

**MARKET CHAINS OF NON-HIGH VALUE CULTURED AQUATIC
COMMODITIES: CASE STUDIES FROM ASIA**



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MARKET CHAINS OF NON-HIGH VALUE CULTURED AQUATIC COMMODITIES: CASE STUDIES FROM ASIA

by

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PREPARATION OF THIS DOCUMENT

This Fisheries Circular was commissioned by FAO in recognition of the growing role of freshwater species in regional and international trade. Hitherto only sparsely documented, the Circular provides an innovative overview of the value-chain of several Asian freshwater species highlighting their contribution to local food security and, increasingly, also to trade. It is the intention of FAO to provide more information on this sector and the Circular will be used in the Organization's capacity-building activities regarding international and regional trade in Asian freshwater species.

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ABSTRACT

With aquaculture representing a growing share of world production of fish and fishery products, the sector also contributes a growing proportion of the fish entering into international and regional trade. In particular, freshwater species from Asia dominate production and consumption but a number of freshwater species are also finding their way into international markets, including catfish, snakehead and increasingly also carp. In comparison with marine species, the price achieved by freshwater fish may not be very high and, probably for this reason, the sector's marketing channels remain fairly undescribed in available literature, especially at the national and regional level. However the large volumes produced and increasingly also exported generate significant levels of economic activity and export revenue with 2007 exports exceeding US\$1 billion.

The report presents an overview of the value chain for selected farmed freshwater species in India, Lao People's Democratic Republic, Myanmar, Thailand and Viet Nam. Information is included on prices, costs and margins and on the sector's contribution to local food security and poverty alleviation. Developments in processing and the potential of other species are also described.

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EXECUTIVE SUMMARY

The total global value of aquaculture produce in 2005 is estimated at US\$78 383 259 900, but the great bulk of studies and relevant initiatives on markets and marketing have focused mainly on relatively high valued commodities even though the latter accounted only for 17.3 percent (10 884 440 tonnes) of the production. Nearly 83 percent of the aquaculture production can be categorized as relatively non-high value commodities, predominantly freshwater finfish. The latter production in Asia in 2005 was 24 419 668 tonnes valued at US\$24 758 370 800, as opposed to the total production and value of 57 972 482 tonnes and US\$63 144 162 600, respectively (FAO, 2007).

The percent share of the “food basket” spent on fish varies significantly between countries. In those Asian countries for which data are available, freshwater finfish, the commodity that contributes most to global and Asian aquaculture, accounts for the biggest share; the highest percent share was in Viet Nam where freshwater finfish accounted for 68 percent of all fish consumed. Overall, it is uncertain whether the trend on the greater importance of finfish in the food basket reflects: (a) a production trend; and/or (b) an affordability trend; and/or (c) a combination of both; and (d) as well as availability in a fresher state, particularly in remote rural areas where most production occurs.

Asian aquaculture is dominated by Chinese and Indian major carps, which currently account for nearly 80 percent of the production. In value, the yearly production of carps accounted for approximately US\$15 billion per year (in the period 2000 to 2005), or for nearly 90 percent of all finfish produced in Asia. Although cultured freshwater finfish species literally constitute the backbone of global aquaculture, over the years the market price commanded by these species has declined markedly over a 20 year period, most notably for snakehead, followed by eels, which is considered a relatively high valued species. This mean decline in unit price of the different groups is not necessarily related to an increase in production, and hence availability, as for example the production of eels and snakehead has remained almost static over the years. However, the farming of aquatic commodities progressed almost unabated, and this has become possible only because the production techniques have improved over the years, and consequently the cost of production of a unit weight has decreased thereby keeping the farming activities viable, and is best exemplified for salmonid farming in Europe. Comparable studies on other commodities, in the Asian context, are urgently warranted in order to better plan further developments and product improvements, as well as to ensure that the producers and consumers in the value chain are appropriately benefited.

The current study was undertaken in view of the importance of the relatively non-high value cultured commodities, in aquaculture production and value, and its impacts on rural development, food security and contribution to poverty alleviation, and to contribute to the knowledge-gap in respect of marketing of such cultured commodities. The study attempts to cover selected aquaculture practices with the overall objective of evaluating and recognizing the potential areas for improvement in marketing and product development. In view of the fact that finfish accounts most for the relatively not so high valued cultured products, particularly in the Asian context, the main emphasis in the study is on finfish.

Admittedly, the term non-high value cultured commodities is not explicitly definable. A commodity that is high valued or preferred in one region may not be so elsewhere. However, for purposes of this study non-high value commodities are considered to be those that on average command a farmgate price of less than US\$3 per kilogram. The study focused on selected Asian countries and differing aquaculture systems. In addition, the study also dealt with other commodities, to a lesser degree, in particular on commodities on which some aquaculture systems are dependent, such as in the case of trash fish/low value fish as feed sources for small-scale marine finfish farming.

The data, apart from the FAO production statistics, have been collated through specific surveys carried out in each country. However, before dwelling into the market chains *per se* it is pertinent to consider a few related aspects that impact upon the former. Accordingly, the study entailed market chains for: (a) carps in the Kolleru Lake area in India, Myanmar, and Central Highland Region, Viet Nam; (b) freshwater carnivorous species groups catfish and snakeheads in Thailand and Viet Nam; (c) produce of culture-based fisheries in Lao People's Democratic Republic; (d) trash fish/low value fish marketing chains in the Mekong Delta, Viet Nam, and the coastal province of Chanthaburi in Thailand; and (e) mussel farming in Thailand.

In the presentation, the background pertaining to production levels and farming systems and other related aspects are presented in order to place the information in the context of market chains that are in operation. The production systems and targeted clientele of each differ greatly between each other and between countries. For example, the carp farming system in Central Highland Region of Viet Nam occurs in three distinct phases, physically separated by long distances, and each stage (production of hatchlings, fry to fingerling rearing and grow-out) in the market chains that operate are distinct from each other. In general, in carp farming systems the profit margins retained at each stage of transaction is relatively low, often less than 15 percent per unit weight, but the operations remain economically viable because of the large turnover and small size of individual operations.

One of the most interesting recent developments has been the rohu farming systems in Myanmar that is being increasingly geared to export to Bangladesh, the Near East and European countries. It is expected that the exports will reach US\$120 million in 2007. This development that caters to a niche market, catering to an expatriate clientele, has been literally created by the initiative of a few entrepreneurs and now has developed into a sizable, specialized sector with many employment opportunities created in the processing and other ancillary sectors and on farms, which have grown in size. However, it is debatable that the developments in Myanmar could be translated elsewhere as the primary physical resources availability and the current governance system in operation are unique to this nation.

The relatively non-high value cultured carnivorous freshwater fish species in Asia mainly fall into two groups: the catfishes and snakeheads. In Viet Nam catfish farming has grown to a very large industry, in the Mekong Delta, which is already reported to have reached 1 million tonnes, a target that was set by the Government to be achieved by 2010 only. Almost the entire production is processed and exported, mainly in fillet form. This farming system that essentially consists

The range of relatively low value cultured finfish promoted as an export commodity from the region, while retaining its affordability as a food source to the community, is on the increase. Activities associated with exports, primarily the development of processing plants and ancillary services, have created new employment opportunities in the sector, thereby contributing significantly to food security indirectly. The market chains associated with the latter need further development and consolidation and together with improvements to the processing sector will enable developing nations to further explore niche markets for such commodities that hitherto have received only scant attention, externally.



of small-scale units, mostly pond based, is not without its problems, primarily resulting from intensification and feed sourcing and management. Catfish farming has grown to such an extent, in particular the associated processing sector, that it has become one of the major employment providers in the Delta, bypassing all other primary production sectors. Catfish and snakehead market chains in Thailand are geared to keeping the produce live until it reaches the consumer, and value adding of the produce if any occurs on a small scale, in households, when small quantities are dried and/or smoked and sold on street markets.

In all instances at each stage of the transactions the profit margin retained is 10 to 12 percent on average, except for the price to the consumer of the exported product. For example rohu exported at approximately US\$1.2 to US\$1.3 per kilogram is available to the consumer in Rome, Italy, at US\$8 to US\$9 per kilogram. Contrary to the general perception the importance of relatively non-high value cultured carnivorous freshwater fish species in Asia as an export commodity is significant, exceeding US\$1 billion per year, with three species groups accounting primarily for these exports (viz. catfish, tilapias and carps) and is on the increase.