

Introduction to the Issues and Context of Rapid Changes in World Demand for Fish

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Abstract: Recent trends in global fish production, consumption and trade reflect several fundamental shifts in the structure of supply of and demand for fish and seafood. Rapid changes in world demand for fish is first discussed. Six panelists discuss the issues derived from considering fisheries—with particular emphasis on aquaculture—as a major form of food and export production in developing countries that competes with crop and livestock activities for resources. A first paper will review and analyze developments in international seafood markets and its impact on developing countries. This is followed by discussion of the conceptual and practical methodological issues in integrating fish into a broader world food model. Subsequent papers will provide more in-depth sectoral consideration of the trade-offs involved in placing fisheries supply and demand issues in the broader context of agriculture supply and demand, with added regional insights for specific parts of developing Asia and Sub-Saharan Africa. Two panel discussants with broad geographic experience and in-depth knowledge of fisheries issues will provide synthesis of the papers, followed by an open discussion of the panel topic and related issues.

Keywords: Fish, 2020, Global Food Model, Data Aggregation, Methodology.

1. FUNDAMENTAL CHANGES IN THE WORLD FISHERIES

Recent and on-going trends in global fish production, consumption and trade reflect several fundamental changes in the structure of the supply of and demand for fish and seafood commodities. Fish is no longer just the subsistence diet of poor, coastal people, although some fisheries items still play this role in many countries. The fisheries sector has emerged as a major part of the economies of many developing countries, with one of the highest growth rates of all sectors in those countries (Ahmed et al. 1999). World per capita consumption of seafood increased substantially, reaching an all time high of 15.7 kg in 1997 from about 6 kg in the 1950s. Significant realignment of fisheries production in favor of developing countries, and growing south-north and south-south trade in fisheries commodities has linked distant production centers with diverse markets and changed the structure of supply. Noticeable features of changes in fisheries sector include:

- The creation of exclusive economic zones (EEZ) and implementation of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) established the fishing rights of coastal states over larger areas of world fishery resources formerly controlled by developed country fishing vessels.
- Availability of new technology has encouraged a significant expansion of fishing effort by developing countries. The share of fishery production by developing countries rose from 20% in the 1950s to

60% in recent years.

- Success in fish breeding and fish farming technologies paved the way for aquaculture to become the fastest growing agricultural practice in many developing countries. The supply of certain fish species has shifted from capture to aquaculture. For example more than 30% of salmon and 20% of shrimp are currently supplied from farmed sources.
- Globalisation and expansion of markets has promoted global sourcing of fish purchases by large commercial companies, diversified use of fish, and increased inter-regional trade. Nearly 40% of global fish production is traded internationally. Thailand, PR China, Indonesia and India are world leaders in fishery exports.
- Changes in the institutional arrangements and legal instruments governing local, national and international fisheries have had different implications for future management of fisheries resources. Decentralization of management to local authorities, communities and citizens' groups has increased local roles in making decisions about resource management. Various conventions, such as the Convention on the Biological Diversity (CBD), the Convention on International Trade of Endangered Species (CITES), and conventions on management of shared stocks like tuna, have provided stronger national rights over living aquatic resources and increased national responsibility.

The response of fishing states to UNCLOS has been very

rapid. It saw new ownerships and/or access in most fishing areas by coastal states, rapid expansion of national fishing capacity and application of modern fishing techniques. Opening up of markets and growing consumer demand has encouraged harvesting of desirable species with increased use of efficient and specialized techniques. Smaller nations, particularly small island developing states with limited fleet expansion capacity, have made arrangements with foreign fishing vessels to earn an income from their share of the ocean's resources.

2. MANAGEMENT STRATEGIES SINCE THE 1950'S

Open-access dominated the period prior to 1970s in world fisheries management. A few nations, mainly the industrialized countries, dominated fishing. Following expansion of EEZ and implementation of UNCLOS, the 1970s and 1980s saw a significant state intervention in fisheries. Fishing nations installed large command and control regimes for control of access to fish stocks, and regulation of effort and catch. The period also saw a dismal failure by governments to regulate fisheries over widely scattered fishing grounds, particularly by developing countries. Inability or reluctance of governments to make necessary conservation and management decisions were identified as a major reason for management failure.

The 1980s and 1990s saw a renewed effort to combine regulation with market-led (private or corporate) incentives and stakeholder participation in fisheries management. Fishing rights systems that allocate private property rights by establishing individual transfer quotas (ITQ), effort quotas and limited entry, including the introduction of buy-back schemes and modifications to rights of access (e.g. closed areas) have become popular in the developed countries. At the same time, though regarded as a developing country fishery management alternative, community-based fisheries management and co-management tools, such as the allocation of exclusive use rights to groups of fishers or communities and provision of group quotas/privileges based on species and fishing areas, have also been adopted as tools for fisheries management (FAO 1998).

Governance was expected to improve substantially with the establishment of extended national jurisdiction under UNCLOS in the 1980s. Still, in most countries, governance continues to languish. In the developing countries fisheries governance is plagued by the scarcity of human, institutional and financial resources required to devise and implement management, as well as by policy inaction and reluctance of the governments to make unpopular decisions.

3. CONSEQUENCES FOR CAPTURE FISHERIES AND FISH STOCKS

Growth of fisheries production concerns researchers and policymakers. Evidence suggests that rising export trade in fish is shifting physical food resources away from the poor. People highly dependent on fish in their diets are increasingly food insecure (Ahmed, et al. 1999; Kent 1997). Excessive investment in fishing capacity leads to over-fishing and depletion of coastal resources (ICTSD-IUCN 1999).

After UNCLOS, world fisheries experienced an influx of fishing capacity, with more labor and added capital in coastal and near-shore areas, and high-powered factory fishing vessels in offshore areas. In the traditional fishing communities these developments were accompanied by reduced catch and lower profits. Many coastal communities lack alternative or supplemental employment for the redundant and underemployed fishing workforce. Even the resources owned by those nations whose national fleet did not expand (e.g. some of the African countries and the small island developing states) in their EEZs have suffered significant overexploitation from uncontrolled exploitation by foreign fishing vessels. Many overpopulated countries, such as China, Vietnam and India have resorted to further increasing offshore and deep sea fisheries to reduce pressure from over-fished and overcrowded coastal fisheries, without full understanding of the impact on fish stock.

Expansion of fishing affects migratory fish stocks. Lack of institutional arrangements between distant-water fishing nations and coastal states, lack of conservation and management measures for these stocks as well as absence of effective mechanisms for management of conflicts among rival nations have become major issues (FAO 1998).

Fisheries continue to involve many kinds of direct and indirect subsidies, producing a net income loss to the world economy (Milazzo 1998). Subsidies plus the high demand situation in world fish markets act as a double-edged sword for the sustainability of the capture fisheries, particularly for the developing country fisheries. Continued subsidies by distant water fishing nations (DWFN) to their national fishing vessels have produced an artificially low cost of exploiting the waters of the developing countries, causing a negative impact on stocks and undercutting of local fishers (Stone, et al. 1999). High world demand for fish continues to attract more investment in already overcapitalized fisheries, adding to the long run instability of the capture fisheries supply (Ahmed 1999; Ye and Beddington 1996).

Both production and real prices of fish increased over the

past three decades. Rapidly increasing aquaculture output (11.8% per year during 1984-1996), particularly in developing countries, has helped in the continued growth of fish production, despite a stagnation in the world capture fisheries. Aquaculture is expected to receive much more attention in developing countries because of its role in providing needed foreign exchange to pay for growing food imports from developed countries (FAO 1998). The rapid expansion of fish production by value and weight is in stark contrast to that of world agricultural production more generally (excluding fish and livestock), which has slowed, along with average real crop prices, over the last two decades. The growth rate dropped from 3% per year in the 1960s to 1.6% per year in the mid 1980s (FAO 1998). Developing countries are now net importers of food compared to 40 years ago when developing countries as a group were significant net exporters of food (FAO 1998).

Continued high demand and high prices encourage a greater investment in fishing effort. Countries that sell fishing rights to distant water fishing nations (DWFN) have difficulty exercising control over production. Developing country fishery resources are at times exchanged for non-fisheries benefits, such as aid or tariff concessions. Some developed countries increase their bargaining power by negotiating fishing rights as a group against individual countries (Stone et al. 1999).

4. ISSUES IN INCOME GENERATION AND FOOD FISH SUPPLY FOR THE DEVELOPING COUNTRIES

There are justifiable fears that trade liberalization (e.g. WTO) will divert fish products and their inputs to markets with higher purchasing power. Free trade will direct resources to their most productive use which will affect opportunities worldwide. Environmental regulations, such as eco-labelling and certification, will also affect both trade and fishery management. The questions many developing countries face is how to make best use of liberalised trade in fisheries. Developing countries need to find their comparative advantages in fish and fish processing.

Changing production and consumption patterns for fish and other food commodities make it possible to realign resource allocation in developing country agriculture. Liberal trade regimes and concentrated income growth raise concern about worsening imbalances in consumption and income between developed and developing countries and among economic classes. Major changes in resource use and pressure on existing resources are leading to massive degradation of fish habitat and pollution problems. Policy makers simultaneously need to deal with a range of issues. IN particular, we are concerned about the following list.:

1. Where the fish will come from. Capture fisheries are affected by three distinctive factors. First, within the fisheries sector, over-fishing and opportunistic behavior by fishers play a significant role in diminishing the productivity of the fishery and quality of the catch. Second, outside the fisheries sector, pollution, destructions of habitats and other environmental stress reduce productivity, and market events such as trade liberalization change opportunities. Third, non-conventional management tools, such as codes of conduct and ecolabeling, affect capture fisheries supply.
2. What the long term consequences of production growth will be on the capture fisheries. How developing countries will deal with continuing threat to the integrity of marine ecosystems posed by rapidly-growing, demand-driven fishing.
3. What role developing country aquaculture will play in supplying food fish to domestic and international markets.
4. How resource competition and input supplies in aquaculture will interact with the other agricultural commodities.
5. What will determine the future supply of aquaculture production.
6. How aquaculture producers will compete with capture fishery supply as well as supplies from other types of animal industry (e.g., livestock, poultry). How aquaculture will compete with other forms of agriculture for land, water and feed inputs. The ratio of the price of shrimp and beef have increased over time, while price ratios between fishmeal and soybean have decreased over time (Delgado and Courbois 1999).
7. What the role of fishmeal in aquaculture will be. Currently most developing country aquaculture produces low-value herbivorous or omnivorous freshwater finfish using moderate to low levels of inputs (FAO 1996a:23). Will carp-dominated finfish aquaculture in China and India continue to lead the aquaculture growth? Carp has a large and growing domestic market in both those countries. Shrimp and other internationally preferred fish such as tilapia are leaders in the export market on aquaculture products.
8. What the implications of rising global demand are, particularly international and export demand, for the supply of food fish to the domestic consumers in the developing countries.

9. What relationship will exist between prices of low-value food fish and fishmeal. Forecasts by INFOFISH suggest that there will be higher demand for low-value food fish, and hence an upward movement in price. There is a huge and growing market in Southeast Asia, China and India, where rising incomes induce high demand for low-value food-fish among lower income people. The recent economic crisis in the developing countries, particularly in Asia, caused more affluent consumers to switch from high price fish to low-value food-fish as well. INFOFISH also forecasts that fishmeal prices will go up because there will be less raw material available after more is taken by the food-fish market. This assumes that the same raw material can be used to produce low-value food-fish and fishmeal.

10. Whether developing countries can earn more income and improve food security from growth of fish processing operations. Developing countries are expected to become net importers of food. For the poorest of these countries, such as those in sub-Saharan Africa and South Asia, financing imports will be a high priority. Fisheries and aquaculture may provide exportable products (FAO 1998). On the other hand, declining purchasing power in some countries, and the inability of local production in other countries to keep up with population growth suggest a decline in per capita consumption of fish (Delgado and Courbois 1999; FAO 1996).

11. How can policy and technology development mitigate the pernicious environmental effects of increasing concentration of fisheries production in aquaculture.

12. How can policy ensure that the poor, especially those who have traditionally relied on fishing, can participate in growing markets for high value fishery export items. This will require both policy research and a commitment to action to create the necessary institutions and enabling environment (Delgado and Courbois 1999).

5. THE POLICY RESEARCH AGENDA IN DEVELOPING COUNTRIES

Disturbing trends in the overexploitation of natural fisheries and insufficient policy attention to fisheries in developing countries are reflections of both knowledge and action gaps (Pinstrup-Andersen 1999). IFPRI and ICLARM recently collaborated with the Institute of Fisheries Management (Denmark) in a consultation of researchers and

policymakers from developing countries to assess priority issues for their joint program of research on fisheries policy (Ahmed et al. 1998).

As fisheries and aquaculture became an integral part of world agricultural production and trade, there is a greatly increased need to consider fisheries as one of several alternative uses of resources and sources of supply of human food, as well as a way for generating export income. This requires a tool for measuring trade-offs and for illustrating what is possible. Projections of supply and demand in fisheries and their integration into the world food models for food supply and demand are needed to fill such gaps. At the same time, global food models typically used for this purpose outside the fisheries sector cannot get at many of the specific issues outlined above. Instead, there is a need for focused micro level research in these areas, often in a case study context. With this in mind, IFPRI, ICLARM, and FAO are launching an effort to contrast fisheries projections within a global food model with careful micro-level analysis of pertinent issues. This session is an effort to discuss this work, which is in its early stages, with a larger audience of informed persons on fisheries economics in developing countries. All comments and suggestions are welcome.

The papers in the session will discuss the issues derived from considering fisheries, with particular emphasis on aquaculture, as a major resource in developing countries. This includes but is not limited to competition with crop and livestock activities in supplying food and generating income. A first paper will review and analyze the developments in the international seafood markets and its impact on the developing countries. This will be followed by presentation of a framework on the conceptual and practical methodological issues in integrating fish into a broader world food model. Subsequent papers will provide more in-depth sectoral consideration of the trade-off involved in putting fisheries supply and demand in a broader agricultural context, with added regional insights for specific parts of developing Asia and Sub-Saharan Africa. Two panel discussions with broad geographic experience and in-depth knowledge of fisheries issues will provide synthesis of the papers, followed by an open discussion of the panel topic and related issues.

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