic systems of the globe have undergone a rapid transition over the past decades, as have the consumption and trade patterns for fish in both developed and developing countries. These changes raise many relevant policy questions to which research can contribute valuable insights and suggest actions.

A steady increase in the world supply of fish from 20 million t in the early 1950s to 112.3 million t in 1995 was brought about by a sharp increase in the catch from natural stocks and, more recently, a rapid growth in aquaculture production. Production growth in response to a sharp increase in demand for high-valued fish species in wealthy countries combined with the growing demand for other species in developing countries that still have protein shortfalls, has supported a steady increase in per caput consumption of fish from less than 8 kg in the early 1950s to 14 kg in 1995. However, the per caput consumption in the developing countries (9 kg) is about one-third of that in the developed countries (27 kg). Nonhuman utilization of fish (e.g., fish meal) is 5.6 kg in per capita terms and nearly 29% of the world catch (Fig. 1).

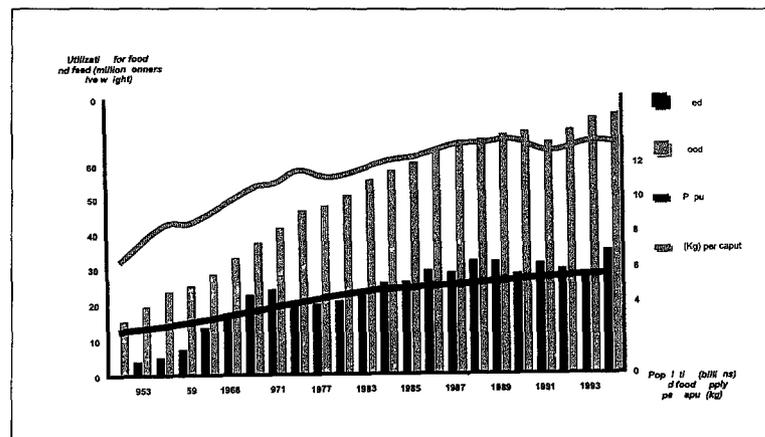


Fig. 1 World fish utilization Source: FAO 1997



The new ocean regime, e.g., establishment of the 200-mile exclusive economic zones by coastal nations, the 1982 UN Convention on the Law of the Seas (UNCLOS) and subsequent regional and international arrangements radically altered the direct access to fishery resources amongst nations and has influenced both technology and market forces within the fisheries sector (Ahmed 1997). Globally more than one-third of fishery products are traded in the international market and the value of fishery exports from developing countries reached 19.3 billion US dollars in 1993, surpassing traditional export crops such as sugar, beverages, meat, etc. (Delgado and Courbois 1997).

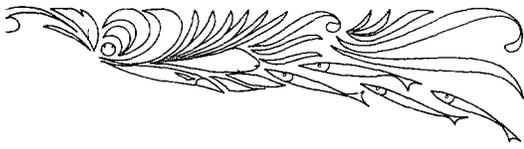
Increasingly, fisheries progress has become linked to the state of the environment. Coastal and inland waters and their surrounding environments have been subjected to multiple and more intensive use. While fisheries use itself has intensified, the environment will increasingly be required to support other needs and be subjected to problems such as degradation of genetic resources and loss of biodiversity (FAO 1995). Fisheries issues and other sectoral policy issues are being tied together.

The notion of management and governance systems is also undergoing a significant transition. There is a shift toward conservation and ecosystem based management from traditional exploitation and stock- or species-based management. On the other hand, governance of fisheries is shifting more toward privatization, and rights-based management or community-based management are in some cases replacing open-access and centralized government management. This shift brings changes in the levels at which decisions are made and needs new guidelines and institutional arrangements for implementation and monitoring.

The sector is expected to undergo further transition as a result of increased and diversified market demand and expanding trade - in particular the growing power of large business interests, i.e., 'global sourcing', a liberalized trade regime, and increased movement of capital - the new world order in trade and investment.

The net effect of these changes for developing countries is not known - particularly for those people who traditionally relied on participation in small-scale production, handling, consumption and sale of fisheries products. There is a possibility that these developments might threaten progress towards sustainable food security in many parts of the world and adversely affect the sustainable use of living aquatic resources, unless appropriate policies and actions are taken today (Williams 1996, Ahmed 1997).

Policy questions are being raised in relation to food, environment and economic security. In particular, one cannot ignore the potential impact of this transition in fisheries on the real incomes of producers and on the supply of animal protein to consumers. Nor can we ignore the impact of fisheries on foreign exchange earnings and food supplies in many countries. As fisheries are no longer an obscure sectoral concern or solely a welfare consideration for a few coastal people, associated policy issues warrant increasing attention (Delgado and Courbois 1997).



What can Fisheries Policy Research Do?

As with other sectors and resource systems, government and private sector policies have a significant impact on the incentives and opportunities available to fishers and fish farmers in choices about technology and resource use. Government policies have a direct bearing on the demand for technological change and on the extent and impact of change (Anderson et al 1988). They can also provide solutions to poverty, food security and environmental problems. As efforts to develop and promote technologies and management options for both fisheries and aquaculture continue, it will become increasingly necessary to assess the structure of incentives for producers and consumers of fish in the developing countries. In the context of market-oriented policy reforms and the trend towards a greater devolution of responsibilities to the local community level, an important focus of fisheries policy research will be to look at the linkages between social, economic and natural systems in order to achieve a sustainable use of aquatic resource systems and ensure adequate food security.

Setting the Priorities

Policy and institutional environments will play a significant role in furthering the growth and stability of fisheries and aquaculture by providing a long-term basis for increasing productivity while maintaining and conserving the natural resource base for fish production. At the same time, there is a strong need to make poor fishers, farmers and consumers the major beneficiaries of growth as an important means of strengthening food security and ensuring justice and equity.

Therefore, identification and analysis of critical policy factors should be given high priority for research at the national and international levels. Such research can recommend policy options and their implementation, provide options for design, generation and diffusion of technologies, and quantify the social, economic, technical and environmental effects of policy changes.

The role of and desirable directions for, fisheries policy research in developing countries were discussed with a broad audience of interested parties from developing countries in an 'International Consultation on Fisheries Policy Research in Developing Countries' held on 2 - 5 June 1997 in North Sea Centre, Hirtshals, Denmark (Box 1).



Box 1 International Consultation on Fisheries Policy Research in Developing Countries Issues, Priorities and Needs (2-5 June 1997 North Sea Centre Hirtshals, Denmark)

With funding assistance from the Danish International Development Assistance (DANIDA), the International Center for Living Aquatic Resources Management (ICLARM) and the International Food Policy Research Institute (IFPRI) in association with the Institute for Fisheries Management and Coastal Community Development (IFM) jointly organized this international gathering. Staff from the Research Department of Human Nutrition, Royal Veterinary and Agricultural University (RVAU), Denmark and the Department of Fisheries of the Food and Agriculture Organization (FAO) of the United Nations also collaborated in the organization of this consultation.

The principal theme of the workshop was: what can fisheries policy research do to (1) improve sector growth, (2) alleviate poverty, (3) improve food security, and (4) protect the environment in developing countries?

The workshop was designed to solicit inputs from researchers, policymakers and policy analysts in developing countries, selected research partners, resource persons from developed and developing countries, donor representatives and international agencies to identify priority areas for policy research.

The specific objectives were (1) to identify priority areas where policy research can determine options for fisheries policies, and (2) to assess the need for capacity building for fisheries policy analysis in the developing countries.

The Consultation resulted in a set of recommendations that include (1) policy research priorities and an agenda for international and national research initiatives and (2) guidelines for improving the capacity of developing country institutions in fisheries policy research, including enlargement of the scope for collaborative research.

Other outcomes include enhanced awareness among funding agencies of the research needs and capacities of the developing country institutions, improved cooperation and interchange between developed and developing country institutions, including international and regional agencies and research bodies, and recommendations on possible future regional or subregional consultations. A fuller set of proceedings, including the workshop papers, will be published by ICLARM, IFPRI and IFM at a later date.



Priority Policy Research Issues

Protecting the Environment and Sustaining Resources

Since 1985, developing countries have been producing a major and increasing share of the world supply of fish from both capture fisheries and aquaculture. Aquaculture has become the world's fastest growing food production system, with an average growth rate of 12% per annum over the last decade. Culture practices have expanded into a wide range of aquatic environments, from small-scale fish ponds and ricefields to large-scale fish ponds, cages and pens in coastal areas, lakes, reservoirs, waterways and the open seas. Many aquaculture technologies have not proved to be as efficient a means of protein production as originally expected. The lure of quick profits has encouraged the intensification of production on many ecologically fragile environments. Disease and pollution problems have caused large fluctuations in production and became major risk factors.

The operation of intensive cage culture systems in openwaters is being questioned because of its negative effects on the aquatic environment. Intensive cage farming appropriates a substantially larger ecosystem area for producing its food and processing its waste (Berg et al 1996). High rates of conversion of mangroves to shrimp and fish ponds, and the use of destructive methods for collection of shrimp and finfish fry in coastal waters have produced severe environmental degradation in a number of countries such as the Philippines, Indonesia, Vietnam and Thailand in Southeast Asia, and Ecuador and Honduras in Latin America. These factors are changing the ecological community structure, reducing recruits to capture fisheries and threatening the ecosystem balance in coastal area. In addition, the advent of intensive aquaculture has established ownership and access rights by a different, and usually the well-off, user group at the expense of poorer user and beneficiaries of natural fisheries. Policies are needed to control these social consequences and maintain environmental integrity.

Capture fisheries, particularly inland, coastal and nearshore fisheries, continued to attract more and more labor and capital, and overfishing has become a severe problem in densely populated coastal areas in developing countries and in the productive offshore areas in all parts of the world. At the same time inland, coastal and nearshore fisheries have suffered from the impacts of industrial, urban and agricultural activities, upland development, reclamation, mangrove clearing, and competition for use and access caused by urbanization and tourism (Box 2)



Box 2 Environmental Degradation and Loss of Critical Habitats

Estuaries and coastal vegetation such as mangroves, wetlands, river basins, floodplains, lagoons and lakes are suffering from the impacts of pollution, water withdrawal for human use and land reclamation. Coral reefs and seagrass beds are also under increasing threat from physical destruction, siltation and sedimentation. The need for protection of these aquatic systems in coastal zones and inland catchment areas is well recognized. The framework for action adopted by the United Nations Environmental Programme (UNEP) Global Program of Action for the Protection of Marine Environment from Land based Activities in Washington, DC in November 1995, has called for urgent action by all nations. However, in the developing countries, this may remain unaddressed because of lack of resources and a lack of political pressure (FAO 1997).

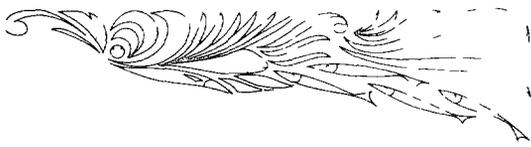
The sustainability of capture fisheries has now become a global issue. In developing countries, population pressures and a lack of alternative employment opportunities, together with the inability and reluctance of governments to take the necessary conservation and management decisions, have resulted in severely overfished coastal and inland resources with catch rates, fish sizes and fishers' incomes all declining (FAO 1997).

The management of the biological basis of fisheries and aquaculture, such as the provision of energy, chemical and biological pathways, is a critical area where major shifts in policy are needed.

Achieving Growth and Equity

Given the current trends in price, demand and trade, economic incentives for an increased investment in both capture fisheries and aquaculture will remain high. However, the level of exploitable stocks in the world oceans will limit the scope for expanding production from capture fisheries. Technological development, such as breeding and genetic improvements and development of infrastructure and support services have the potential to greatly enhance aquaculture production. A freer trade regime can enable fish products to reach new and diversified markets and can stimulate growth. However, the management of land and water resources appears to be a critical factor for sustainable long-term growth (Box 3).

The new opportunities resulting from the skyrocketing demand for fish are likely to affect large- and small-scale fisheries differently depending on the prevailing policy regime. Too often public policy subsidizes capital intensive large-scale operations at



Box 3 Land and Water Use Competition

Land and water are multisectoral resources and both are becoming increasingly scarce. The great challenge facing the developing countries in the 21st century is to maintain land and water quality while meeting the growing demand for land and water resources. Aquaculture will have to compete with other sectors including agriculture for land area and water supply.

Massive subsidies and distorted incentives have encouraged wasteful use of water in the past and caused degradation of soils in irrigated areas and depletion of ground water (Rosegrant 1997). The cost of developing new water sources in the future will be much higher. Thus, scarcity of water can become a constraint to the growth of aquaculture. It is necessary to develop a strategy for reducing water use in aquaculture systems and promoting an efficient and optimal use of water. An integrated approach to management of land, watershed, catchments and river basins will be a more sustainable solution and will optimize resource use.

the expense of traditional small-scale fishers (Box 4). Policies that allow a broad participation in the rapid growth of income from fish production are a priority.

Box 4 A Policy Bias Against Small scale Fishers?

In many developing countries, the current policy structure needs to be evaluated for its economic, social and ecological costs. The current trend in the shift of land to high value aquaculture production should be evaluated for its effects on agriculture, subsistence fisheries, the supply of low value food fish and farming of other staples by smallholders and subsistence producers. In many developing countries high value fish targeted for export markets continues to receive substantial policy support and incentives such as cheap land leases, credit supply and low tariffs on imported inputs and infrastructure. It competes for resources that are used for the production or harvesting of low value food fish for local consumption by the poorer groups. Likewise, many commercial fishers have been subsidized through government policies on inputs such as fuel and machinery. In the Philippines, for instance, commercial fishers in San Miguel Bay fisheries were the prime beneficiaries of a fuel subsidy scheme throughout the 1970s and 1980s. This led to overexpansion of fishing effort and overfishing in the Bay. Corrective measures are needed to reverse the negative effects on the income and food security of low income and poorer producers and consumers (Ahmed 1997).

Fisheries and aquaculture policies in most developing countries in recent years have focused on private sector participation in production, input supply and marketing. However, in many countries the legal and institutional framework to deal with



resource access and user rights issues, to meet the needs for infrastructure and extension support, to regulate land and water use, and to simultaneously protect and safeguard the small operators is still lacking (Box 5)

Box 5 Privatization and Entrepreneurship

In China a major structural shift in fisheries supply occurred with the movement towards a free market in 1978. Almost full liberalization for fisheries occurred by 1985. This created private markets for resources and inputs as well as for the production sale and distribution of fish and fish products. In Bangladesh, aquaculture development in the 1970s was initially promoted by the government through the supply of seeds from state owned fish seed farms. By the mid 1980s it was almost entirely in the hands of the private sector. In both cases the growth process was accelerated by liberalization and private sector development. Changes in land tenure in favor of private access had a positive effect on the growth of Vietnam's fish production sector particularly aquaculture (Ahmed 1997)

Strengthening Food Security

Increasing the access of the rural poor to productive resources is the key to sustained increases in food security. The determinants of food security are often complex and need to be assessed at many levels (Fig 2). It is not enough to promote the development of low-cost products to strengthen food security. This has to be supported by policies that allow the poor and small operators to have access to resources and markets. They should be major beneficiaries of resource management and productivity improvements in capture fisheries and aquaculture. This implies a competitive and fair access to resources, information and means of production, an improvement in the capacity to maintain a productive resource base for all and the availability of affordable and sustainable technologies.

Subsistence fisheries in marine waters and in aquaculture in many parts of the world are losing out to commercial fishing and aquaculture as a result of the integration of local fisheries and fish production systems into the formal economy and international markets. While this offers a promise of improving the livelihood of fisherfolk, directing the potential benefits of these trends towards poverty alleviation and food security will require policy action. For example, substantial policy support will be needed for subsistence fish culturists and fishers to make them more competitive and for the enhancement of stocks and the restoration of habitats that they depend upon (Box 6)

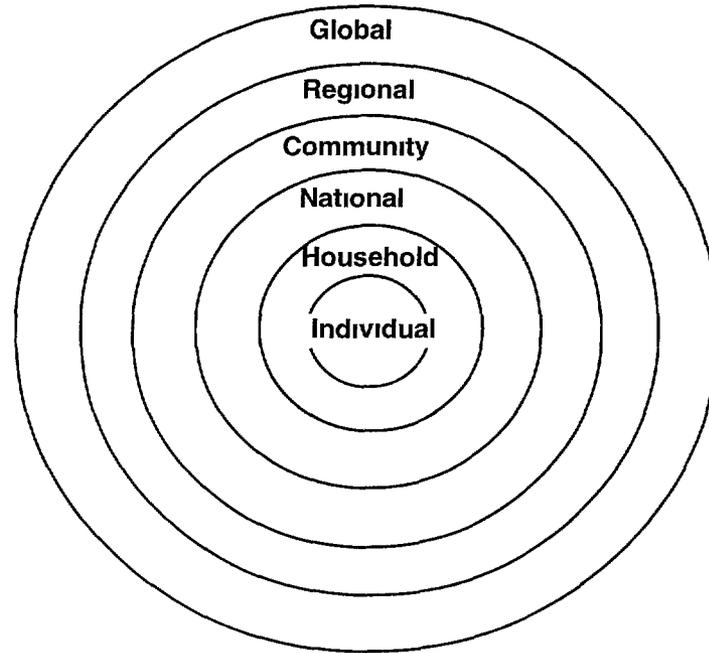
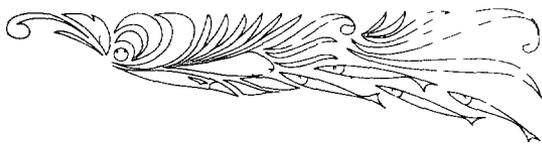
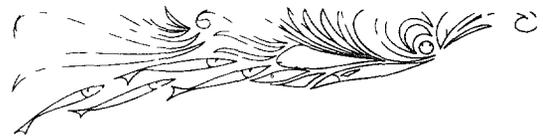


Fig 2 Levels of food security

In coastal communities, where the depletion of natural stocks has reduced the overall economic potential of fisheries, the possibility of generating additional income may stem from diversification of production. This can be done through the exploitation of

Box 6 Enhancing the Livelihoods of Small scale Producers to Improve Food Security

How do you benefit small fisheries operators? Should technology improvements be designed specifically for the small producers or should policy support directly seek to increase the competitiveness of the technology and production systems used by them? In augmenting the production of small farmers is it necessary and possible to develop species and technology to fit the circumstances of the poor farmers? Or is the main issue their low capacity to invest in external inputs? Developing or designing technology for a particular target group may not be cost effective in many circumstances. It may be more beneficial in the long run to implement policies that will give them access to outside inputs such as credit infrastructure and information. This could help small farmers to raise their production more quickly and more substantially than the development of a low cost low external input technology alone could do. One important aspect of policy research in this area is to assess the full costs and benefits of different options for achieving the same goal (Ahmed 1997)



low input/high value output species such as clams, pearl oysters and sea cucumbers. A conducive policy environment for collective action by traditional fishers, through participatory marketing and input supply cooperatives, will be an important factor in promoting food security and equity in many circumstances.

Regional Distinction

Despite a global perspective, there is a clear distinction in the nature of the developments and changes in fisheries over the past decades among Asia, Africa and Latin America.

Asia

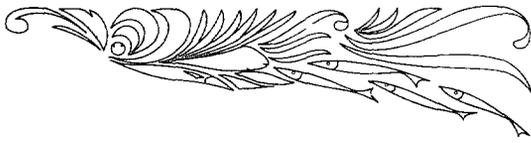
In Asia, sustaining the growth of aquaculture and rehabilitation of overfished resources by an overcrowded small-scale fishery sector are the major policy issues. Policies are needed to deal with

- intersectoral allocation of land and water use between fisheries and other uses,
- governance relating to fisheries resource use, access rights, security of tenure, and regulation, especially for inland and coastal fisheries,
- balance between fish for trade and for domestic use (earning foreign exchange versus food security), and
- changing demography in the fishery sector/movement of fishing population within and between national and regional boundaries

Africa

Many parts of Africa have had low economic growth, inefficient performance of national industrial fishing fleets and a strong dependence on European markets. Artisanal and inland fisheries management and aquaculture development are constrained by weak institutions, lack of good governance and a deteriorating environment. Policies are needed to deal with

- governance, and access to resources and information
 - partnership management
 - rights-based management
- access to markets
 - study of constraints
 - improve national trade



- aquaculture
 - developing enabling environment
 - role of government
 - resource use/sectoral integration
- socioeconomic transformation
 - impact of structural adjustments
 - sectoral demographics
- promoting trade and increasing economic value
 - regional and international trade opportunities
 - self-sufficiency vs trade
 - analysis of economic incentives/disincentives

Latin America

In Latin America fisheries are oriented towards small pelagic marine fish that make up 75% of the total catch, mostly used for nonhuman utilization. A ready market in North America and the growth of tourism in the Caribbean have led to the concentration on and growth of fisheries and aquaculture for high-value export-oriented species. Policies are needed in two important areas:

- sustainable development and responsible fishing
 - economic valuation of fisheries resources
 - optimizing use and rehabilitation of resources and ecosystems
 - identifying trade barriers (at all levels)
 - governance (and management) of shared resources
- economic growth and food security
 - impact on employment and income
 - small-scale vs industrial development
 - feasibility of small scale aquaculture

Priorities for Policy Research

Both people and the environment should be the targets for any policy measures aimed at improvements in fisheries and aquaculture. Research related to sustainable development, responsible fishing and improving food security are major priorities for policy research in fisheries in developing countries. At the national level significant investment will be required to build policy research capacity, improve collection of baseline information, conduct long-term monitoring and forecasts and thereby improve policy analysis. Development of research tools and methodologies for obtaining information and performing analyses is also part of these priorities.



Recommended Topics for Fisheries Policy Research in Developing Countries

In order to address the policy issues discussed in the previous section the following set of research topics were identified during the workshop

1 How fisheries affect and depend on the environment and its ecological integrity

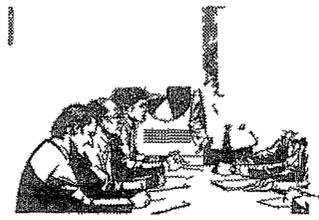
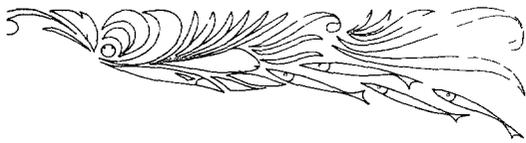
To take into account nonmarket factors and promote appropriate incentives to avoid distortions and degradation of the resource-base, research should focus on the economic valuation of fisheries resources and their supporting environment within an integrated framework of resource management. Conceptual and methodological work on improved natural resource valuation and natural resource accounting will be required

2 How to ensure sustainable governance of fisheries

To deal with access rights and user conflicts in multiple use situations in developing country fisheries, research should focus on participation, liabilities, accountability, and decentralization of political and financial power. Systematic documentation and comparative assessment of models and processes of property-based, rights-based and community-based fisheries access are needed, in addition to the development of a methodological and analytical framework. The legal and institutional perspectives will also require substantial review and analysis

3 How to improve policy awareness of the importance of fisheries development

Recent developments in the world food model (produced by IFPRI) have led to an increased appreciation of the key role of meat and milk in food security worldwide, while fish have been typically omitted despite their overwhelming importance. To integrate aquatic resources into a world food supply and demand model, it is necessary to identify parameters for and make projections of fish supply, demand, consumption and prices in the future



4 How do employment and labor flows in fisheries affect income and food security

To understand intersectoral flows of labor between fisheries and other sectors, research should focus on factors affecting labor flows in and out of fisheries, analysis of gender in fisheries and aquaculture, the role of income effects in broader food security and the impact of structural adjustments within the sector, particularly on the optimal capital-intensity of operations

5 How does international trade in fish affect domestic consumption of fish and overall food security of the poor

To analyze production and substitution possibilities at the level of production and assess the costs and benefits of trade, especially export trade versus domestic use, research must focus on trade and market liberalization policies affecting production and distribution including those of the World Trade Organization (WTO). The current hypothesis is that further growth of world fish trade will occur under market liberalization and will be associated with further polarization of fish flows such that high-value species will be exported from developing countries to the developed, while the role of lower-value species in food supply of the developing countries will continue to increase.

6 How to integrate aquaculture into the overall management of natural resources from the point-of-view of competition in resource use and protection of the aquatic environment

To benefit small-scale producers from integrated aquaculture-agriculture systems, research should focus on policies affecting the domestic price of fish, fish exports, subsidies on the use of inputs (land and water), and environmental regulation. The study of land and water use policies, the analysis of full costs and returns of intersectoral resource allocation and the optimizing of integrated aquaculture-agriculture production will be needed to guide policies for technology and management options. Farm level research is needed to determine how policies may support integrated aquaculture agriculture system (IAAS) while taking into account gender, seasonality and other factors affecting labor.



7 What policies are needed to support aquaculture development in Africa and Latin America

What is the key to the growth of aquaculture in Africa and Latin America? Should aquaculture be geared toward exports or the domestic market? Both Africa and Latin America have lagged behind Asia in aquaculture development, perhaps for different reasons. Research is needed for assessment of markets, infrastructure and other factors affecting production, as well as on the production of high-value species for upscale and export markets. In Africa, research is needed to identify constraints to the adoption and diffusion of technologies and to determine the role of the market, input supply and infrastructure.

8 How should policy decisions be influenced

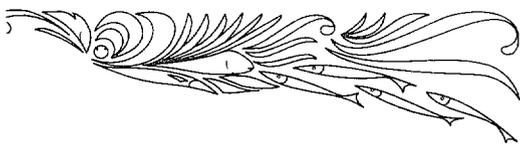
To examine how strategies for collective action affect fisheries policy decisions, and how and why fishers have had a major influence on government policies.

9 What are the sources and determinants of risk and uncertainties in capture fisheries and aquaculture

To quantify the sources and determinants of various risks, e.g., resource quality and environmental changes, production risk, disease risk and market risk.

10 What strategies and options are needed for improving resource productivity and enhancing the supply of aquatic products

To investigate alternatives such as stock enhancement, habitat restoration and fish farming in terms of their social, economic and environmental costs and returns.



Implementation Strategy

There is an urgent need to address the policy issues relating to the sustainable governance of aquatic resources and the preservation and protection of the environmental integrity of the ecosystem. Similarly, policies are needed to enable fisheries management and fish farming to better support food security through improved livelihood and a greater supply of food fish for the poor. In addition to the specific issues noted above, the following factors are also important for designing and implementing fisheries policy research that will further both the poverty alleviation and sustainability objectives of the Consultative Group on International Agricultural Research (CGIAR).

1 Partnership and capacity building Building partnerships among national institutions, advanced scientific institutions and international agencies, including donors and other CGIAR centers, will be essential to implement the policy research agenda that has been developed at this consultation. Policy research at the CGIAR level will be more cost effective if it provides insights on policy issues of broad scope and relevance, on methods and on procedures. Strengthening the capacity of the developing country institutions through collaborative research, training and networking will be an essential element of conducting policy research that can use these insights to provide specific answers for specific locations, while adding to broader perspectives. The criteria for partnerships will be the research capacity of partner institutions and the commonality of problems.

2 Integrate fisheries issues into other sectoral policy issues It is recognized that many of the policy decisions affecting fisheries are made outside the fisheries sector. Therefore, the scope of policies in other sectors should also include fisheries' concerns. Fisheries policy research must link the developments in the biophysical sphere affecting fisheries and aquaculture with other factors such as upstream land use effects and modification of hydrological functions.

3 Linking research with impact assessment The impact of policy research needs to be measured in terms of how it can help decisionmakers in government. Involving national agricultural research systems (NARS) scientists and policymakers in data collection, analysis and interpretation will help strengthen the technical and analytical capacity within national institutions and lead to a better mutual understanding of the technical and policy constraints faced by fishers and fish farmers. For this, ICLARM and other international institutes will have to collaborate with a broader set of institutions than those dealing only with biophysical research, to build national capacity in policy research, to improve its own research, and to ensure that the research and recommendations will lead to changes and improvements in government policies.



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International Center for Living
Aquatic Resources Management

A way to achieve this We undertake facilitate and disseminate scientific research to improve the production management and conservation of aquatic resources such as fish The research thrusts are improving productivity, protecting the environment saving biodiversity improving policies and strengthening national programs

We believe this work will be most successful when undertaken in partnership with national government and nongovernment institutions and with the participation of the users of the research results

Our corporate makeup ICLARM is an autonomous nongovernment nonprofit organization established as an international center in 1977, with headquarters in the Philippines ICLARM is an operational entity with programs funded by grants from private foundations and governments ICLARM is governed by an international Board of Trustees and policies are implemented by the Director General There are approximately 125 scientific (internal regional and national) and technical staff, and 85 support staff from 12 countries

International links ICLARM has its headquarters in the Philippines and research sites in Malawi, Solomon Islands Bangladesh and Egypt We also have outposted officers in Canada the Caribbean Denmark and France In 1992 ICLARM joined the Consultative Group on International

Agricultural Research (CGIAR) which is under the umbrella of four co sponsors the Food and Agriculture Organization (FAO) the World Bank (WB) the United Nations Development Program (UNDP) and the United Nations Environment Program (UNEP)

The research ICLARM's research is carried out through 10 programs (1) Biodiversity and Genetic Resources (2) Germplasm Enhancement and Breeding, (3) Aquatic Environments, (4) Fisheries Resources Assessment and Management (5) Integrated Aquaculture Agriculture Systems, (6) Coastal Aquaculture and Stock Enhancement (7) Policy Research and Impact Assessment (8) Fish Health (9) Information and Training and (10) International Partnerships and Networks (strengthening connections and collaborations between fisheries organizations and individuals especially in developing countries)

The guiding principles for the research are sustainability, equity, gender role in development participation systems approach and anticipatory research

The values of our work are excellence in achievement relevance to our beneficiaries needs partnerships centerwide teamwork, communication efficiency and flexibility in program delivery and continual growth in our knowledge and understanding



The International Food Policy Research Institute was established to identify and analyze alternative national and international strategies and policies for meeting food needs in the world with particular emphasis on low income countries and on the poorer groups in those countries While the research effort is geared to the precise objective of contributing to the reduction of hunger and malnutrition the factors involved are many and wide ranging requiring analysis of underlying processes and extending beyond a narrowly defined food sector IFPRI's research program reflects worldwide interaction with policymakers administrators and others concerned with increasing food production and improving the equity of its distribution

Within its mandate IFPRI's objective for program development is to emphasize the importance of the problem the potential for comparative analysis the need for improved conceptualization, the complementarity among components of IFPRI's research and above all the opportunity for policy action

IFPRI's policy oriented research evaluates alternative development strategies from the view point of their implications for food production and consumption food production processes particularly the role of technological change in agriculture food consumption issues particularly as they relate to low income groups and international food trade, aid and food security Where practical this research emphasizes comparative analysis among countries and the international implications of national food policies



Institute for Fisheries
Management and Coastal
Community Development

The Institute for Fisheries Management and Coastal Community Development (IFM) is a nonprofit organization that specializes in socioeconomic research on and provision of advisory services in fisheries management and coastal community development IFM's primary objective is to undertake socioeconomic research including policy institutions and processes for change in the management of fisheries Research activities are focused on fisheries and fishing communities and their relations with national and supra national fisheries authorities The focus is also on the development of fisheries and fishing communities (artisanal as well as industrial) in an international multisectoral context

The Institute's secondary objective is the delivery of advisory services to international and national public authorities institutions development organizations NGOs and private parties in areas related to the research agenda of the Institute and within the professional competence of the staff

The research work and advisory services relate to fisheries management and development in developing as well as developed countries