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COMMITTEE ON FISHERIES

SUB-COMMITTEE ON FISH TRADE

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Value-chain analysis and international fish trade

Executive Summary

The purpose of this document is to inform the Sub-Committee of FAO's ongoing analysis on value-chains in international fisheries with a focus on the small-scale sector. Although the project is still ongoing and the results are not fully completed, four preliminary findings seem to have emerged from the initial data and analysis:

1. Price data on the species and products throughout the value-chain are not readily available;
2. The fragmentation of producers and their small size undermine their position versus the exporter;
3. Increased access to international markets has the potential to raise the revenues of small-scale producers; and
4. In some cases, there appears to be the possibility to expand the national market with the potential to raise the revenues of small-scale producers.

Two case studies are presented in the paper.

The Sub-Committee is invited to:

1. Provide information on developments within national value-chains and their linkages to international markets;

2. Provide national experience in studies of fisheries value-chains; and

3. Provide guidance for future work by FAO in the area of value-chain analysis, particularly with regard to enabling small-scale operators to improve their relative positions within the chain.

INTRODUCTION

1. FAO and the Norwegian Agency for Development Cooperation (NORAD) have initiated a comprehensive value-chain analysis of international fish trade with an impact assessment on the small-scale sector in developing countries[1]. The aim of this two-year project, which started in autumn 2009, is to identify ways to improve food security for local populations through more informed policy making.

2. Fish exports and trade are a major source of income for developing countries. Developing countries now account for more than 50 percent of global fish exports, with annual net export revenues exceeding US$ 27 billion. Jobs are created in production, processing and trade, and local food security is strengthened, both by providing families enough income to purchase staple foods and through the nutritional contribution of dietary fish intake.

3. In fish production, capture fisheries as well as fish farming, a large share is carried out by the small-scale sector. It is therefore of crucial importance to arrive at policies that safeguard the interests of the small-scale sector, not only by enabling producers to access international markets, but also to help them secure prices and margins that will allow the sector to achieve long-term sustainability from an economic, social and biological resource perspective.

OBJECTIVES

4. The objective of the project is to achieve a more comprehensive understanding of the dynamics of relevant value-chains in international fish trade and to make policy recommendations. The project will analyse the distribution of benefits in the value-chain and the linkages between the benefits obtained and the design of the chain. Comparisons will be made between domestic, regional and international value-chains with the goal of better understanding how small-scale producers in developing countries can increase the value derived from their fishery resources.

5. The study will analyse the factors that determine prices and margins throughout the value-chain as well as the distribution of benefits among the various stakeholders. Aquaculture and inland fisheries will be considered in addition to capture fisheries. Particular attention will be given to processing in order to compare the difference in value generated from the export of unprocessed versus processed fish.

6. The project involves case studies of 15 countries, where five are industrialized and the remaining are developing countries. The industrialized countries include Japan, Canada, Norway, Iceland and Spain. The case studies for Iceland, Norway and Spain are locally financed. The developing countries are Honduras and Peru (Central and South America); Uganda, Kenya and Ghana (Africa); Cambodia, Vietnam, Thailand, Bangladesh and the Maldives (Asia).

7. For each country a background report is prepared, providing information about the fisheries/aquaculture sector, trends in quantities and prices, and an overview of the industry structure, including pertinent regulations and relevant value chains. In addition, an analytical report will be prepared for each country with statistical analyses of price linkages in the value chains. All the results will be synthesised in two non-technical project reports. In addition, a special report will be devoted to gender issues in the value chain.

STUDY HIGHLIGHTS

8. In the following, we will look at preliminary results from two countries: Peru and the Maldives.

[1] This is a follow-up to a 2004 study on the impact of international fish trade on local food security, published as FAO Fisheries Technical Paper 456.

THE PERU CASE STUDY

9. Small-scale capture fisheries contribute to the livelihoods of many people along the Peruvian coast. Aquaculture, on the other hand, is a more recent activity. Fish farming is not only creating new business opportunities along the coast, but also in the Andes Mountains and the Peruvian jungle. Small-scale trout farming is booming in the Andes and has made farmed trout among the three most important aquaculture species in Peru. Shrimp and scallops are the other two major species, with production taking place along the coast.

10. Small-scale fish farming involves technical challenges related both to production and marketing. It is well known that fish often fetch higher prices in international markets compared to domestic, which means that the ability to access international markets can be a great advantage for small-scale producers.

11. Figures 1a-c compare domestic wholesale prices for shrimp, trout and scallops with export and import prices (US for shrimp and scallop; EU for trout). All of the wholesale prices are estimated based on a weighted average between observed minimum and maximum prices at wholesale markets in Lima. With the exception of scallops, export prices are on average higher than domestic wholesale prices. In the case of scallops, however, it is likely that the wholesale prices are inaccurately reported as too high. If we assume that most sellers receive amounts closer to the minimum price rather than the maximum, the differences between export and domestic wholesale prices become positive for scallops and even larger for shrimp and trout. Indeed, from 2008 to 2010, export prices were on average 50 percent, 53 percent and 70 percent higher than the minimum domestic wholesale prices for shrimp, trout, and scallops.

12. When analysing the price formation in the international seafood markets where Peruvian export products are present, it appears that markets are competitive. This means that Peruvian producers are competitive in terms of both cost and quality. Moreover, the difference between domestic and international prices is likely to persist until a larger share of the production is exported. For example, domestic trout prices tend be low because a large share of the production volume is sold nationally and more than adequate for current demand. Low prices could also be partly due to quality differences between exported and domestically sold product. Consequently, there are significant economic gains to be made from participating in international value chains for seafood.

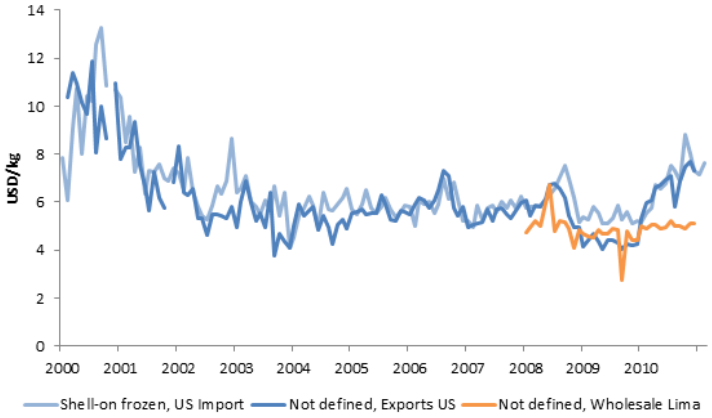

Figure 1a. Export and import prices of Peruvian shrimp to USA and Lima wholesale shrimp prices (NMFS, Ministry of Production in Peru).

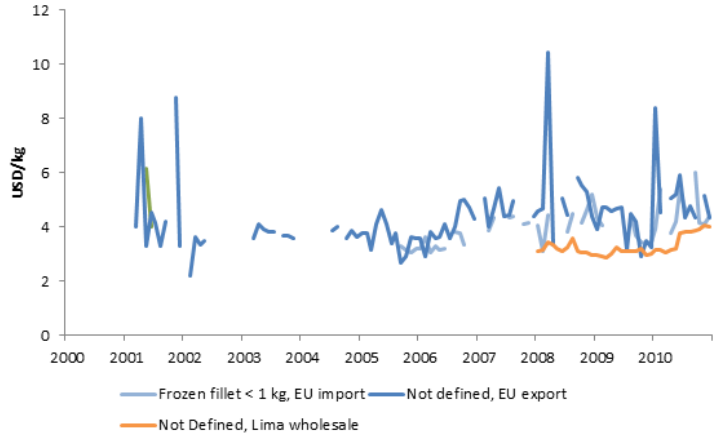

Figure 1b. Export and import prices of Peruvian trout to EU and Lima wholesale prices (NMFS, Ministry of Production in Peru).

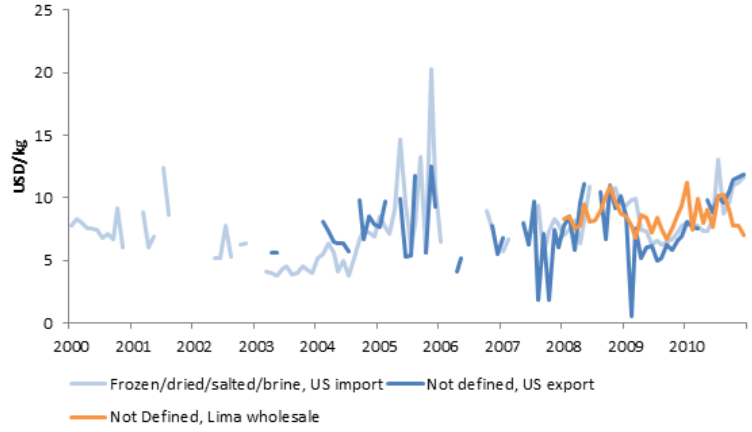

Figure 1c. Export and import prices of Peruvian scallops to USA and Lima wholesale prices (NMFS, Ministry of Production in Peru).

13. In Peru, as in many other developing countries, relatively few small-scale seafood producers are able to export their fish. Artisanal producers who do manage to export are mainly able to do so indirectly, by selling their product to larger companies with access to international supply chains. Obtaining certification for food safety and complying with traceability requirements are the main barriers that must be overcome by a new exporter, and both require more capital and knowledge of the industry than most artisanal producers possess.

14. To overcome these resource limitations two strategies appear viable. One strategy is cooperation with larger companies, as has already been noted. While this appears quite common in shrimp farming and to some extent in scallop farming, there are also interesting examples of collaboration between small and large producers in Peruvian trout farming. For instance, a few large trout companies provide technical assistance and credit to small producers, in return, the small-scale producers commit to selling their harvest to the company. This model is quite similar to that found in the agricultural sector in many different countries, and is an innovative method of cooperation that has proven successful for the small-scale producer. Additionally, if collaboration is based on long-term relations between a knowledgeable small-scale producer and an equitable buyer, the producer can receive a higher price than the domestic market would allow. Though these are instances where collaboration between large and small-scale producers has worked well, there have been reports that in

some cases, large-scale producers exploit their buying power and pay minimum prices in order to obtain the highest profit possible.

15. Another strategy entails artisanal producers pooling and sharing limited resources by forming a cooperative or association. In this case, support from the government in the form of technical training and credit can also be beneficial. For example, artisanal scallop farmers could benefit from sharing resources and trainings, as only a few companies have access to modern technology and the degree of knowledge required to thoroughly control the biological production process.

16. These case studies highlight the importance of the international seafood market for small-scale producers. Commercialization to these markets is a side of the business that is often neglected, not only by the artisanal producers themselves, but also by the public institutions that should support them. Commercialization for the small-scale sector in Peru must first involve overcoming barriers of safety certification and traceability. As noted, two strategies appear viable, but neither are perfect solutions in themselves. Forming cooperatives will allow fishers to pool limited resources, but support will be needed from the government for training and obtaining credit. Relations between small-scale and large-scale producers can be beneficial, but more research is needed to determine how fair buying prices can be better ensured for the small-scale seller. There tends to be too much focus on the potential to expand aquaculture production with little concern for where the fish should be sold, how producers should be organized, and the certification process required to obtain a viable price. However, the issue of marketing is receiving more and more attention, and will increasingly become an area of focus, especially if the difference between the domestic and international price for seafood continues to be so disparate.

THE MALDIVES CASE STUDY: The impact of export price on ex-vessel price of tuna in the Maldives

17. The fish-harvesting sector in the Republic of Maldives, which is dominated by tuna, represents about five to six percent of GDP and accounts for approximately 8 percent of total employment. The vast majority of tuna is exported as fresh, frozen, salted or tinned products. For this sector two segments define the supply chain, namely, the first-hand market/ex-vessel price and the final market/export price.

18. The main data set represents the monthly value and quantity of tuna collected from fishermen and the monthly value and quantity of exports of processed tuna for two canneries from 2005 to 2010. The data documents historical trends, and provides a comparative analysis across canneries. The data are used to calculate the ex-vessel and export price by cannery in real value terms.

19. Summary statistics show both declining harvests and exports over time. The consequence is that real income to small-scale fishermen will decline unless a rise in the real ex-vessel price offsets the fall in harvest. In fact, total real income to fishermen has declined over the period of study except for the last few months of the period (2005-2010).

20. In this research, the derived demand for tuna from export to first-hand market is analysed. This approach is based on the theory of derived demand, where the export price of fish is assumed to be given (exogenous) as it is determined by international markets, and is the major determinant in setting the ex-vessel price.

21. In the statistical analysis, the export price of fish is included as an exogenous variable in the model and controlled for seasonality and market trends to improve forecasting. Full demand and supply models are specified. Finally, an analysis is made of how the margin between export and ex-vessel prices has varied over time.

22. The model shows that a one period lagged ex-vessel price is important in setting current ex-vessel price. Additionally, the current valued export price is an important determinant of the ex-vessel price. These results indicate that the ex-vessel price for tuna in the Maldives is not determined purely by market forces. The ex-vessel price is set based on past behaviour, implying that operators are looking for stability in price trends, but that at the same time the price must respond to real shocks in the export market.

23. The model shows that a one percent increase in harvest generates downward pressure on the ex-vessel price by 0.19 percent. The implication of this result is that increased fishing efforts to harvest more will result in lower ex-vessel prices, all else equal.

24. The Maldives' tuna fishery is important in the world market for tuna and the fisher's collective behaviour impacts ex-vessel price. This is in contrast to a situation where a small fishing nation selling into a large market faces a horizontal demand curve for fish, in which case the collective behaviour of fishermen does not impact ex-vessel price.

25. Two important policy implications result from this analysis. First, reports indicate that the tuna stocks in the Indian Ocean are overexploited. This may over time have consequences for harvests as well as prices. The results may be used to quantify the impact on revenues to exporters and small-scale fishermen. Secondly, as the industry is characterised by a buying process dominated by the processors, various ways of improving the bargaining power of fishermen could be considered. One obvious example would be that of fishermen's cooperatives.

SUMMARY

26. The case studies in this analysis are composed of a large number of different fisheries and farming systems that produce fish for local, regional and international markets.

27. Price linkages can be considered in two dimensions. One is horizontal, i.e., representing the prices of essentially the same commodity in different geographical markets. If prices tend to be uniform, adjusting for differences in transportation costs, the product is determined to belong to the same market. The same definition can be used with respect to different products, e.g. fresh vs. processed product.

28. Price linkages can also be considered in the value chain, e.g. from fisherman/fish farmer to processor to distributor/retailer and consumer. Price linkages depend on the industry structure.

29. So far, results are available for only a few countries and it is too soon to draw many conclusions. Nevertheless, one general conclusion can be drawn: for most countries, price data that would allow price analyses for the entire value chain are not available. This is true even for a country like Canada, where there is access to prices to the fisherman/fish farmer, processor and exporter, but retail prices are not available, either for the domestic nor for the international market. Thus, the critical issue of data collection in this area needs to be addressed.

30. PERU:

- trout, scallops and shrimp are competitive in international markets;
- scope exists to expand domestic trout market;
- small-scale producers would benefit from cooperation;

31. MALDIVES:

- Canneries largely determine the ex-vessel price for fish;
- data collection in this area needs to be addressed;

32. For Peru, the analysis shows that farmed trout, scallops and shrimp are competitive in international markets. There is scope for expanding the domestic trout market, however, this will require that the volume produced increases sufficiently so as to be able to supply large retailers like supermarkets.

33. Exporters appear to have a dominant position compared to farmers, who are generally small-scale. Different measures may be taken to strengthen the position of small-scale farmers. One option would be to establish farmers' cooperatives or associations, but the government must assist this process by providing technical extension and improving the availability of credit. These efforts would not only help to increase production, but could also improve the income, food security and general welfare of small-scale farmers. Another option would be to conduct further research into what factors

exist in relationships between small and large-scale producers that help ensure a fair price to the small-scale producers. These factors may or may not be replicable, but further research is needed.

34. For the Maldives, overexploited fish stocks in the Indian Ocean may over time reduce catches. Even if prices increase, it is likely that total revenues will decline, both to exporters and small-scale fishermen. In this situation, it is important to put greater emphasis on product quality, which may help differentiate the product in the market place and give rise to a positive price premium.

35. The situation of the tuna fishermen in the Maldives is parallel to that of small-scale fish farmers in Peru as the exporters in both countries, the canneries in the Maldives and the large-scale producers with access to international markets in Peru, play the dominant role at the expense of the small-scale fishers and farmers. The formation of fishermen's cooperatives may result in greater bargaining power for fishermen and thereby improve their welfare. Focusing on product quality could create a positive price premium for Maldives small-scale fishermen, but would require improved storage, handling and processing.