

Fish for the Poor Under a Rising Global Demand and Changing Fishery Regime

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Abstract

In the past, agricultural researchers tended to ignore the fisheries factor in global food and nutritional security. However, the role of fish is becoming critical as a result of changes in fisheries regimes, income distribution, demand and increasing international trade. Fish has become the fastest growing food commodity in international trade and this is raising concern for the supply of fish for poorer people. As a result, the impact of international trade regimes on fish supply and demand, and the consequences on the availability of fish for developing countries need to be studied. Policies aimed at increasing export earnings are in conflict with those aimed at increasing food security in third world countries.

Fisheries policy research will need to focus on three primary areas which have an impact on the marginal and poorer communities of developing countries: increased international demand for low-value fish on the supply for poorer countries; improved aquaculture technologies and productivity on poorer and marginal farmers; and land and water allocation policy on productivity, food security and sustainability across farm, fishery and related sectors. The key to local food security is in the integration of agriculture, aquaculture and natural resources but an important focus of fisheries policy research will be to look at the linkages between societal, economic and natural systems in order to develop adequate and flexible solutions to achieve sustainable use of aquatic resources systems.

Fish is an important part of the staple diet and the major source of animal protein for a majority of developing countries. Countries endowed with fisheries along their coasts, in rivers, lagoons and floodlands meet a substantial portion of their total food and nutritional requirement from fish. Despite intense fishing pressure and a decline in productivity due to habitat degradation in many developing countries small-scale fisheries in the inland, estuarine and nearshore areas still play an important role in local food security by providing a direct supply of food fish as well as income from the sale of fish. Countries that suffered less from the negative consequences of inappropriate management and policies favoring development of agriculture, infrastructure and similar sectors reportedly maintained a very high intake of fish from wild capture. In Fiji, small-scale fisheries are both a source of food and income to most rural households. In half of all rural households at least one person regularly fishes for food (Rawlinson et al. 1995). In Cambodia, average consumption of freshwater fish in households having access to waterbodies is about 50 kg per capita per annum. Nearly 40% of the house-

holds are actively engaged in fishing. Household members combine farming and fishing to obtain their subsistence and in many households fish provides the necessary buffer to the yearly household supply of food and income whenever crop production fails, which is a common phenomenon.

What happens to fish once it is harvested is increasingly becoming a major concern as its role in global and local food and nutritional security is becoming critical because of changes in fisheries regimes, income distribution, demand and international trade. Over the last four to five years, the world has experienced a real rise in seafood prices—4% per annum by some estimates. Increases in income and purchasing power aided by growth of free trade are causing a significant reallocation of resources and productive assets within the food sources itself. The market is responding to the demand for diversified diets and food habits of the people whose income and purchasing power have increased. The net effects of changing trade regimes on fish supply and demand and consequent impact on the availability of fish for consumption by poorer people in the developing world need careful investigation.

Expansion of Market and Diversified Use of Fish

Fish has become the fastest growing food commodity in international trade. Already, the increasing international trade in fishery products is raising concerns about its consequences on the supply of low-value fish for poorer people in the developing countries. There is a growing conflict between policies aimed at increasing export earnings and those aimed at increasing food security in third world countries. For instance, a policy of devaluation to increase fishery exports can encourage overfishing in unregulated fisheries and reduce the domestic supply of fish. Theoretically, international trade can enable developing countries to export high-value species, import more low value fish and fish products and thereby increase the volume of food fish supply to domestic consumers as well as increase regional welfare. However, subsidized or rent-free domestic fisheries may unfairly benefit consumers in the rich countries through international trade. Thus, due to negative and inconsistent policies international trade can also contribute to a net transfer of fishery products and benefits from devel-

oping countries to developed countries at the expense of the diets of the poorer segments of the population. A reformulation of trade and aid regimes may be necessary to correct this. The developed countries depend on imports for more than half of their fish consumption. The trend is on the rise (Williams 1996). In the context of growing demand in higher income countries an analysis of international trade and its impact on food-fish supply to developing countries is quite urgent.

The trend in the use of low-value species (so called trash-fish) to feed high-value species has already raised both national and international concerns. Fish utilization and product conversion is primarily a market dictated phenomenon. The hypothesis is that with increasing income and demand many low value and poorly processed or handled fish species will move to the higher value fish markets; handling and processing techniques will improve thereby reducing wastage. But this may not increase the supply of food fish for the poor consumers and subsistence fishers, nor will it necessarily reduce the diversion of food fish for non-human consumption. While it is true that the seasonal nature of the harvest creates a large local supply of poor quality and low-value fish, it is also largely due to the low absorption capacity of the local food fish market and the poor purchasing power of the con-

sumers that low value fish are diverted to the animal feed industry including commercial aquaculture, whose products are generally of high value and are targeted for urban and export markets. In many developing countries, these industries are subsidized in terms of infrastructure, tariff or use of public resources and hence have an increased capacity to attract low-value fish for conversion into animal feed or fishmeal (see Fig. 1). Market-led policy is required to correct any imbalance in the resource use policy for competing products. Policy reform may be necessary to create the necessary market forces to balance the terms of trade between human consumption and nonhuman consumption of fish.

Change in the Fishery Regime and Technological Development

The fishery regimes are undergoing a major transition worldwide. The global fish catch soared from 20 million t in the 1950s to about 90 million t in recent years. It is on the verge of decline. With the decline in the supply of ocean fish much of the increased demand is expected to be met by the supply from aquaculture and culture-based fisheries. This will imply more land-based inputs. There are important links between oceanic and land-based food sources. In view of the limitations

on sustainable yields of fisheries, sustainable yields of aquifers and the capacity of crops to use more fertilizers, these links will be more affected by policy changes in the future (IFPRI 1995).

The growth potential for aquaculture seems to be enormous given trends in technology and production increases in recent years. World aquaculture production doubled between 1984 and 1993 to 16.3 million t. Estimated production for 1995 by FAO is 21.3 million t. Developing countries, particularly those in Asia, contributed most of it. In many cases, the emergence of aquaculture is leading farmers to improve productivity of ponds as well as wider community resources such as ditches, natural lakes and seasonal waterbodies. However, due to marked inequalities among households in terms of access to land and other resources in many socioeconomic conditions it is feared that further inequalities may result from the aquaculture system.

A recent survey in Bangladesh showed that landless and marginal farm households rarely own or possess any pond, an important resource for aquaculture development in the country (Table 1). Moreover, in cases where increases in productivity are shown by low income farmers the tendency has been for wealthier and more powerful middle-persons and their agents to as-

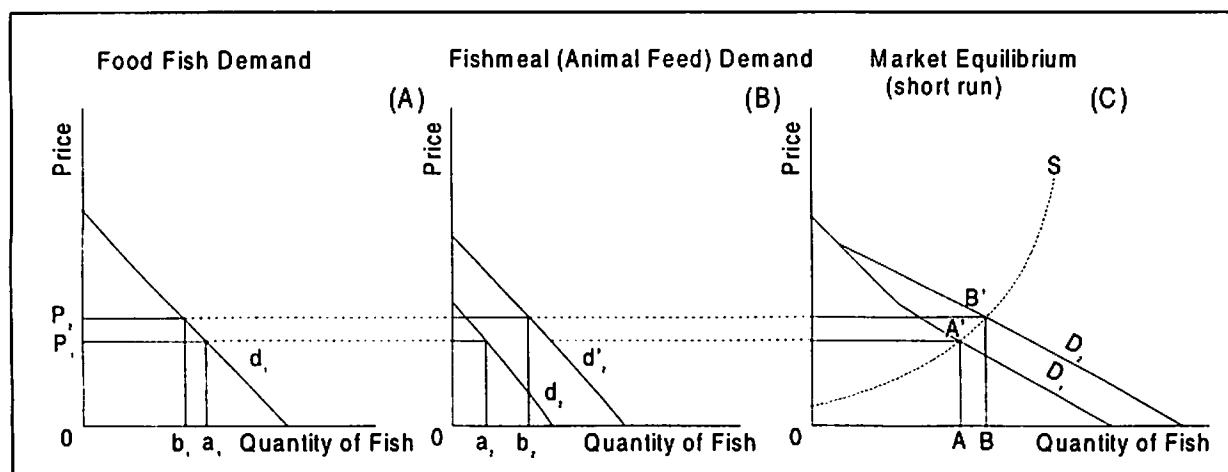


Fig. 1. Effects of increasing demand for nonhuman consumption (e.g., animal feed) on consumers of low-value species.

Note: a shift in demand for animal feed from d_1 to d'_1 (diagram B) will produce a short-run increase in the supply (diagram C), yet the consumption of food fish is reduced, accompanied by a price increase (diagram A). There can be variations in the effects depending on the shapes of supply and demand curves and their elasticities.

Table 1. Distribution of households (%) by land ownership groups in Kapasia and Sreepur thanas, Gazipur district, Bangladesh, July 1990-June 1991.

Land ownership	Kapasia		Sreepur	
	All households* (N=43 690)	Pond owner/operator household ^b (n=193)	All households* (N=41 104)	Pond owner/operator household ^b (n=140)
≤0.20 ha (landless)	31	0	36	3
0.21 - 0.40 ha	15	4	12	6
0.41 - 0.60 ha	14	9	11	4
0.61 - 1.00 ha	17	16	14	16
1.01 - 3.00 ha	21	51	23	44
3.01 - ha	2	20	4	27

*BBS (1988).

^bField survey.

Source: Ahmed et al. (1993).

sert claims over those resources. Thus, a shift from oceanic to land-based food sources such as aquaculture and culture-based fisheries will not necessarily result in the poorer households getting more fish and income.

Techniques are being developed to enable large-scale farming of a wider range of fish species for international trade. This will further impact prices for varieties that are domestically consumed as well as for substitute products.

Conflicts Concerning Priorities Over the Use of Natural Resources and Distribution of Benefits

The world has overexploited fisheries, aquifers and land resources. Both land and water have become scarce. Rapid industrialization is driving many countries to use cropland for other purposes and water is becoming scarce. The efficiency in land and water use across production systems is a key factor for growth. Thus, the impact of land and water allocation policies on productivity, food security and sustainability across farm, fishery and related sectors needs to be studied, particularly in the context of aquaculture.

Past experiences in agriculture showed that increasing food production may not result in increased food security. The current hypothesis is that rural households may achieve food security by growing their own food. In many ecological and socioeconomic situations (e.g., coastal and riverine), the harvesting of fish, forest or other

natural products, either alone or in combination with farmed food production, may be a more sustainable strategy for achieving food security. Integration of agriculture, aquaculture and natural resources is often the key to local food security. Some of ICLARM's recent work in Asia and Africa tends to support this view. But more rigorous investigations are needed, particularly to analyze the macro perspectives and identify policy and institutional variables that either help or hamper the achievement of food security objectives.

Rapid population growth paralleled by increasing scarcity of land further limit the earning of the poor from farming alone. Rural aquaculture or fish farming cannot, therefore, be seen as merely a production intensifying strategy but rather as a package of stimuli to create wider participation in vertically and horizontally integrated activities. The fact that many rural households are landless and do not have access to waterbodies would now warrant the new aquaculture production systems to generate more employment for these groups, particularly women. Estimation of the effects on labor-force participation is an important factor for assessing the success of aquaculture.

In the context of equity and nutritional benefits of aquaculture early indications are that a more targeted approach would be needed for the development and transfer of aquaculture technology. New aquaculture technologies have the potential to turn so called marginal land and water into an eco-

nomie resource capable of generating income. This may, however, come at the expense of traditional social or communal use by landless and poor families who will be pushed off. Also if the technology is commercially oriented the poor and marginal households may be in a disadvantageous position. The large and well-off groups will constitute a force that can "pull" less endowed households off the land and water. The situation can become worse if the product is for export and uses external inputs. There are many such examples in agriculture.

Productive and remunerative employment is seen as fundamental to overcoming food entitlement (food security) failure among the poor. There is limited understanding and agreement on how to go about it in the case of exploiting the potential of the aquatic environment. Adequate understanding of household and family decisions is one prerequisite. Policies are needed for remunerative employment based on higher productivity. Alternative policy instruments include macro economic policy, trade and price stabilization policies and aquacultural and agricultural production policies.

Importance of Policy Analysis

As in other sectors or resource systems, the fundamental assumption of policy research in fisheries is that government economic policies have significant effects on the incentives and



Photo by M. Ahmed

Household members in Lao PDR catch fish from flooded ricefields.

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). It can also provide solutions to poverty, food security and environmental problems. Increasingly, as efforts continue to develop and promote technologies and management options for both fisheries and aquaculture, it will be necessary to assess the policy environments, e.g., structure of incentives for producers and consumers of fish, in the target countries. In the context of envisaged market oriented policy reforms and trends toward greater devolution of responsibilities to the local community level, an important focus of fisheries policy research will be to look at the linkages between societal, economic and natural system in order to develop adequate and flexible solutions to achieve sustainable use of aquatic resource systems and ensure adequate food security. For example, policies are needed to prevent the existing resource base for production of living aquatic resources from further deteriorating by adverse environmental practices on land and watershed.

The main objectives of the research on policy related issues in fish-

eries should be to:

- develop methods to assess how existing legislative and economic policies affect the resource property relationship and nutritional status of people, particularly the poor;
- seek to understand how policy changes across interrelated sectors and economies would alter the terms of trade for fisheries;
- seek to identify appropriate technology, institutional reforms and policy interventions for reducing poverty and promoting sustainable management of resources in capture fisheries and aquaculture;
- determine whether and to what extent increasing world demand and international trade will operate to overexploit resource, intensify fish farming and provide nutritional benefits to poorer consumers in the developing countries; and
- determine what role international trade and market demand play in the future supply of fish protein for the poor.

For a long time, agricultural policy researchers ignored fisheries as a factor in global food and nutritional security. National food balance sheets only make a token acknowledgment of oceanic food supply. Fisheries policy re-

search at the CGIAR level will increase understanding about human linkages with aquatic systems for food supply and, hence, broaden the dimension of food security.

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