

PART 6

Linkages Along the Value Chain

Chapter 16

An Investor's Perspective

Kristjan Davidsson, Glitnir Bank, Iceland

In his presentation Kristjan Davidsson stated that the global fisheries sector is of great interest to investors, be it fisheries, aquaculture, processing or distribution. This interest is growing; especially the aquaculture sector has great future potential. The estimated total value of the seafood value chain is approximately USD 400 billion.

He reminded participants of the rewards that can accrue through carefully designed measures to ensure sustainability, stability and continuity in regulations and rules that form the management system a country develops for its seafood industry. Such rules include industry fundamentals like clear and secure ownership rights and investment regulations. In addition to this regulatory regime, which is of crucial importance to an investor investing in industries using natural resources regulated on national level, conditions investors evaluate are the normal conditions set for any business case; structure, cash-flows, management team etc. Growing emphasis is put on sustainable management of the fisheries resource base and it is to be noted that increased knowledge coming from science adds a more secure investment environment. Consequently scientific basis and advice for management regulations and decisions is a necessity, not to be underestimated.

The growing interest from investors in the seafood sector has led to increasing professionalism and growing skepticism towards looking at the fisheries sector as a part of the political toolset to be used in e.g. rural policies. Increasing demands from the market for sustainability, security and continuity of deliveries has both supported growth in aquaculture and it also explains the increasing mergers and acquisitions, an industry consolidation that has taken place recently in the fishing industry and will continue to grow in the foreseeable future.

Mr. Davidsson presented the Icelandic fisheries sector as a case study. The introduction of the current system, which is based on individual transferable quotas, has meant more professional operations and better economic result, with less need for political intervention in times of crisis, which was a feature of the Olympic race system applied earlier. Through improved operational results, increasing strength and better negotiation position of the participants, the consolidation of fishing quotas and increased harvesting and processing revenues are clearly a benefit from the investor's point of view, as well as being important for the viability of the industry.

Not least is the aquaculture sector an important investment opportunity. However, any investment decisions must of course take into account, in addition to the business environment in the industry, the legal and regulatory environment of the geographical area under consideration for investment. Hence the risk profile for investors in for example salmon aquaculture in developed countries is quite different from the risks investors face in shrimp aquaculture in developing countries. It is essential to understand both the operational and legal environment of operations before making investment decisions. Investors in developing countries are often confronted with a risky investment environment and consequently the demand for return will be different than for an investment in a developed country.

It is thus of great importance for governments, aiming to attract investors to their seafood industries, to take measures for eliminating or reducing as possible any risks, be it in their legal framework or other applicable factors, as reduced risk normally means less demand for return on invested capital, in other words; the industry in question will have better access to capital and also the capital should be cheaper, the more secure the investor is of his capital, be it a bank with a credit or an investor with equity.

Picture money or capital as a vehicle or car; if used correctly it can move from one place to another. In the fisheries context, capital can move a fish farmer from one hectare to five or from one cage to twenty. However, banking, financing and investing is much more like operating a car rental. Investors expect payment of the rental cost and any interest accrued, customers who drive the vehicle carefully, the vehicle returned, and especially at the end of the agreed period of rental. Nevertheless, it is still not enough to have cars and people; roads, traffic rules and other rules are also required. Infrastructure and legal frameworks are, in a similar way, necessary for effective execution of business. Like adequate roads and sensible traffic rules, legal frameworks ease the trip from one place to another. Bad roads and bad rules hinder effective traffic: they lead to waste or even destruction of resources and time - or cars and money in our analogy. In every market, different types of car rental, operators or agencies exist, from a rickshaw to a local car rental agency, multinational chain or the provision of limousines. The type of offer depends on market characteristics, traffic rules, laws and infrastructure. The rental rules may also vary. For example, basic rules include a driver's licence, exclusion of convicted or wanted criminal, a minimum age etc. Essentially, rules are there to help the business.

Prices vary according to market demand and supply, the infrastructure available and traffic rules. Bad roads will damage cars so good roads will lower the price. If no foreign cars are allowed, prices rise. Unfortunately, it is a fact that many car dealers lobby their governments to create obstacles to competition with the intended or unintended consequences of raising prices and bringing about protectionism. This mostly harms customers and, in many cases, also the car rental agencies as less business will be available. In general, the best off are those with the best rules. A final point using this analogy is that one person may exist who wishes to own a million cars, even if he is only able to drive one at a time. The same exists with money: people want to own hundreds of millions of dollars even if they only can spend a limited amount or use a limited amount, although some do give it away.

Likewise, the seafood industry is a big and growing business and for that reason it is attractive to investors. When a business is growing, investors are more likely to make more money. That is why the seafood industry holds great opportunities for investors; demand for protein is growing; a focus on fish as healthy is also increasing. Much of this increase in supply in order to meet demand comes from aquaculture. Obviously, aquaculture is a huge growth story for investors loaning capital or directly investing themselves. However, at the moment the industry remains fragmented although it is moving towards consolidation, which will bring an enormous business opportunity. Furthermore, the growing emphasis on sustainable management means investors will know when they will “get their car back”. This provides a business opportunity.

On the issue of consolidation, it is worth comparing the meat industry with the seafood industry. The combined revenue of the top ten companies in the meat industry is about USD 8 billion. In the seafood industry, the revenue of the top ten companies is only around USD 2 billion. In meat companies, operating revenue *i.e.* earnings before interest, taxes, depreciation etc., is 10%; it is half that in the seafood industry. However, of interest to investors is that mergers and takeovers are increasing in the seafood industry, roughly calculated to be worth close to USD 20 billion.

This is the sort of consolidation occurring in the Icelandic seafood industry. The top ten Icelandic fishing companies have found that with the introduction of a quota system where quota can be traded freely as any other commodity, operating results have been steadily increasing. Of course, other factors are relevant but generally, the quota system has improved the situation. This is because elsewhere, politicians require election every set number of years. In Iceland, it is the fishers who have taken responsibility for their decisions, with resulting effects on earnings.

The greatest issue for policy makers worldwide is to enable the seafood industry to operate as a business. Much like the paper producing industry, the food producing industry should be a business and not a political tool in rural policy for example, where other tools such as improved communications and education would be more appropriate. Political issues do remain of course, such as the framework for infrastructure *i.e.* the ‘traffic rules’, but fundamental issues include the need for security and safety to attract investment. Likewise, sustainability is necessary for long-term investment. Another responsibility for government is the role of taxation as the legal rules that apply in a market will affect all the players in that market. Consequently, investors consider sets of parameters that include the legal operating environment, the physical environment, human capital *e.g.* the management team, available capital and profitability before making decisions.

Glitnir Bank has been active in the seafood industry for 100 years, providing and selling services from corporate banking to credits, leasings and bonds, as well as acting as an advisor to other sellers and buyers. In other words, they obtain rent from their cars. In all, around USD 2-2.5 billion is currently being invested through Glitnir Bank. However, Glitnir Bank only operates in about 20 countries. Where the industry is allowed to be an industry *i.e.* rent the cars or be the car rental agencies, and where policy makers understand that their role is to provide the infrastructure and ‘traffic rules’, then industry will flourish.

Chapter 17

Microfinance, Small Scale Fisheries and International Fisheries Trade in Selected APRACA Member Countries

Thiraphong Tangthurasunan, President, Bank for Agriculture and Agricultural Cooperatives (BAAC), Indonesia

Thiraphong Tangthirasunan highlighted the importance of microfinance for the development of small scale aquaculture and fisheries in the Asia-Pacific region. In this region, fishing is a priority sector, but the availability of financing for the sector is limited due to the high risks involved. Also, industry structure is geared towards small-scale family enterprises. Most governments do not directly lend to fishing companies; this leaves banks and other financial institutions as potential lenders.

Thiraphong Tangthirasunan has outlined the fisheries policy settings of Cambodia, India, Thailand, Philippines and Indonesia in this chapter. In these countries the fisheries sector is seen as a priority sector for governments. Policy approaches common to the five countries include: capacity building across the value chain to enhance technology and sustainable management, support towards institutional building and a strengthening the sector's legal framework to protect the small-scale operators. In this regard, microfinance is viewed as a practical solution to the growing demand for financial services by the poor. There is now evidence of certain banks' shift in business culture to attune their services toward low-income rural households and small enterprises. Likewise, there is empirical evidence that microfinance, provided by various types of banks, enables the poor to better manage their consumption and their business risk, gradually build their assets, develop their enterprises, enhance their income capacity and generally improve their quality of life.

Introduction

This chapter looks into the situation of small scale fisheries and international fisheries trade in selected APRACA-member countries namely Thailand, the Philippines, Cambodia, Indonesia and India with particular focus on the availability of microfinance services for the development of small scale fisheries and international fisheries trade. Information contained in this report consists of data from country papers as well as from review of related literature.

The role of fisheries: For livelihood and food security

The livelihood of millions of people in Asia depends on aquatic resources. Small-scale fisheries provide employment for millions of fishers directly engaged in fishing activities, including rural aquaculture, and for millions more working in fisheries-related activities such as fish processing and marketing, boat building and net making. Including family members, hundreds of millions of rural people in developing countries depend on fisheries for their livelihood. Due to an increase in overall fishery production and trade over the last few decades and a corresponding increase in employment in the fishery and aquaculture sector, an estimated 38 million people were directly engaged in fishing and fish-farming as a full-time, or more commonly part-time occupation, compared with 28 million a decade earlier (FAO 2002). An estimated 90% of the 38 million people recorded by FAO globally as fishers and fish farmers are classified as small-scale (FAO 2004). Asia, in particular, has a total of some 25 million fishers and fish farmers, which is more than double the number in the 1970s and 80% of the world's total (IFAD 2004). There are millions of other rural people involved in seasonal or occasional fishing and/or aquaculture activities that are not recorded as 'fishers' in official statistics.

Table 17.1. Number of Fishers and Farmers (in 1000s), by Region

Continent	1990	1995	2000	2001	2002
Africa	1 917	2 238	2 585	2 640	2 615
North and Central America	767	770	751	765	762
South America	769	814	784	760	770
Asia	23 654	28 552	30 770	31 493	32 821
Europe	654	864	821	746	746
Oceania	74	76	86	81	81
World	27 835	33 314	35 797	36 534	37 795
Of which fish farmers:					
Africa	...	105	112	115	111
North and Central America	53	74	74	69	65
South America	16	88	92	92	93
Asia	3 698	6 003	8 503	8 720	9 502
Europe	11	36	37	39	39
Oceania	Neg.	1	5	5	5
World	3 778	6 307	8 823	9 040	9 815

Source: FAO, 2002.

Furthermore, the importance of small-scale fisheries as a major source of animal protein cannot be over-emphasised. In many least developed countries of Africa and Asia, fish accounts for more than 50% of the total animal protein intake. In almost all these countries small-scale fisheries provide over three-quarters of the domestic fish supply. As fish is generally more affordable to poorer members of society, a greater amount of this protein source is consumed on a per capita basis than any other type of protein

(Tacon 2001). Thus, in Southeast Asia, possibly a billion people rely predominantly on fish for animal protein.

The demand for fish is therefore increasing, not only due to an increasing population but also to a greater awareness of the importance of fish in the diet (Delgado *et al* 2003). There is a general consensus that traditional sources of fish such as global capture fisheries have peaked (FAO 2002) and the future of wild-caught fishery production appears to be uncertain. Currently, 47% of fish stocks are described as being fully exploited or close to their maximum sustainable limits (Delgado *et al* 2003; FAO 2002). Others are in a state of decline, or are completely exhausted. Recent studies based on trawl surveys in eight Asia-Pacific countries by the WorldFish Centre indicate that the situation may be far more serious than these figures suggest, and that substantial degradation and over-fishing have occurred. According to the surveys, coastal stocks have declined by as much as 40% in five years (Silvestre *et al* 2003). Consequently, it is believed that the amount of fish available for the region's fishers is now only a fraction of what was available before the industrialization of fishing (Sugiyama *et al* 2004).

Coastal populations that were once almost entirely dependent on inland or coastal capture sources of fish have therefore seen their resources decline, and once cheap and plentiful wild fish has become less available and less affordable (Wilfredo *et al* 2006). In some locations around coral reefs, fishers are turning to lucrative yet destructive practices such as the use of explosives (so-called blast fishing) and cyanide to stun and capture fish (Burke *et al* 2001). There are also numerous reports of conflicts over diminished fishery resources and increased illegal fishing activities as fishers from one community, region or country encroach into the territories of their neighbours (Bulcock and Savage 2005). Destruction of habitats, sedimentation, pollution and dive tourism impose major threats to aquatic resources.

Current trends in international fisheries trade

Despite the fisheries crises around the globe, the international trade in aquatic products has grown significantly over the last few decades due largely to increased demand supported by improvements in technology, transport and communications (FAO 2003). The global appetite for fish has doubled in the past thirty years, with total fish consumption rising from 45 million metric tons in 1973 to more than 91 million tons in 1997. Trade tends to flow from the less-developed to the more-developed countries with mainly tuna, small pelagics, shrimps and prawns, rock lobsters and cephalopods as major products. Developed countries imported over 32 million tons of which 68% was fish for human consumption, while developing countries imported 19 million tons of which 47% consisted of fish for food. Fish export values have consequently increased from USD 15 billion in 1980 to USD 56 billion in 2001 (Macfadyen *et al* 2003). A large percentage of fisheries and aquaculture production now enters international marketing channels and chains, with more than 37% exported in 2000 in various forms. Developing countries, predominantly in Asia, play a major role in this trade and fisheries and aquaculture are therefore significant contributors towards national economies across the regions (Sugiyama *et al* 2004). In 2002, Thailand, which had been the main exporter of fish and fish products since 1993 reported export values of USD 3.7 billion, 9% lower than in 2001 and 16% below 2000 values. Thus, also in 2002, China overtook Thailand for the first time to become the world's main exporter of fish and fish products, with exports valued at an estimated USD 4.5 billion.

The discussions that follow will focus on selected APRACA-member countries particularly Thailand, the Philippines, Cambodia, Indonesia and India.

Small Fisheries Development in APRACA Member Countries

Poverty situation

The level of poverty remains high among developing countries in general. An estimated one billion people around the globe live on less than one dollar a day, and 70% of the world's poor are women. It is further estimated that about 1.9% of the world's population derive their livelihoods from fishing and fishing-related activities, in both inland and marine environments and the vast majority can be found in Asia (FAO 2004). The majority of these fishers are small-scale, artisanal, coastal operators and among the poorest in society (FAO 2002). Income generated by the fisheries sector is generally lower than those from other sectors and within the sector itself small-scale fishers earn the lowest incomes (Silvestre *et al* 2003). While economic growth has helped to reduce the number of poor people in the world, the positive impacts of growth on poverty have been less than expected, partially because of inequitable distribution of the benefits, population increases, political instability, and in some parts of the world, the devastating effects of the HIV/AIDS epidemic.

Within Asia, poverty in coastal areas is a defining characteristic of countries such as Bangladesh, India, Indonesia, Myanmar, Pakistan, Philippines and Vietnam (IFAD 2002). However, the extent of poverty in coastal communities is difficult to measure and while there have been many studies on poverty in farming and urban areas there have been few that have focused on the fisheries sector (FAO 2002).

Box 17.1. Poverty Incidence among Fisheries Workers in the Philippines

In 2003, poverty incidence among fisheries workers was 50.8%; compared to total poverty of 33% or poverty among farmers at 46.6%. Moreover, except in Regions II and VIII, poverty among fishers is higher than regional poverty; this includes the poorest regions (ARMM, Caraga and Bicol). Regions with high shares of the total fisher population also have very high rates of fisheries poverty.

Table 17.2. below describes the extent of poverty among some APRACA-member countries:

Table 17.2. Poverty Status of Some APRACA Member Countries

Country	Poverty Status
Cambodia	The poverty rate – that is, the percentage of the population living under the poverty line – is estimated at 35% for 2004. It is highest in rural areas and lowest in Phnom Penh.
India	Vast majority of India's poor people live in rural areas. Rural poverty is estimated at 42.7% with 43.3% of India's rural people belonging to Scheduled Tribes and Castes (Mukherjee 2006)
Indonesia	The number of those below the poverty line has risen by 3.95 million from 35.1 million in February 2005 to become 39.05 million by March 2006, or 17.75% of the population of the country. Over 70% of fishers are poor. It may be over 80% in some areas. Poverty levels in coastal communities are generally considered to be around 80% of the population (Suspita 2006). There are 36 million poor people in Indonesia (Jaya 2006).
Philippines	Poverty remains to be the biggest problem in the Philippines despite decline in poverty incidence of families from 27.5% in 2000 to 24.7% in 2003; and the poverty incidence of the population from 33% in 2000 to 30.4% in 2003. Almost three out of four (73%) of the total number of poor in the country reside in the rural areas (NAPC 2004). The poverty level in rural areas is much higher at 48.8% against 18.6% in urban areas; about 5 out of 10 rural residents are poor compared with almost 2 out of 10 urban residents.

Importance of fisheries

Given the relatively high poverty levels in these countries, the fisheries sector plays a very significant role in their national economies. The contribution of capture fisheries and aquaculture to the Gross Domestic Product (GDP) ranges from 0.540% (India) to 2.633% (Philippines) in the case of aquaculture and 2.044% (Thailand) to 10.030% (Cambodia) in the case of capture fisheries.

Table 17.3. Contribution of Fisheries to Gross Domestic Product (GDP)

Production value as % of GDP			
Capture Fisheries		Aquaculture	
Cambodia	10.030	Philippines	2.633
Indonesia	2.350	Thailand	2.071
Philippines	2.184	Indonesia	1.662
Thailand	2.044	Cambodia	0.893
		India	0.540

With respect to fish production in these countries, the trend for the past two to three decades has generally been increasing. In the Philippines, output has grown by an average of 3.4% per year. Using FAO categories, the largest share continues to be contributed by marine capture (56% in 2004). The smallest share is provided by inland capture (only 3.7% in 2004). Aquaculture averaged 8.7% over the last 30 years, compared to only 2% growth for marine capture. In India, the total fishery production increased nine times from 0.70 million tons in 1950-51 to a maximum of 3.76 million tons in 2005-2006. The growth of inland fishery has increased at a higher rate, from 0.218 million tons during the 1950-51 period to 2.81 million tons in 2005-2006. The fisheries sector, thus, has been

sustaining India's population of over 1 billion representing over 16% of the global population.

Box 17.2. Cambodia's Fisheries

Cambodia's coastal waters are very productive and rich in fishery resources and the diversity of systems and species remains high. Its inland water habitats are also one of the most productive resources on earth primarily because of the Mekong River and the Tonle Sap River with the Great Lake at its upper stretches. The potential fish catch is reported to be five times higher than that of most lakes and rivers in tropical areas. Fish is therefore an important staple along with rice and a main source of protein for the rural Cambodian people. Although there is a lack of reliable data on fish exports, fish is the main export commodity of Cambodia.

In Cambodia, the growth of fisheries production has also been rising in general but there has yet to be a systematic collection of marine fish production data by the country's Department of Fisheries. It should be noted that among the top ten major producers of marine fisheries in the world, Indonesia ranks 6th; India, 8th; and Thailand, 9th (Table 17.4).

Table 17.4. World Marine Capture Fisheries Production by Major Producing Country in 1995, 1999 and 2000

(millions of metric tons)

Country	1995	1999	2000	
	Tons	Tons	Tons	Ranking
China	11.0	15.0	14.8	1
Peru	8.9	8.4	10.6	2
Japan	5.9	5.1	4.9	3
United States	5.2	4.7	4.7	4
Chile	7.4	5.0	4.3	5
Indonesia	2.7	3.7	3.8	6
Russian Federation	4.1	3.8	3.7	7
India	2.7	2.8	2.8	8
Thailand	2.8	2.7	2.7	9
Norway	2.5	2.6	2.7	10
Sub-total	53.2	53.8	55.0	n.a.
Other countries	31.5	30.9	31.0	n.a.
Total	84.7	84.7	86.0	n.a.
Major ten producers as a percentage of total marine capture fisheries production	63.0	64.0	64.0	n.a.

Source: FAO

Fisheries are also a major source of agricultural employment. In 2004, the sector employed 1.4 million persons, equivalent to nearly 12% of agricultural employment or

4.3% of total employment in the Philippines. In Cambodia, the fishery sector employs approximately 5% of the labour force, about 1.3 times more than the country's garment industry. Where the diversity of systems and species remains high, such as in Cambodia, aquatic resources offer considerable opportunities to coastal people to diversify their livelihood in order to meet their changing requirements (IMM *et al* 2005). Coastal fisheries provide employment to two million people in Indonesia (Silvestre *et al* 2003). The types of livelihood are complex and vary tremendously from full-time small-scale operators to those involved in seasonal and migratory positions in the processing and marketing industries (IMM *et al* 2005).

Type of fishing activities

Since yields from capture fisheries are not expected to increase significantly in the next few years, emphasis is being placed on the aquaculture sector's ability to provide increasing quantities of aquatic products. Production from inland aquaculture and marine and brackishwater-based aquaculture are both increasing and now account for 30% of total aquatic production (Delgado *et al* 2003). Aquaculture production in Asia-Pacific Region is diverse, but in terms of volume it is still dominated by freshwater fish production (39%), followed by aquatic plants (29%), crustaceans (13%), marine and diadromous fish (13%) and mollusks (7%). In terms of value, crustaceans such as the tiger prawn dominate, accounting for 49% of production followed by freshwater fish (35%) (Wilfredo *et al* 2006).

The shifts in production from fishing to aquaculture, and the growth in the international trade in aquatic products, are often believed to offer the potential to contribute towards poverty alleviation and food security through the creation of jobs and alternative sources of food. From the country papers and existing literature, aquaculture practices or activities considered potentially pro-poor, meaning, those that the poor are able to undertake, are as follows in Table 17.5.

Table 17.5. Common Aquaculture Activities

Country	Aquaculture Activity
India	Mud Crab Fattening Shellfish Culture Shrimp Processing
Indonesia	Traditional Milkfish Production in <i>Tambaks</i> (Ponds) Traditional Prawn Culture Mud Crab Fattening Shellfish Culture Sea Cucumber Seaweed Culture Shrimp and Finfish Hatcheries
Philippines	Shellfish Farming Milkfish Production in Cages and Pens Tilapia Production Backyard Grouper Production in Cages Seaweed Culture
Cambodia	Shrimp Farming Mollusc Culture Catfish, Tilapia and Carp Production in Cages Seaweed Culture Crocodile Farming Fish seed Production

Another important fishing activity that has become increasingly popular for the last decade is processing of fish products “because fish is highly perishable”. More than 90% of internationally traded fish and fish products are in processed form a significant proportion of which come from the Asia-Pacific Region. Examples of processed fish products include fish paste, fish sauce, smoked and dried fish or shrimps, frozen fish balls/fillets, chilled shrimp meat/crab meat, dried sea weed, among others. In Cambodia, the value of preserved, processed, and exported commodities of both the inland and marine fisheries is very significant in the fisheries economy, estimated between USD 34 300 000 and USD 40 400 000 (Tana and Todd 2001).

Box 17.3. Socio-Economic Value of Fish Preservation and Processing

Preservation of marine products is of great socio-economic importance to the coastal poor. Preserved fish products ensure adequate protein during low fishing periods. Subsistence fishers use their abundant catch of small fish to make fermented fish paste and smoked fish with the assistance of family members. Large fish are used to make fermented fish or salt dried fish. Other important processing activities include drying of small shrimp, squid, ray and shark and preparation of shrimp paste.

Policies for development of the fisheries sector

The fisheries sector in Asian countries has long been considered as a sub-sector of the agricultural system as a whole. Thus the fisheries sector policies are mostly inclusions of broader agricultural and national economic policies. However, the significant contribution of fisheries to the gross national product (GNP) and to scarce foreign exchange resources as a result of continued increases in production of fish and fish products has been recognised. The fisheries sector is therefore now one of the priority sub-sectors and in many instances policies are being formulated which target this particular sector.

In the Philippines, the legislative framework for fisheries is mostly contained in two Republic Acts, the Local Government Code of 1991, and the Fisheries Code of 1998. The Local Government Code places resource management, including coastal and inland fisheries under the jurisdiction of local governments. It also devolves to local governments the provision of aquaculture support services and the operation of fish ports. On the other hand, the Fisheries Code reserves aquatic resources in Philippine waters for the sole use of Filipino citizens. Municipal waters are inland waters and marine waters up to 15 km. from the shore. Waters up to 10 km from the shore is reserved for municipal fishers; the municipal or city government may however permit small to medium scale commercial fishing in the 10-15km region. Other laws pertinent to fisheries are the Agriculture and Fisheries Modernization Act (AFMA) of 1997, the National Integrated Protected Areas System Act of 1992 and the Wildlife Resources Conservation Protection Act (RA 9147).

In Indonesia, the Presidential and Ministerial Decrees regulate policies and provide guidelines for new policies. Past policies of the country reveal that it promoted fisheries development to support national economic growth by encouraging domestic consumption and exports of fisheries products, and by promoting private and foreign investment in the fisheries sector. Presidential Decree no. 23 of 1982 provides high priority to small-scale farmers and cooperatives to develop mariculture, and allows both foreign and domestic private investment to encourage modern technology adoption, although in some instances *e.g.* shrimp hatcheries, foreign investment is restricted. The rescue program

"PROTEKAN 1999-2003" following the economic turmoil of 1997-98 identified the fisheries sector as one of the areas where stocks are still under-exploited, and identified a potential for aquaculture development. As part of the rescue program, capture fisheries are being developed and supported to improve product quality, diversify products, and develop infrastructure. It is expected that the development of the capture fishery will contribute one-fourth of foreign exchange earnings.

As a leading producer of fish and aquatic resources in Asia and in the world, Thailand carries special importance in reviewing its fisheries policy. The Department of Fisheries is the principle agency in formulating fisheries policies and implementation of these. However, the sector is not only affected by its own policies, it is also guided by complementary national economic and agricultural policies. Current national fishery development policy has five principle components that form the core for the formulation of strategies and action plans: *a)* development of fisheries and related organisations; *b)* fishery resources and environmental management; *c)* aquaculture development; *d)* policy beyond Thai waters; and *e)* fishery industry and business development.

Consistent with the policy, the government has put much emphasis on gear exchange to encourage the fishers to change their illegal destructive fishing habits. In general, the private sector is the principal stakeholder in investment in the fisheries industry. The government acts as facilitator, facilitating raw material acquisition, product certification, standardisation of products to attain international standards, sale promotion, etc.

Thailand's Board of Investment (BOI) promotes investment in agriculture and agricultural products. The BOI listed aquaculture (except shrimp culture), deep sea fishing, fish feed manufacturing, trading centres for fisheries products, agro-industry processing zones, and aquariums and ocean marine services as priority activities for investment promotion.

In Cambodia, many changes have taken place in the economic policy of the country which has affected both freshwater and marine fisheries. The current fisheries reforms impacting the Cambodian economy are based on 'resource benefit re-distribution' as enunciated by Prime Minister Hun Sen in October 2000. The principle of resource benefit redistribution is to redesign the 'jurisdictionals' for different groups of stakeholders through which fishing corporations and local communities share the benefits extracted from the fisheries resources. Thus, in 2000, the government released 56% of leased lots to the fishing community, aimed at reducing conflicts and sharing more resources with the poor. Some fishing communities were established by the government and some of them were created by non-governmental organisations.

In India, the National Fisheries Development Board has been set up in order to develop the fishery sector through modern tools of research and development including biotechnology. It has been registered on July 2006 under the Andhra Pradesh Society Registration Act 2001 and has become operational. The Coastal Aquaculture Authority Act which provides the rules to protect as well as develop the fishery sector was established in 2005.

Box 17.4. The King's New Theory

Part of Thailand's development policy is to make small-scale farmers/fishers sufficient, self-reliant and competitive. Following the economic crisis of 1997, "The King's New Theory" was implemented in order to encourage small-scale farmers who own about 2.5 hectares of land to engage in integrated farming to cover rice and other crops, livestock, poultry and fish feeding. With appropriate technology and local experience/wisdom, the small-scale farmers will gradually improve and will be ready to become commercial farmers.

Experience in international fisheries trade

Thailand used to be the leading exporter of fish in the world in terms of value but was overtaken by China in 2002. Other countries like Taiwan, Chile, Indonesia and Republic of Korea are among the top ten fish exporters of the world. Although many of the developed countries contribute to the world export of fish, their net export is negative, and has been declining since the early 1980s (WorldFish Center 2000). Other countries like India, Philippines, Vietnam, and Bangladesh also share a significant amount of fish and fish products in world exports.

Thailand remains the number one shrimp exporter. About 306 000 tons of shrimp products have been exported to other countries in 2006. In order to ensure good quality of Thai seafood and aquaculture products, the Department of Fisheries conducts regular inspections. Today, the Department is recognized by the food and safety control authorities in various countries including the EU, Argentina, Japan and China. Since 1998, the Department of Fisheries introduced two very important programs for quality shrimp production particularly the Good Aquaculture Practice or GAP and the Code of Conduct for Responsible Fisheries on Aquaculture or CoC, to raise the standards of the Thai shrimp aquaculture industry to high international levels.

In the Philippines, there is a good number of high value fish species preferred by consumers in developed countries. These species – grouper, shrimp, lobster and tuna – are the icons of "luxury consumption". Exporting these products generates foreign exchange which can be used to purchase inexpensive food fish from the international market to meet domestic food requirements. In 2000, the Philippines exported a total of 199 719 tons of fish and fishery products valued at USD 506.6 million.

Exports of fish products from India have been increasing steadily for the past three decades. The share of India in the global trade has increased from 6.1% in 1992 to 6.5% in 2003. It is second to China with respect to inland fish production.

Cambodia's experience in international fisheries trade took off in 1990. Its major export products are frozen shrimp and freshwater fish. KAMFIMEX, the state owned enterprise is the sole licensed exporter of fish products. The fish is transported to Cambodia's sole seaport in Sihanoukville, from where it is sent to other countries. According to KAMFIMEX, the most lucrative markets for export are United States and Australia, followed by China, Hong Kong, Singapore and Malaysia; Thailand and Vietnam.

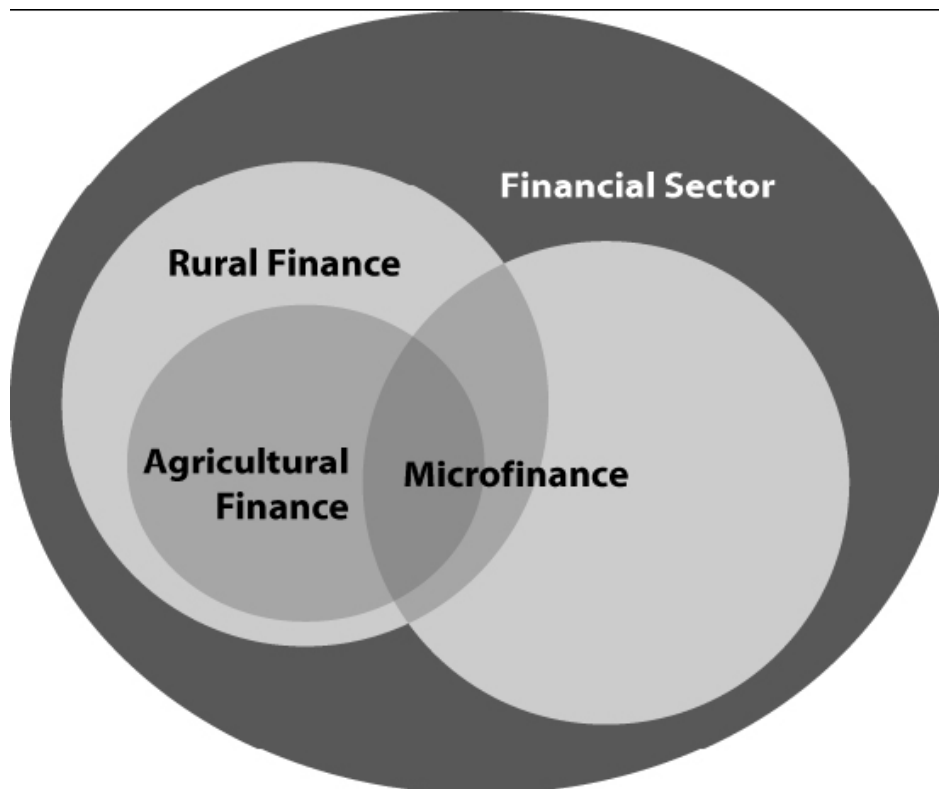
In Indonesia, exports of fish products in 2001 amounted to 0.48 million tons, bringing in a foreign exchange earning of USD 1.63 million. The export value of fish products in

2002 declined to USD 1.57 million with export volume reaching 0.51 million tons; but in 2003 export value swelled to USD 2 billion with export volume of 696 thousand tons.

Rural Finance/Microfinance for Small Scale Fisheries

For discussion purposes, it is important to define and distinguish rural finance from agricultural finance and microfinance. First, as defined by the World Bank, rural finance is the provision of a range of financial services such as savings, credit, payments and insurance to rural individuals, households, and enterprises, both farm and non-farm, on a sustainable basis. It includes financing for agriculture and agro-processing. On the other hand, agricultural finance is defined as a subset of rural finance dedicated to financing agricultural related activities such as input supply, production, distribution, wholesale, processing and marketing. Finally, microfinance is the provision of financial services for poor and low income people and covers the lower ends of both rural and agriculture finance as seen in the diagram below:

Figure 17.1. The Relationship between Rural, Agricultural and Micro Finance



Source: Andrews (2006).

Importance of rural finance/microfinance for small fisheries development

Among APRACA member countries, credit is deemed necessary to complete the package of support services for the sustained development of the small fisheries sector. There is empirical evidence that microfinance can help the poor especially in terms of

smoothing and increasing income (Robinson 2001). Remenyi and Quinones (2000) noted, for instance, that in Indonesia, an average annual increase of 12.9% in the income of borrowers was observed compared to the 3% income increase among non-borrowers. Moreover, among microfinance borrowers in Bangladesh, a 29.3% annual average rise in income was recorded while a 22% annual average increase in income was estimated among non-borrowers. Sri-Lanka also showed a 15.6% rise in income among borrowers and a 9% rise among non-borrowers. In the case of India, a 46% annual average rise in income was reported among borrowers while non-borrowers only showed a 24% annual average increase in their incomes. Morduch and Haley (2002), thus, indicate that under the right conditions, microfinance is an instrument that can address the needs of a broad range of the population including vulnerable and disadvantaged groups, such as small-scale fishing and fish farming households. Development practitioners and policymakers, therefore, view microfinance as a practical solution to the growing demand for financial services by the poor and to the reality that most formal financial institutions do not serve the poor because of perceived high risks, high costs involved in small transactions, perceived low profitability and inability of the poor to provide the required physical collateral (Asian Development Bank (ADB) 2000). Most if not all of these financial institutions have a business culture that is not geared to serve the poor, low-income households and microenterprises. Through microfinance, financial services like savings, credit, and insurance facilities can be delivered to poor households/micro-entrepreneurs who will, in effect, be able to smoothen their consumption, manage their risks, build their assets gradually, develop their microenterprises, enhance their income earning capacity and enjoy an improved quality of life. Without permanent access to institutional microfinance, most poor households/microentrepreneurs would have to continue to rely on meagre funds from savings and credit from informal sources. The lack of access to finance services constrains their income and production capacities.

The development objectives of microfinance for poor fishing communities, therefore, are to enable fishing households to increase income, smooth consumption, develop microenterprises, manage risks better and enhance earning capacities, thus reducing economic and social vulnerability. Because women constitute a significant proportion of poor fishing households, microfinance should also serve as an effective tool to assist and empower women in fishing communities.

Rural finance policy environment

The rural financial markets of most APRACA-member countries have gone through various stages of development and experience - from a policy environment characterized by credit subsidies, credit allocations and loan targeting to a liberalized and deregulated financial markets. Prior to reforms, there was much uproar over the importance of credit in increasing agricultural productivity and rural household incomes. Credit, then, was viewed as the panacea for rural poverty. In effect, the Philippines and other countries like India, Indonesia and Thailand, followed the supply-led approach through massive infusion of institutional credit using cheap credit funds from the government. (Llanto 2005). In the Philippines, for instance, various commodity-specific agricultural credit programs such as the *Masagana 99* for rice, *Masaganang Maisan* for corn, *Gulayang Pangkalusugan* for vegetables, and *Bakahang Barangay* for livestock, among others were implemented through rural banks as conduits. Rural banks were 'gifted' with 'cheap' funds (*i.e.*, at very low interest rates) via the Central Bank's rediscounting window as an incentive for them to lend to small farmers. Without the 'incentive', these banks would normally not lend to these farmers because lending to the latter is generally

perceived as risky and quite costly to administer. Moreover, some government non-financial agencies did the lending themselves, providing loans directly to program beneficiaries but without putting in place an appropriate loan collection mechanism.

Similarly in India, government has intervened heavily through the well-known ‘melas’ in the 1980s, in which large volumes of funds were imprudently issued as subsidized loans to the supposedly weaker segment of society and loan waivers offered until 1991. Subsidised credit programs were likewise implemented in Indonesia through its two nationwide programs specifically created to intensify agriculture, stimulate rural non-farm enterprises and to increase rural employment: (1) Bimas Rice Intensification Scheme, and (2) the Small Investment and Permanent Working Capital Schemes. The Bank Rakyat Indonesia (BRI) unit *desas* were selected to channel subsidised credit to rice farmers.

For most of these countries, however, the positive effects of a supply-led strategy were short-lived since farmers started to default on their loan repayment, government funds dwindled and a great number of rural banks closed shop and went bankrupt. While some farmers blamed the weather, others simply refused to pay because of the notion that government funds are a dole-out and need not be returned. In addition, the government agencies that implemented credit programs did not exercise due diligence in loan collection. And because of too much dependence on cheap funds from the government, most rural banks neglected deposit mobilisation and demonstrated leniency in loan screening and collection which led to poor repayment rates.

Given this experience, governments started to liberalize and deregulate the financial markets. Having an enabling rural financial policy environment was the goal of every government. Greater reliance on market principles especially in pricing as well as allocating credit funds was therefore the basic framework for reforms. In effect, interest rates were deregulated and subsidies gradually removed. Majority of the APRACA-member countries thus, liberalised and deregulated their rural financial markets although in varying degrees. Countries like the Philippines, Cambodia and India, for example, follow a full market-determined interest rate policy regime wherein all financial institutions are given the freedom to set their own interest rates. The importance of such a policy is to allow banks and other lending institutions to cover their costs in lending so that their operations can be sustained and credit to the rural areas can continue to flow. However, while the Philippines has totally removed its anti-usury law, India has maintained the same law and thus, still keeps a close watch over the level of interest rates in order to ensure that the rates charged by the institutions do not become usurious according to the provisions of the law. In Cambodia, the government has also stopped putting ceilings on interest rates but it (the government) continues to negotiate with microfinance institutions (MFIs) for them to bring down their interest rates.

In Thailand, banks are said to be allowed to charge their own rates but interest rate ceilings are imposed for Thrift and Credit Cooperatives at 19%; agricultural cooperatives and informal organizations at 15%; BAAC and GSB at 19%. While Indonesia has adopted market-oriented interest rates as a policy in credit delivery among microfinance institutions, it continues to practice subsidized credit and loan targeting under special programs of the government for specific sectors.

Most of the countries have stopped direct lending by government non-financial agencies and therefore, provides financing services through banks and other financial institutions.

Available rural finance/microfinance services for the farming/fisheries sector

Since these countries continue to recognize the importance of rural finance/microfinance in poverty alleviation especially in the small-fisheries sector, they have worked towards the strengthening of their financial institutions in order to improve the delivery of credit (as well as savings) services to the poor. For instance, in Thailand, the Bank for Agriculture and Agricultural Cooperatives (BAAC) is focused on providing financial services to farmers and fishermen as well as to agricultural cooperatives and farmer/fisher associations. In addition to credit, BAAC supports projects that link production, processing and marketing systems in order to increase production efficiency, increase value added and income of farmers/fishers. BAAC also includes training or institution building as a critical component of the credit package.

Box 17.5. BAAC's Full Package of Assistance

BAAC has been coming up with measures to reduce risk in lending to the fisheries sector. Since 2003, BAAC has been promoting among these farmers, the guidelines issued by the Department of Fisheries including the Good Aquaculture Practice (GAP), Code of Conduct (CoC) for responsible aquaculture including Organic Aquaculture Approach. BAAC aims to educate and enrich skills of client-farmers/fishers. Moreover, starting in 2005, BAAC has participated in "Contract Farming System" arrangements. In this case, marketing of products is assured even before production. While other agencies provide technical assistance, BAAC provides the loans according to their regulations.

Like BAAC of Thailand, the Land Bank of the Philippines is the institution mandated to provide small farmers and fishers in the Philippines access to credit and other financial services. Through its Agrarian and Domestic Banking Services Sector, LandBank designated and deployed Small Fisherfolk Specialists in its Regional Development Assistance Centres to focus on serving the credit needs of small fish farmers. Land Bank also launched the LandBank Support Program for Fisheries which aims to provide loans to small fishers. Under this program, about P873 million and P882 million were allocated in 2004 and 2005, respectively. In terms of retail credit channels, LandBank utilised accredited cooperatives, countryside financial institutions such as rural banks and the Quedan and Rural Credit Corporation (QUEDANCOR).

In Cambodia, the financial sector is still in its infancy. Banks have to this point played only a small role in savings mobilization and financial intermediation and their operations are generally confined to Phnom Penh (Fukui and Llanto 2003). Nearly 40% of the people have no access to formal bank branches and only 6% of total banking sector advances are for agriculture or related activities. Cambodia does not have any specialised public bank, or other financial vehicle, that extends retail services to farmers. Such an institutional *vacuum* in formal financial supply seems to characterize the basic environment of Cambodian rural finance; there is high anticipation for micro-finance development to fill the huge gap in demand and supply of rural financial services. NGOs which became active in the late 1970s with the humanitarian approach have gradually moved out of relief and rehabilitation works and redefined their roles in interventions in the development process. Among those interventions, micro-credit undertakings have thrived since the early 1990s, and most of the country's 24 provinces now have micro-credit services provided by NGOs (reportedly numbering 72 in total). Cognizant of serious lack in rural financial services, the government has adopted a series of policy

measures, supported by international donors¹ which have been in effect since the late 1990s. While institutions have yet to be substantially developed, currently, specialized banks engaged in micro-finance and NGO MFIs are integrated into the regulations of the NBC. With technical and financial supports by donors, the NBC developed banking legislation that includes registration and licensing requirements and some prudential standards for larger MFIs. As of the end of 2001, there were 32 registered NGOs and MFIs, the top five of which dominated more than 80% of the aggregated loan portfolio, including ACLEDA Bank (specialised bank), the EMT and Hatthakaksekar (licensed NGOs), and PRASAC and Seilanithih (registered NGOs). In total the rural financial institutions reach around 420 000 borrowers, which represent about 23% of the rural households. There is no available information on specific programs for the fisheries sector.

Box 17.6. Growth of ACLEDA Bank

The rapid growth of ACLEDA Bank is phenomenal: after only about three years in operation as an NGO micro-finance project, ACLEDA transformed into a micro-finance specialized bank in 1995, and it, as of the end of 2002, had 75 branches in 14 provinces and a workforce of 863. Its loan outstanding had grown to USD 27 million, serving more than 80 000 borrowing customers.⁶ Fully supported by international donors since its establishment, ACLEDA Bank has been expanding its range of products in retail banking to include loans to small and medium enterprises, cash management and money transfer services, and deposit services to the public. Savings mobilized by ACLEDA's deposits are yet small (USD 5.7 million in 19 070 accounts as of the end of 2002), but have been growing rapidly in recent years. As regards the RDB, a governmental wholesale conduit to MFIs, the loan outstanding (to five financial institutions) was USD 1.9 million as of January 2002, with an additional USD 20 million available in credit from the Asian Development Bank (ADB) to be on-lent to MFIs.

Source: Fukui and Llanto (2003)

In Indonesia, it is worthy to note that following the collapse of the Bimas, the Bank Rakyat Indonesia (BRI) unit system became more responsive to the needs of farmers. The unit *Desas* was transformed into full service rural banks; each unit was treated as a discrete profit or loss center within BRI; and the units were evaluated on profitability rather than on hectares covered or money lent. One of the unique features of the unit *Desas* is that they make individual loans based on collateral, usually in the form of land, and loans are made for one to three years. Local village officials are involved in the screening by acting as character references for the borrowers. The transformation of the BRI unit *Desa* system produced spectacular results in outreach and financial performance. Among the many types of formal microfinance in Indonesia, therefore, BRI Unit and Rural Banks (BPR) have been recognised as the microfinance leaders that serve micro, small and medium enterprises (MSMEs).

- 1.
- (i) establishment of the Credit Committee for Rural Development (CCRD) in 1995;
 - (ii) introduction of a framework in the Banking Law to enable eligible NGOs and other rural finance providers to become regulated micro-finance institutions;
 - (iii) creation of a unit in the National Bank of Cambodia (NBC) to supervise and monitor MFIs; and
 - (iv) establishment of an apex institution to provide financing for MFIs, namely the Rural Development Bank (RDB).

Box 17.7. Bank Rakyat of Indonesia

BRI is a state-owned bank which ran a programme of directed subsidized credit for rice farmers until 1983. The Unit Desa (BRI-UD) or Village Bank, was established in 1984 as a separate profit center within BRI, under a General Manager who reports directly to the BRI Board of Directors.

BRI-UD consists of a nationwide network of small village banks. The founding objectives of BRI-UD were to replace directed agricultural credit with broad-based credit to the rural population involved in any type of economic activity; to replace subsidized credit with positive on-lending rates with spreads sufficient to cover all financial and operational intermediate costs; and to provide a full range of financial services (savings as well as credit) to clients. All these objectives were achieved only a few years after the programme's inception, and BRI-UD's phenomenal success in savings mobilisation became its distinguishing achievement. Various other financial institutions including the Badan Kredit Kecamatan (BKK) which target the extremely poor rural population are operating along similar guidelines in the Indonesian rural lower-income market.

In India, one of the most successful microfinance programs in the country is the Self Help Group-Bank Linkage Program. Under this scheme, a number of NGOs organised the poor into informal self-help groups (SHG). An SHG is a small, economically homogeneous group of rural poor, generally not exceeding 20 members, voluntarily coming together for mutual help and benefit. There are three main linkage models involving the banks, NGOs and SHGs that promote microfinance in India. Through the National Bank for Agriculture and Rural Development (NABARD), these linkage models were implemented and could perhaps be the largest microfinance program in the world in terms of outreach.

More recently, microfinance interventions among fishers have been concentrated mainly in the States of Kerala, Tamil Nadu and Andhra Pradesh in South India and a few initiatives in Orissa and West Bengal in East India. In particular, the South Indian Federation of Fishermen Societies (SIFFS) is a NGO working in the marine fisheries sector in the States of Tamil Nadu and Kerala. The SIFFS provides loans for fishing equipment, facilitates marketing of fish caught by the members and promotes savings.

Box 17.8. Self-Help Group-Bank Linkage Program in India

This aims to make improvements in the existing relationships between the poor and the banks, with the intermediation of NGO's, which either plays the role of promoters of SHGs or of financial intermediaries. Model I – the bank itself is the self-help group promoting institution (SHGPI) that trains and provides credit directly to SHGs; Model II – the NGO acts as the SHGPI that trains and helps the SHG link with the banks; Model III – the NGO acts as the financial intermediary between the bank and the SHG. As of March 2002, Model II was the most prevalent linkage mechanism, involving around 75% of the more than 460,000 SHGs organised in India, followed by Model I (16%) and Model III (9%)

Extent of outreach: Agriculture and fisheries credit performance

Despite continued efforts by governments to continue to find ways of making credit for small farmers/fishers adequate, timely and sustainable, marginal farmers and fishers continue to have limited access to credit. Based on studies done by the Agricultural Credit

Policy Council (an APRACA-member institution), the following findings indicate that the provision of loans to the agriculture and fisheries sector needs to be improved further:

1. Formal banks' lending to agri-aqua-agra production declined in real terms, from less than P 100 billion in 1980 to P 44 billion in 1986 and P 86 billion in 2004 (see Figure 17.1).
2. The ratio of agricultural production loans to total formal loans granted also declined from 7% in 1986 to 4.0% in 1997 and dropped further to 0.9% and improved slightly to 1.1% in 2006 (Table 17.7).
3. Informal sources of finance continue to dominate and have not changed much from 1981-1982 to 2001-2002 at a 60:40 ratio in favour of informal credit. In fact, the ratio has become worse in 1986, 1988-1989, 1990-1991, and 1997-1998. The usual indictment is that formal finance is persistently inaccessible while informal finance is still limited and/or very costly to compensate for its high risk and high transaction costs (Table 17.8). The government has meddled too much and has pursued more wrong, than right, interventions (such as directed credit to non-financial government institutions, subsidized credit, credit rationing), thereby resulting in many pitfalls and expensive blunders.
4. Credit from non-bank financial institutions (*e.g.*, lending investors, credit unions, and cooperatives, self-help groups, NGOs, microfinance institutions) has been generally increasing in terms of loan volume and outreach, but they provide loans mainly for non-agricultural purposes and therefore, has not reached out to small fishers.

The same findings seem to hold true across other countries in Asia including Indonesia where lending to the small fisheries sector is still considered a highly risky business by the banking industry; and in India where credit to fisheries from the banking sector is but 1% of the total credit that goes to agriculture.

Major Issues, Constraints, and Opportunities in Aquaculture Credit

Based on country papers and review of related literature, the major issues in aquaculture credit are as follows:

- Very limited access to both formal and informal credit among the enterprising, labouring, and low-income fish farmers (earning less than P 100 per day).
- Lack of viable and profitable aquaculture projects and the attendant risks (technology packaging; weather aberrations such as typhoons, floods and drought; business and financial risks, peace and order, market risks).
- Limited the provision of credit to fish farmers by the rural financial institutions. In fact, LandBank, despite its Small Fisherfolk Financing Program, which has at least P800 million for credit allocation to small fish farmers, could only reach less than 4 000 fish farmers in 2004 and 2005, representing a meagre 0.24% penetration ratio vis-à-vis the more than 1.6 million small fishers in the country.
- On the demand side, fish farmers are not considered creditworthy mainly because (*i*) they lack physical and livelihood assets, including land (capital) that

can be used as collateral; *(ii)* they do not possess technical or technology expertise (capacity); *(iii)* they tend to be more individualistic, are not functionally organised, are geographically dispersed, and have no critical mass to warrant economies of scale in production, marketing, and post-harvest handling operations (condition); and *(iv)* they do not have good credit history, and the banks do not have a reliable database on their financial, livelihood, and character standing (capacity to pay).

- Further aggravating the lack of credit access is the very high cost of credit.

The Biggest Challenge: How to Make Microfinance Work in Agriculture and Fisheries

Therefore, the biggest challenge faced by policymakers and practitioners today is how to make microfinance work in agriculture and fisheries. A major difficulty in making microfinance work for agriculture and fisheries projects is the fact that microfinance loans are paid in small amounts and collected regularly in small amounts while agriculture and fishery projects need lump sum amounts and have long gestation periods which make it difficult for borrowers to pay small amounts on a regular basis. Making microfinance work in agriculture can be achieved by first, identifying the challenges faced by banks and other financial institutions providing agricultural credit in order to know what to address and how to address these challenges. Andrews (2006) came up with a list of factors unique to rural and agricultural markets that constrain both the supply and demand for credit, as follows:

- High transaction costs for both borrowers and lenders.
- Generally lower population density and dispersed demand.
- Often limited economic opportunities available to local populations.
- High risks faced by potential borrowers and depositors due to the variability of incomes, exogenous economic shocks and limited tools to manage risk.
- Seasonality – potentially affecting both the client and the institution.
- Heavy concentration on agriculture and agriculture related activities exposes clients and institutions to multiple risks, both idiosyncratic (one household) and covariant (entire region or country).
- Lack of reliable information about borrowers.
- Lack of market information and/or market access.
- Weak institutional capacity – including poor governance and operating systems, low staff and management skills.
- “Crowding out” effect due to subsidies and directed credit.
- Lack of adequate or usable collateral (lack of assets, unclear property rights).
- Risk of political intervention, which can undermine payment morale through debt forgiveness and interest rate caps.
- Inhospitable policy, legal and regulatory frameworks.
- Undeveloped legal systems, inadequate contract enforcement mechanisms.

- Undeveloped or inadequate infrastructure.
- Land held may be too small to be sustainable or located too remotely to be reached efficiently.
- Individuals may be dependent upon only one crop with no other external sources of income.

There could be no blueprint for a program or scheme that could address these challenges because the design, methodology, products and delivery of services need to be modified to fit the specific country, region, cultural context, operating environment and even the challenges affecting an institution. Institutions must be able to identify and consider the peculiarities of their clients as well as the different factors affecting their respective areas of operation and understand that what works on Southeast Asian farms may not be applicable in Sub-Saharan Africa on small holder plots of land and *what is successful in highly populated rural areas of Bangladesh is not easily replicable in the more remote rural environments of Nicaragua, Peru, or even Afghanistan* (Andrews 2006).

Nonetheless, some lessons learned from the implementation of past credit programs in the Philippines (Kraft 2001) which may be considered when designing a microfinance program for agriculture and fisheries sector are as follows:

- In the design of a credit program, it is imperative *“to establish linkages and networking.”* This requires well-planned social marketing of the project, effective institutional development and training program in community organizing, technology packaging and transfer, and strengthening of fishers, cooperatives and associations, particularly their savings and lending capability and creditworthiness as well as support to project development and packaging, overall project execution and management, and market linkage. There is also *an urgent need to implement a comprehensive aquaculture-based financing strategy and practical demand-led schemes and innovations.*
- As an integral component of well-phased and appropriate policy reforms and conducive climate for investment in aquaculture and potentially viable alternative livelihood projects, *the following support interventions will help improve the investment climate and viability of aquaculture finance:* (i) provision of public or social goods (support infrastructure facilities (e.g., farm-to-market roads, rural bridges, irrigation and drainage facilities, electrification, transport and logistics systems, post-harvest facilities, potable water supply) which reduce production and marketing costs; (ii) technical assistance via technology transfer and commercialization in terms of the research, development, and extension (RD&E) support continuum; and (iii) social, educational, and health services that enhance the productive capacity of fisherfolk.
- Institutional arrangements that will encourage the greater participation of private banking institutions in aquaculture credit, through the institution of positive changes and reforms at the demand and supply side of credit, will minimise lending costs and risks. Moreover, appropriate institutional arrangements are required in mobilising credit supply and availability through a national network of rural viable credit cooperatives.

- Improving credit delivery and repayment performance of fisheries project involve a total household cash flow approach to developing technically and economically viable land-based income-generating projects that will augment income from aquaculture on a sustainable basis. Such improvement in credit delivery will enhance creditworthiness and credit repayment performance.

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Chapter 18

Globalised Out? A Case for Fish Trade in Developing Countries

Stephen Mwikya, Consultant, Kenya

Stephen Mwikya presented an overview of the challenges that developing countries today face in the era of globalised fisheries markets. 60 out of 77 ACP (African-Caribbean-Pacific) countries have significant fish stocks, as well as significant socio-economic and socio-cultural linkages that relate to these fish stocks. However, these linkages are threatened through risks to local fishing communities, by difficulties in entering the global value chain and through access agreements. Access agreements can also undermine stock sustainability in developing countries. The presence of subsidies in some developed countries' fleets aggravates the problem.

The desire of many African countries is to benefit from their natural resources and subsequent trade in fish stocks. Instead, many find that access negotiations are skewed, that MCS (monitoring, control and surveillance) networks are expensive and that rules may be undermined as a result. In addition, many face challenges in retaining value-addition within their own countries, as well as problems gaining market access due to tariff escalation.

For Stephen Mwikya, the policy challenge for developing and developed countries with respect to globalisation in fisheries is to construct an international policy framework that enhances development, taking into account socio-cultural linkages in developing countries' fisheries. This is a shared responsibility but one that would ensure that developing countries are able to obtain a fair value for access to their resources, capture more value along the value chain, and adopts technologies that enhance value addition.

Introduction

In line with Millennium Development Goal number one, those of eradicating hunger and extreme poverty, developing countries are increasingly seeking to develop their natural and human resource potentials. Of the 77 African, Caribbean and Pacific

Countries (ACP), 60 have significant natural capture fisheries resource potential that is either subject to international trade, or can be commercialised easily. Fisheries are the only major natural resource in some of the ACP countries, especially Small Island States. In some cases such as Mauritania, Kiribati and Tuvalu, revenue from this resource accounts for more than 40% of Gross Domestic Product. This level of dependency on fisheries requires both national and international policy directed at ensuring that developing countries capture maximum value from trade in their fisheries resources.

Fish in developing countries, perhaps more than any other natural resource, is highly globalised. Fishing in Exclusive Economic Zones (EEZ) of most developed countries is almost entirely conducted by Distant Waters Fishing fleets from developed countries, with host countries being reduced to side-spectators awaiting some financial compensation from these foreign fishers. This is made possible by decades of subsidies by Distant Waters Fishing nations to their DWF fleets, during which they build their competitive edges beyond the reach of host developing nations. In the processing sector, imposition of stringent sanitary and phytosanitary standards and high bank interest rates have made it almost impossible for local investors to become competitive exporters. Many exporters in developing countries are therefore from developed countries, where they are able to access affordable credit. Developing countries have been gradually getting globalised out of their fisheries.

The expectation that developing countries will use trade in their fish as a tool for economic development presupposes that fisheries trade applies perfectly the laws of supply and demand, where there are many buyers and sellers, with no integrations amongst capture, processing and retail levels of the chain significant to cause monopolistic tendencies. Well, as discussed throughout this paper, this is not the case in developing countries fisheries. On the outset, 'globalised out?' seems an illogical question to pose, since capture fish belongs to whoever has legal right to its ownership. It first belongs to the State, since no one directly nurtures its growth, then the fisherman, the trader, processor, supermarket and eventually the consumer. This may be considered the value chain of fish, where every 'owner' has a right to bargaining for a price commensurate to the value they confer, and also an obligation to ensure every other level of the chain gains value from the commodity.

Fisheries in developing countries, especially coastal and inland capture fisheries, mainly consist of artisanal or small scale fishers. Many of these countries practise 'open access' policy, where as many fishers as may wish gain access to fishing on the basis of being riparian communities. This poses a particular challenge to fisheries management in ensuring that exploitation is kept at sustainable levels and in some cases has led to over exploitation especially in shallow or small inland water bodies. Their efforts are however aided by the fact that majority of these fishers use low technology crafts that are unable to exploit deeper waters which are almost exclusively left to industrial fishers. About 30% of fish harvested by small scale fishers is lost through spoilage due to lack of preservation facilities, and efficient infrastructure to move the produce to marketing centres. This presents the first policy challenge to developing countries: should it be normal practise to permit fishing access to persons who have no capacity to preserve and present their catch to the market in a wholesome and timely manner, or should a state encourage globalisation of its fisheries in order to drive standards up, minimise post harvest losses and maximise rent collection? The question is made more pertinent considering that the fishers do not pay for the access, and therefore this represents a resource rent loss to the state, even though the fishers benefits. To what extent should the Government assist (*e.g.* in preservation of fish) those who are already privileged to have free open access?

Generally, those who have the privilege of being granted access to a fishery on behalf of the rest of the public have an obligation to ensure that it contributes to economic development.

Further, fish processing such as drying and smoking in developing countries represents a price value loss, not addition. Dried (and often smoked) fish in many parts of Africa usually retails at about the same or even less price than fresh fish. This is despite the fact that drying fish results in about 60-70% loss in weight (moisture content of fish is about 70%), and therefore, to break even on raw material cost alone, dried fish should be at least twice the price of fresh fish, on weight basis. These technologies are mainly practised to save fish from spoilage by attaining shelf-stable products that may be easily distributed widely. This is not unique to processing in developing countries, because fish canning may also be regarded as a price value loss (the world market price for canned tuna is about USD 1/kg, and that for fish for canning is also about USD 0.9-1.2/kg). Considering the urgent need to use fisheries as a tool for economic development, any transformation that results in loss of value needs to be discouraged.

With the exception of Lake Victoria in East Africa, the bulk of international trade in African, Caribbean and Pacific Countries is based on capture fisheries in their Exclusive Economic Zones (EEZ). Almost all fishing in these developing countries waters is carried out by Distant Waters Fishing (DWF) Fleets from nations such as Spain and France (the European Union), Japan, USA, Chinese Taipei, South Korea and China. These foreign fleets operate under fishing access arrangements with the host countries which involve payment of a sum of money for (sometimes a defined amount of) fish. On average, financial compensations to ACP countries for fishing access is between 3-6% of the value of catch. This is a small compensation level, if resource rent principles as applied in other natural resources such as minerals, forestry and crude oil are considered, and also bearing in mind that investment in fishing is much smaller when compared to others such as mining. Even though ACP countries are aware of these unfair compensation levels, they have so far been unable to bargain for better terms from the DWFN (Distant Waters Fishing Nations). This represents the first major distortion in international trade value chain in ACP fish.

Tropical fish fillets, whether tuna, tilapia, Nile perch or others almost invariably are bought from developing countries exporters at about USD 4/Kg fob, and sold at about USD 14/Kg (supermarket price). This implies that about USD 10 value is captured at the developed countries level, even though there is hardly any value processing in these destination markets. The net effect of this is that net margins (including labour and energy costs) in developing countries are rarely more than USD 0.10-0.15/kg. This in turn leads to low landing prices for fishers, which in turn encourages them to fish more to make ends meet, and this threatens stocks sustainability, and enhances poverty. Developing countries traders are unable to 'follow their fish' to market in developed countries and capture these lucrative margins because of restrictions in trade in services imposed by these markets, such as movement of persons from developing countries to developed ones for genuine business.

Fisheries trade also suffers from restrictions targeted at value addition. Several markets impose tariffs targeted at punishing value addition and rewarding export of raw fish. This policy is aimed at using raw material fish to support employment in developed countries markets. This may be a legitimate right of buyers, but becomes morally unjustifiable when very little value is captured at developing countries level where fish happens to be the only economic mainstay. Inability by many developing countries to

meet stringent sanitary and phytosanitary standards (which become more important during value addition) has often been cited as the main reason why developed countries are justified in importing raw material fish for further processing in their home factories. There has also been an argument that several of the final products from fish demanded by consumers in developed countries are so specialised that the technology and skills required are unavailable in many developing countries. The issue of quality control standards is disputable because several establishments in developing countries have now been able to attain standards comparable to those in the most demanding markets. Some establishments in ACP countries have been able to, in collaboration with firms in export destinations, make specialty value added products that are cost effective, and delivered to the markets in a timely manner. The Maldives are now making 'katsuobushi', a traditional Japanese smoked and dried tuna flakes, and fresh Lake Victoria Nile perch fillets arrive in European supermarkets in less than 48 hours from capture. To a great extent, the private sector in developed and developing countries have been trying, in the absence of policy support from either side, to bridge this trade divide by direct buyer-seller collaboration and capacity transfer efforts to facilitate flow of fish for trade.

Fisheries in developing countries will continue to make only marginal contributions to economic development unless developing countries are able to bargain for fair value for its access, capture more value along the value chain, and adapt technologies that enhance value addition. This paper asks the difficult question: To whom does fish belong in developing countries' waters? If it's obvious that it belongs to these countries, do they capture sufficient value to prove it? The paper discusses factors that limit developing countries (mainly in African Caribbean and Pacific Countries) from maximising their benefits along the fish value chain and value addition. In other words, how can developing countries benefit from the process of globalisation and how these countries can be linked into this process and benefit from it? In order to present a holistic view, the paper discusses value chain issues both at developing countries level and in export trade. It also offers suggestions on aspects for consideration in drafting policies aimed at maximising economic benefits to the ACP from their fisheries.

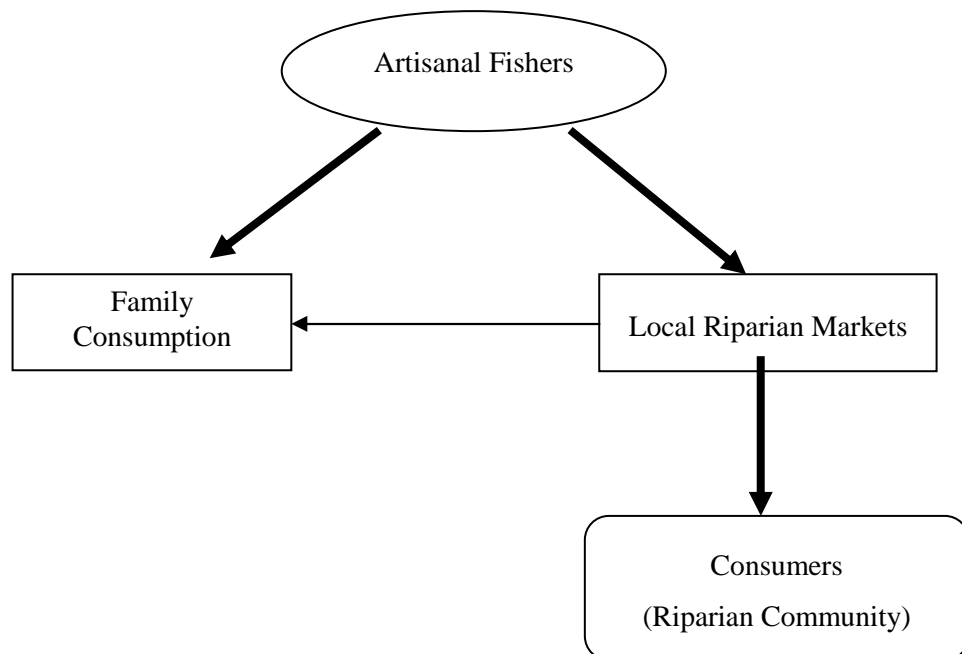
Value Chain in Domestic and Regional Trade

There is insufficient data on volumes of fish harvested artisanally or by small scale fishers and traded domestically or regionally in developing countries. In reality however, almost all lakes, rivers, coastal and reef fishing in most of these countries is harvested by this segment of fishers. Some of this fish such as tilapia, Nile perch and marine fishes such as kingfish and sea-bream is exported to developed countries destinations by factories that bulk and process them into high quality products. A greater volume of fish harvested artisanally by small scale fishers is however traded in markets around fishing areas, and also in major towns in regional countries, often after being processed in shelf-stable forms such as dried and smoked fish. In terms of value chain, this trade can be categorised into artisanal and small-scale commercial trade. This trade greatly helps in poverty reduction in developing countries because it often involves many persons in its various stages, when compared to industrial fishing and developed countries export fish trade.

Artisanal fish trade

Under artisanal fish trade, the fish is usually harvested for domestic consumption, often with limited trading among immediate riparian communities along the water-body. The fishers use non motorised crafts, and volumes harvested are limited to average sales volumes in these surrounding markets. The fishers are quite selective on species harvested, since consumption of some species is considered a taboo. In Ethiopia for example, artisanal fishers around Lake Tana (the country's largest lake) deliberately avoid harvesting catfish (which occurs in abundance there) because its consumption is disallowed by communities around the lake, and instead go for tilapia and Nile perch. A typical fish marketing chain for artisanal fisheries is illustrated in Figure 18.1 below:

Figure 18.1. Artisanal Fish Value Chain



There is hardly any fish preservation in artisanal fish trade, and the catch is usually sold on the same day. Some limited volumes may be processed into dried and smoked forms for marketing in distant (beyond 10 km from water bodies), even though this level of trade is minimal in these fishing communities.

Small scale fish trade

There is still no exact definition of artisanal and small scale trade, but it is now generally agreed that the two differ mainly in extent of commercialization, and types of crafts used. A small scale fisher is a professional trader, whose main thrust is to market his catch, and not feed family as is the case in artisanal fishers. He or she will often spend most of the day fishing, and will seek to sell catch as widely as possible, hence may harvest species his/her immediate community may not normally consume. Such fishing includes small scale octopus and squid fishers in North African Countries of Morocco and

Mauritania and lobster fishers in Lamu (Kenya) and Somalia. Crafts used in small scale fishing vary in size and sophistication, but are usually limited to mainly manual or single outboard engine vessels often not exceeding 15 metres in length.

Small scale fishers often use various means of transportation to transport their catch as fast as possible to markets. These include transport boats, bicycles, passenger transport vehicles and even small trucks. Unfortunately due to unhygienic handling facilities in the boats and landing sites, and lack of ice and other preservation facilities, about 30% is usually spoilt. The level of spoilage increases the further the fishers have to travel to reach market centres. This in turn affects price, as fresh fish attracts a much higher price when compared to semi-spoilt fish. In Bujumbura market (Burundi), fish sold at 4pm (from Lake Tanganyika) retails at about 50% of its value at 6-9 am on the same day.

In terms of value chain, small scale fishing may be distinguished into two types; that which is segmented, with different persons involved at each level of the chain, and fishing which involves significant vertical integration among players on the different levels of the value chain. The value chains of small scale fish trade is illustrated below:

Figure 18.2. Typical Value Chain of Small Scale Fish Trade in Small Sized (Sardine-like) Fish Species Often Consumed Dried

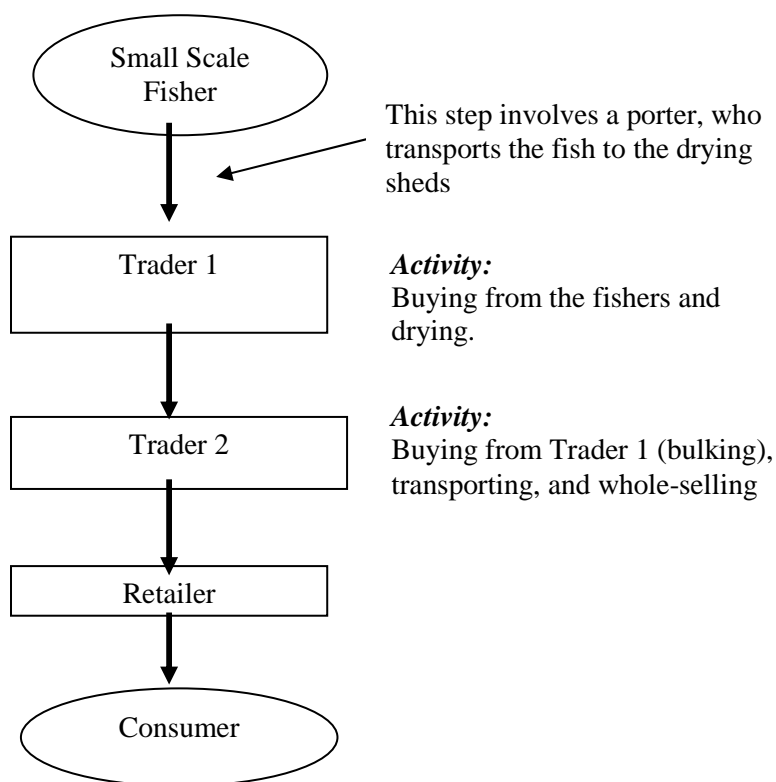
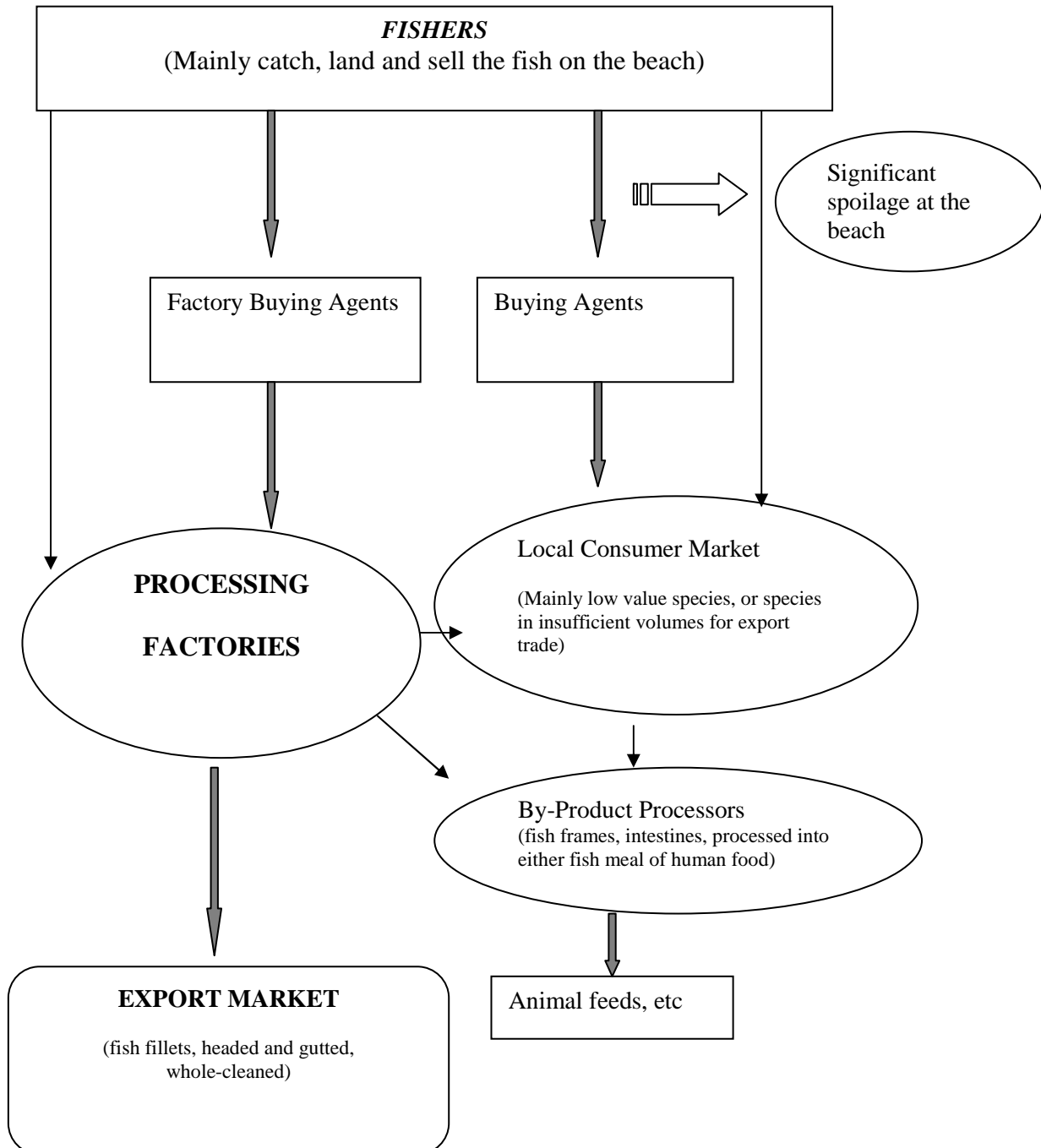


Figure 18.3. Value Chain for Small Scale Fishers of High Value Export Fish, or Fresh-Consumed Domestic Species (e.g. Tilapia, Nile Perch, Marine Fin Fish, Crustaceans, Lobsters and Cephalopods)



Semi industrial fish processing in developing countries

Consumers in developing countries prefer fresh fish to processed forms. Fresh fish is preferred whole (gutted) which is either steamed or deep fried. In tropical conditions of an average ambient temperature of 30°C, fish spoils rapidly (the average shelf-life of

tropical fish kept at room temperature is 6-8 hours after catch (depending on hygiene of handling facilities). If fish was caught by a set-net instead of hook and line, it may have been dead much longer before removal from water, therefore its spoilage would have started in the water. There is hardly any ice or other preservation facilities at landing sites, and marketing centres are usually far removed (at least 10 km) over a poor road infrastructure, which further exacerbates fish spoilage.

To counter the high spoilage rates of fish, traders in developing countries have devised appropriate technologies for processing shelf-stable products. These include dried, smoked, salted and fried products. Usually, fish is first marketed as fresh at major centres until about noon, then sold in the afternoon to small scale processors for drying, salting, smoking or frying. Some of the more stable (to spoilage) fish may be sold to these processors on the second day, but usually fin-fish which is unprocessed will spoil beyond consumption in 24 hours.

The concept of processing in small-scale developing countries does not necessarily represent value-addition. In some remote fisheries such as Lake Turkana in Kenya which is at least 400km from any major markets, almost all catch is sold dried or fried. When compared to price of fresh fish at landing sites, drying or smoking represents about 50-70% price value loss when compared to fresh catch (Table 18.1).

Table 18.1. Dried Fish Value Analysis

	Price (USD)
Average price of 0.5kg fish (e.g. tilapia) when fresh	0.60
Average price of the same price after drying (now 0.2kg)	0.15
Other costs:	Transportation, Labour and time spend drying (opportunity cost)
Value gain/ Loss	Loss of USD 0.45 per 0.5kg (75% value loss)

Domestic Industrial Fishing

Domestic industrial fishing in developing countries is mainly confined to species that are difficult to harvest using small scale gear and craft (*e.g.* shrimps or fast swimming pelagic fishes), and fisheries beyond a 0-3 nautical miles coastal belt (depending on ocean bed slope) where the sea is too rough for artisanal/small scale craft. Most industrial craft from developing countries operate within the 12 nautical miles territorial waters, mainly because the sea is too rough beyond this range. Significant local industrial fisheries exist in countries such as Morocco (cephalopods), Kenya and Tanzania (shrimps), Ghana and Senegal (tuna). These fishers mainly process and export most of their catch, and may sometimes purchase more of their target species from other fishers to attain economic volumes. These fishers also are the main suppliers of marine fish (freshwater fish is mainly supplied by small scale fishers) to markets in developing countries.

Access Fishing

African, Caribbean and Pacific countries do not fish significantly in their Exclusive Economic Zones (EEZs). Fishing in these waters is mainly carried out by Distant Waters Fishing (DWF) fleets from developed countries such as Japan, Spain and France (EU), South Korea, China, USA and Chinese Taipei, which are commonly referred to as Distant Waters Fishing Nations (DWFN).

These countries gain access to fishery stocks through access arrangements which may be summarised into the following types:

1. Government -to- Government access agreements, as is the case between the EU and several (16) developing countries (bilateral agreements), and also the USA-Pacific Island Countries multilateral agreement (between the USA and 17 Pacific Island Countries).
2. Government- to-Private Sector agreements: as is the case between Pacific Island Countries and Japan Tuna Association
3. Rights based licensing of firms that have local base in the host country: as is the case in Namibia
4. Licensing (based on period, not catch levels) of foreign vessels without any specific policy on access fishing policy (*e.g.* in Tanzania, Kenya)

There are several pros and cons on the nature of these agreements (ICTSD 2006), but this paper confines itself to their value aspects. The value of these access arrangements for fish in developing countries EEZ is based on a payment of defined sum of money for either amount of catch, or period of access. The EU agreements compensate developing countries with EUR 100 per metric tonne of tuna caught. The USA agreement with the Pacific Island Countries (17 counties in the Western and Central Pacific Ocean) is based on a lump-sum payment per year (USD 21 million in 2005) regardless of amount of fish (tuna) caught. In general, according to an EU study (IFREMER 1999), financial payments for fisheries access agreements to developing countries accounts for about 2-17% of the catch value (Table 18.2), with tuna agreements financial compensations averaging about 2.6% when downstream value added activities are considered.

This is a low level of compensation for a natural resource by any measure, especially considering that the level of investment required for EEZ fishing is much lower than that for mining (crude oil or minerals), and which attract much higher resource rent levels (about 30%). How are these figures arrived at, and why do the developing countries agree to such terms if they consider them unfair?. In order to answer this question, one needs to consider the process of negotiating access agreements between developed and developing countries. It is not true that developing countries with EEZ fish stocks float out an open 'tender' for whichever DWFN to come forward and bid for a fishing license. This would be the logical thing to do in an open market system, but in reality it does not happen. Access agreements are arrived at through a negotiation process between the host country and DWFN such as the EU or USA, or with a private sector association (such as the Japan Tuna Association). In general, it is the country seeking access that initiates the negotiations, rather than the host country seeking a buyer for its fish, often because the developing country rarely knows the amount of fish available for access. These negotiations are almost invariably private, but the terms of the agreements may be published (as is the case with EU and USA agreements) or kept secret (as is the case with agreements with Japanese private sector). This lack of openness (both during negotiations

and also about the final outcome) renders the process vulnerable to manipulations and possible corruption.

Table 18.2. DWFNs' Tuna Off-takes from WCPO and Payments (2003)

	US	Japan	China	Korea	Chinese Taipei	EU
Off-take (2003) MT	94 003	366 783	35 985	208 592	235 188	n.a.
	16PS	157LL	106LL	150LL	153LL, 34PS	5LL 3PS
Fleet number		35PS 35PL	8PS	27PS		
Financial Compensation/ Economic Benefits	USD 21 million to 17 countries	5% catch value	5% catch value	6% catch value	6% catch value	EUR 100/ton (about 12% catch value)

Source: Off-take and fleet number data, IOTC (2003) and FIAS (2000), adapted from ICTSD 2006. (PS: purse seine, LL: longline, PL: pole and line).

Many Distant Waters Fishing Nations do not regard payments made for access fishing as a trade. The EU for example refers to such payments as 'financial compensation'. Most agreements include components of development aid to the host country's fisheries sector. Also, even though it is not explicitly stated as a consideration in the agreements, the DWFN seeking access may already be providing substantial development aid to key sectors such as education and health in the host country. Further, it is unrealistic to expect a small developing country, which may not even have resources to carry out stock assessment of its EEZ fisheries to effectively negotiate a favourable bilateral agreement with the well endowed negotiations machinery of the EU, USA or Japan. There is clearly a need to implement international policies aimed at ensuring that access fishing is a normal trade, based on market competition, and contributing to economic development of developing coastal and island countries.

Value added associated with access fishing

There are substantial direct and indirect value added activities associated with fisheries access agreements in both host countries and Distant Waters Fishing Nations (DWFN). These include employment, boat and net repair and maintenance, services such as refuelling, re-supply with freshwater, and supply of essential commodities such as food and personal items for crew. On average, host countries capture about 10% of the overall value added value from access fishing (FIAS 2000; FREMER 1999).

Employment perhaps stands out as one of the most important direct value added effects of access agreements. Access agreements in the Pacific Island Countries are said to account for about 10 000 jobs to the islanders (FIAS 2000). In the African continent, EU fisheries access agreements accounted for about 2 400 jobs in 1998 (IFEMER 2000). To the developing islands and coastal countries, jobs on board DWFN vessels operating in their waters represent the only connection between coastal populations and these

foreign vessels. Since these fleets mostly do not land their catch in the countries they operate in, they risk looking exploitative and unjustifiable to local populations unless the coastal communities have some of their own people employed on board.

Many fishing access agreements have clauses requiring that locals be employed on board the foreign vessels, but unfortunately an enforcement mechanism is usually not included. In the case of EU-ACP fishing access agreements, the Rules of Origin with regard to crew state that a vessel is qualifying if it has 50% or more crew from EU or ACP employed in substantive positions (Coutonou Agreement 2004). This implies that a vessel operating in ACP countries can have 100% EU crew according to this multilateral agreement, and this denies ACP countries sufficient grounds to enforce more employment of their nationals in these vessels. Since many agreements lack an enforcement mechanism on local crew, this loophole is usually exploited by the vessel captains who are often reluctant to take local crew on board, citing reasons such as language barriers and lack of local crew with the necessary skills in EEZ fishery operations. These are genuine concerns on the part of the ship captains, but they could be resolved by training. A captain would however like to know that if he invests in training local crew (which obviously would take years), he has sufficiently long term possibility to operate in the waters to recover costs incurred. The main problem here is that there may not be policies in place in the two partner countries guaranteeing long term sustainability of these fishing arrangements. In the Pacific Islands however, there are organized training programs for both local fishing crew and observers which are funded mainly by the proceeds from the fishing access agreements. The initiation of this level of regional cooperation on training has been made possible by the collective revenue received from the multilateral agreement with the USA, and is now being funded by various donor organizations.

Many developing island and coastal states do not benefit from value added activities associated with their DWF fleets because they do not have fishing ports. Even though international treaties discourage transshipment at sea, most of these host countries do not have facilities to dock fishing vessels such as purse seines. The fish caught in their EEZ's is therefore transhipped at sea, or landed in other regional countries, where it generates value added revenue. Without a port, a country cannot benefit from value added activities such as repair of ships, net making and repair, and other stevedoring services. When fishing vessels dock, the crew needs to make purchases of personal items, and the ships refuel and take fresh water supplies. In order to provide these support services, some host countries have invested in companies around the ports to produce required goods, and also in oil refining. On average, value added activities generate more revenue than direct fees paid for access in several host countries such as Seychelles. Some host countries (such as Mauritius) are therefore now aggressively marketing themselves to attract fishing fleets which operate not only in their waters, but in the region as well, to base or frequent at their ports.

Perhaps one of the ultimate objectives of host countries is to have all fish caught in their waters processed locally up to consumer unit levels. This would create employment, and shift significant value of the fish to the local level. There is even an increase in desire by the DWF fleets to process locally, considering the huge savings they would make by using cheaper local labour, and avoiding high costs of transporting whole fish as opposed to finished products. One of the main drawbacks is the lack of sufficiently skilled personnel in processing in some countries, and infrastructure (laboratories, factories for processing supplies such as packaging material or processing aids, back-up service for factory equipment, and cost-effective electricity and water supply systems). A further challenge is the competition such facilities would face from factories (especially

canneries) already established in the Distant Waters Fishing Nations (DWFN), considering that the jobs they create in these developed countries are perhaps the *raison d'être* for the political support of the DWFN to fishing access agreements.

The subsidy issue

Fisheries access agreements do not fit the conventional dynamics of international trade. The goods (access to fish) are usually negotiated (traded) at the government level and distributed to the private sector (DWF fleet) at a subsidised cost. On average, the EU Commission and USA State Department pay for 70% of cost of access for their private (DWF) fleet, which pays the remaining 30%. There have been strong suggestions that these payments are subsidies and should be discouraged. This may threaten incomes in developing coastal and island countries who derive up to 45% of their GDP, such as Mauritania, Kiribati and Tuvalu) from fisheries access payments. Their argument is that payment from a central government is more convenient and sure, compared to having to establish expensive monitoring, control and surveillance to collect revenue from foreign fleets. The central tenet of this argument is that as far as the developing countries are concerned, they are selling a resource to another government for a fee (which is not even as high as it should be), and therefore this is not a subsidy. It is however a subsidy to the DWF fleet when their countries extend it to their private sector, as is currently the case.

The capacity by developing countries fishers to access fish is usually also subsidized. This is done via subsidies in sectors such as shipbuilding, financial and repair services. The classical case of Korea vs. EU in the WTO in 2004 serves to illustrate this fact. The EU accused Korea of subsidizing shipbuilding, via a series of financial subsidies that resulted in Korean made vessels being 40% cheaper than others. Ruling in favour of the EU, the WTO dispute settlement panel report issued in March 2005 said that the EXIM (export import mechanism) financing amounted to prohibited export subsidies under the SCM Agreement. South Korea highlighted what it said was the core issue, in which the panel ruled in its favor by rejecting the EC claim that it had suffered "serious prejudice" from corporate restructuring of loans to three South Korean shipbuilders. In reality however, the EU has been subsidizing several aspects of their DWFN in the past, and still continue to do so especially through programs such as fleet modernization, and therefore South Korea may have been playing catch-up in this matter. In 2006, the European Commission adopted a draft regulation on *de minimis* aid in the fisheries sector. *De minimis* aid is state aid deemed not to distort competition. The current regulation exempts national aid of up to EUR 3 000 per fisherman, over a period of three years, from prior notification to the Commission. Under the new regulation, the ceiling would be set at EUR 30 000 per three-year period, per beneficiary, on condition that the total amount of such aid represents less than 2.5% of the annual national fisheries output. None of this aid may be used to purchase or construct new vessels or to enhance existing fleet capacity. In the fishing industry, the catching sector remains the dominant one and is likely to be the main recipient of *de-minimis* aid. If the ACP could provide their fishers with this level of aid (EUR 10 000 per year), there would certainly be sufficient capacity to domestically exploit EEZ stocks.

WTO Members reached agreement in the Doha Ministerial Declaration (DMD) in 2001 to undertake negotiations on fisheries subsidies. In the context of these negotiations, WTO Members agreed to clarify and improve WTO disciplines on fisheries subsidies, taking into account the importance of this sector to developing countries (Paragraph 28 of

the DMD). Since the Doha Ministerial Conference, negotiations have aimed at identifying specific fisheries subsidies that would be targeted for ‘disciplining’.

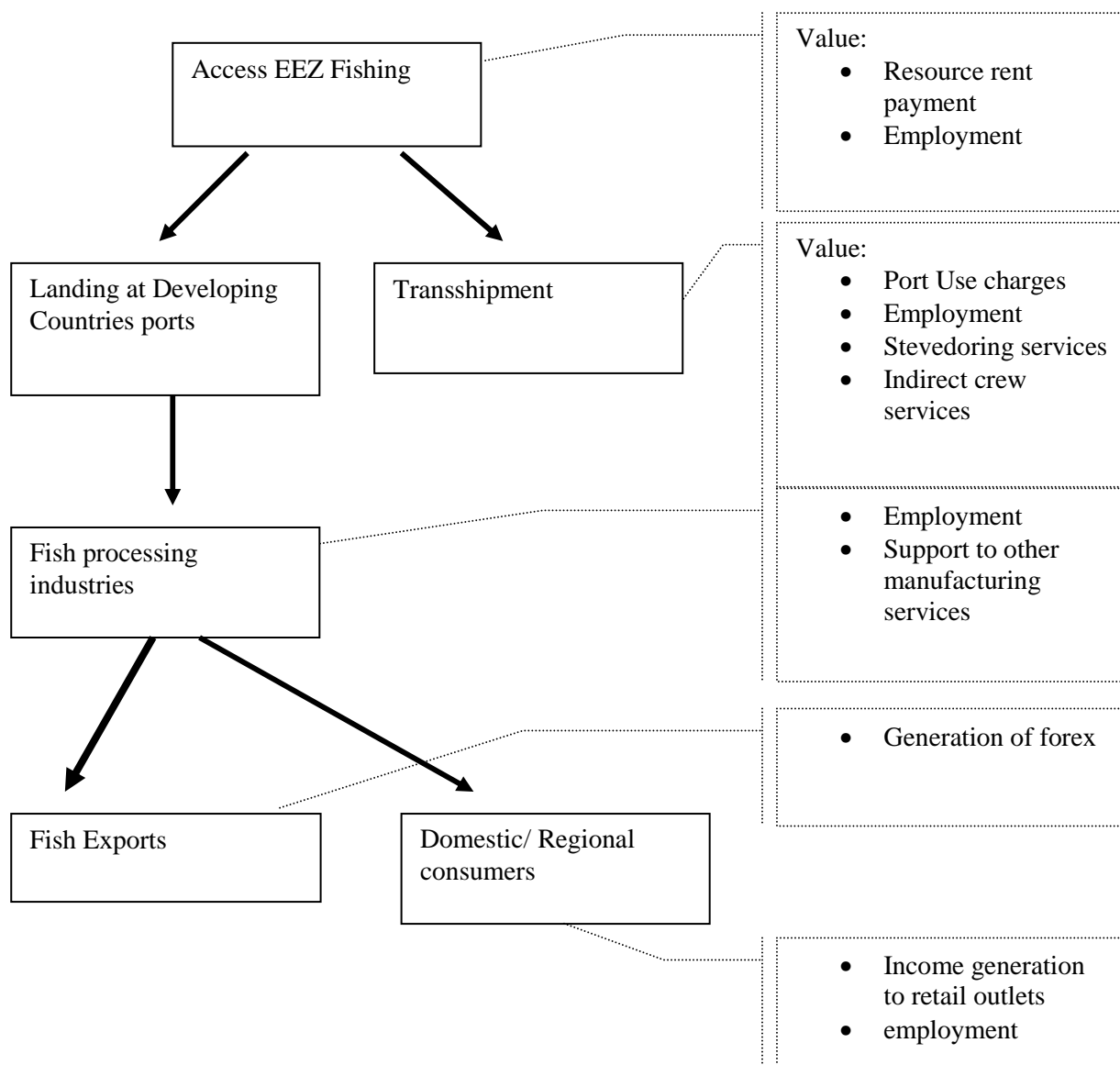
According to the World Bank (1996), global fisheries subsidies vary between USD 14 and USD 20 billion, which is approximately 20 to 25% of the turnover in this sector. These figures have been contested by OECD mainly on grounds of the accuracy of their calculations, especially considering a big proportion of these subsidies are in management and surveillance aspects. Several of these subsidies are mainly in shipbuilding, access fees, processing facilities, partnership joint ventures and financing. It is however difficult to accurately compute global subsidy loads in the fisheries sector, given that subsidies in other sectors such as financial services often have impacts in fisheries also. Proposals in the current WTO negotiations on fisheries subsidies centre around the categorization of subsidy types into the ‘red’ (prohibited), ‘amber’ (actionable) and ‘green’ (permitted) boxes and the need for appropriate special and differential treatment measures. Capacity-building is one of the criteria being discussed to determine the categorisation of subsidies. Capacity-enhancing subsidies (such as shipbuilding subsidies) are generally regarded as falling in the prohibited ‘red’ box. ‘Green’ subsidies on the other hand could include subsidies for environmentally-friendly technologies such as those aimed at by-catch reduction for endangered species such as turtles.

Discussions on fisheries access agreements and subsidies have tended to concentrate on two aspects: (i) conferment of benefits (through access fees) to developing countries and the DWF fleets; and (ii) production and supply distortions resulting from subsidies given to DWF fleets by their home countries. These two aspects may be important, but it is necessary to lay emphasis on a third critical aspect – *fisheries access agreements are rarely based simply on trade and their associated subsidies impede developing coastal and island states from exploiting their EEZ’s*. Fishing access subsidies, therefore, should not be seen only in terms of the ‘access fee subsidies’. Associated subsidies, such as those for shipbuilding and financing, targeted at DWF fishing, are of greater magnitude and arguably are more trade-distorting. Fishing access subsidies are the main reason why developing countries are unable to exploit their own EEZ, because the price of their catch would never compete with 25% subsidized fish. This, coupled with the fact that developing countries may not negotiate for a fair access agreement (at least as individual countries), means that they are being globalised out, and in effect deprived of the chance to use their fish as a tool for economic development, and this calls for urgent international attention.

Value chain of access fish

Fishing under access arrangements could be a beneficial arrangement to both developing and developed countries if it was conducted responsibly, and according to well established trade practices. There would be value for developing countries in that they would get market based resource rent value for amount of catch accessed, employment for their nationals aboard the vessels, significant stevedoring activities income, and even value from services like provision of food and other basic needs for the workers when they call to port. A flow diagram of possible value chain for access fishing is illustrated below:

Figure 18.4. Direct and Indirect Value from Access Fishing in Developing Countries



Export Value Addition Activities

Even though export volumes of fishery products from developing countries remains small compared to total production, there is an increasing number of establishments in these countries that are export oriented. Tuna in the world market is still largely supplied through access fishing, but other species such as wild capture shrimps, lobsters, cephalopods and freshwater species such as Nile perch, tilapia and basa are increasingly being supplied by developing countries establishments.

These fisheries are processed into high quality products in establishments in developing countries, and air freighted or shipped to developed countries markets in a timely manner. These establishments have met the stringent sanitary standards imposed

by developed countries, as has been attested by numerous inspection teams from destination markets. A summary of products processed is shown in table 18.3 below.

Table 18.3. Value Addition Activities on Fishery Products in Developing Countries

Fish type	Value addition activities and products	Price value added?
Fresh Fin fish: e.g. Tuna hake, Sea bream, Tilapia, Nile perch, basa	Filleting, gutting, cleaning. Products: fillets (fresh or frozen), headed and gutted (H&G), whole round	substantial
Frozen fin fish e.g. tuna mackerel	Canned fish products	minimal
Cephalopods Octopus and squid	Cleaning and gutting Exported fresh or frozen	substantial
Crustaceans: Shrimps and lobsters	Lobsters (Cleaning, heading) Shrimps (fresh whole, coking, peeling)	substantial

These products are usually packaged in standardized sizes and packs before being exported to markets in developed countries such as Japan, EU and USA.

Challenges of value addition in developing countries

Fish processing and exporting establishments in developing countries face particular challenges which are either inexistent in developed countries, or whose magnitude are comparably higher. This increases the cost of doing business for traders in developing countries, making them non competitive and hence vulnerable to being globalised-out by traders from developed countries that may be accessible to more trade facilitating privileges (*e.g.* subsidies and affordable credit). These include the following:

Higher costs in sourcing of raw materials

In many developing countries, processors have to bulk economic fish volumes from small scale fishers scattered over a wide area without sufficient road network. There are no auction markets around most fishing areas, and buyers have to rely on a network of agents to collect enough supply. This is expensive when compared to fisheries in developed countries, where processors can purchase sufficient volumes at auction centres even via the internet.

Infrastructure

In developing countries, infrastructure such as roads and landing sites are poorly developed. This not only increases wear and tear of transportation vehicles, but presents a logistical nightmare of having to maintain freshness in this highly perishable product over the long distances travelled over long periods of time. Other services such as ICT (information, communication and technology) are generally poorly developed, and this hinders efficiency in business transactions, raising costs.

Inputs

The average kilowatt electricity cost in developing countries is much higher than in developed countries (often about three times). This is partly because of the technology used in power generation in developing countries (mainly hydroelectricity or diesel fuel) and is too expensive when compared to the cost-effective nuclear technology used in most developed countries. Other inputs such as potable water and processing materials are also comparatively more expensive. Labour is perhaps the only input that developing countries have an advantage over developed countries. Labour costs in developing countries may be up to 10 times cheaper than in developed countries, a factor that is sufficient to encourage a north to south shift in fish processing. Developing countries however lack skilled workforce for processing specialty fishery products such as *surimi* products, *shiokara* and *katsuobushi* consumed in markets such as Japan. Other labour challenges include lack of skilled personnel to maintain sophisticated equipment that may be necessary to improve processing and preservation efficiency.

Affordable credit

A basic fish processing establishment (such as for processing chilled fish fillets) costs a minimum of USD 3 million to construct. This level of investment requires easy access to affordable credit. In developing countries, bank interest rates are about 15-24%, which is well above profit margins of fish export trade. The argument for these high interest rates has been the high risk factor to lending by the banks due to frequent defaults. When compared to offshore and developed countries rates of about 4-6%, developing countries interest rates are one of the main factors limiting investment in this sector.

Increased costs due to SPS Measures

It is expensive, and currently unaffordable by most domestic fisheries entrepreneurs to meet the high costs associated with meeting the stringent SPS (sanitary and phytosanitary) standards imposed by markets in developed countries. At the moment, a fully compliant fish processing (*e.g.* filleting) export facility costs about USD 3 million to establish. This high cost has had the negative effect of forcing closure of most indigenous fish processing establishments, and their replacement by foreign-linked firms. These foreign firms sometimes have vertical integrations with foreign fishing vessels in the countries EEZ, and also linkages with distribution networks in export destinations. Under such circumstances, local firms have found it difficult to compete, which has led to more marginalization at developing countries level. Some countries such as Namibia have had to come up with programs such as ‘Namibianisation’ of their fisheries, or ‘black empowerment in South Africa’ to address this problem, while at the same time upholding the principles of free market economies, and this is a daunting challenge.

Tariffs and rules of origin as fish trade barriers

There has been a tendency by developed countries to impose measures aimed at encouraging exportation of agricultural, fishery, forestry and mining raw materials from developing countries in order to support high value processing in their countries. Fish, both from access arrangements and other export trade is important in supporting processing establishments, port facilities, employment and support service factories in several towns in the EU and far east. Without this raw material fish, the socio economics of these developed country economies would be severely affected. These countries

therefore consciously maintain political pressure to ensure that value addition of the target species at source is discouraged, mainly through introduction of rules of origin that reward export of raw materials and punish export of processed products.

The use of tariff escalation is one of the main tools used in discouraging export of value added fish. Fish which is added value to a certain extent (such as canning) is categorized on a different tariff heading when compared with whole gutted fish, or fish fillets. These differentiated products are subjected to different tariff levels, which normally increases with the extent of value addition. The price of the final product is not necessarily the determinant of level of tariffs, but rather the extent of working (processing or other actions), as these are important in creating indirect value added (employment, support industries etc) in destination markets.

ACP countries are fortunate in that they may export fishery products into the EU market duty and quota free. The catch in these arrangement is that the fish must be 'originating', meaning that if harvested from the EEZ, it must have been caught by a vessel owned at least 50% by EU or ACP (including chairman of the Board of Directors), with crew that is at least 50% EU or ACP (including the ships master), and not caught using a chartered vessel outside EU ACP unless the host country had offered to negotiate an access agreement with the EU and the EU refused. In simple terms, fish from ACP EEZ may not be sold into the EU if caught with cooperation from other Distant Waters Fishing Nations. With regard to value addition, an example from Mauritius illustrates the complications this brings. In Mauritius, the canning factory can procure raw material fish from the Asian fleet in its EEZ much cheaper than from the EU fleet. If they do so, they will not be able to export the canned fish (obtained from Mauritius) to the EU duty and quota free. They are therefore obliged to use expensive fish (from the EU fleet) for canning, and this erodes their competitive edge. These rules of origin are unfair in that they not only restrict ACP countries to engage in joint fishing activities, but also hinder competitive value addition of ACP fish.

There is a process underway between the ACP and the EU to revise current rules of origin under the on-going Economic Partnership Agreements (EPA) negotiations. The aim is to achieve the twin objective of ensuring other DWFN in ACP waters do not use ACP countries as a conduit to export fish to the EU (protection from cheap fish) on one hand, and also acknowledging that all fish in ACP EEZ's is originating, and therefore should have a chance to participate in trade with the EU. One of the mechanisms proposed is to replace the 50% rule mentioned above with a value added criterion. The difficulty lies in setting an agreeable level of value addition which previously non originating fish (caught by non EU-ACP vessels) would need to be subjected to in ACP countries in order to qualify.

The argument for use of value added criterion is in line with Kyoto Convention of 1973 which states that:

- Where two or more countries have taken part in the production of the goods, the origin of the goods shall be determined according to the substantial transformation criterion.
- Notes to Provision 3, Annex D1, Kyoto Convention, 1973 state that substantial transformation shall be determined in 3 ways:
 - by a rule requiring a change in tariff heading in a specified nomenclature with lists of exceptions;

- and/or– by a list of manufacturing or processing operations which confer, or do not confer, upon the goods the origin of the country in which the operations were carried out;
- and/or by the ad valorem percentage rule, where either the percentage value of the materials utilized or the percentage of the value added reaches a specified level.

The Kyoto convention therefore does not allow a definition of originating status to be based on crew or vessel ownership nationality, and this has been one of the fundamental incoherencies of the EU-ACP Rules of Origin (RoO) with this international convention. Both the EU and ACP have not disputed that that the review could focus more on value added aspects, but the contention is what level of value addition, or what Change in Tariff Heading (CTH) would be acceptable.

Proponents of CTH argue that it is easy to apply and enforce, as it involves transformation of a product from one form to another (physically discernible), and therefore will not result in increased customs verification costs. The concerns of the EU have however been whether the CTH will be accompanied by ‘sufficiently added value’ to justify its qualification for duty and quota free access to the EU market. The main thrust of CTH has been ACP countries with canned tuna, who would like to see it qualify because it’s a different tariff heading (16) as opposed to tuna loins (heading 3). There have been mentions (during pre negotiations consultations) by the EU of about 30% value addition as being a acceptable threshold, levels which cannot be achieved in canned tuna, and therefore are unacceptable to most ACP countries.

Proponents of value added criterion (with or without a CTH) argue that it is a more sensitive measure of ‘sufficient working’, and is flexible enough to be used for any fishery product. This arises from an observation that even though some measures such as filleting of fish (which results in yields of 40% on average from non gutted fish) may result in a CTH, others such as peeling of shrimps, flavouring of a loin, portioning and packaging of fish may resulting significant value addition, but not qualify for a change in tariff heading.

This has also introduced discussions on whether to use *ex factory* values or *Net Production Costs* of the various processing steps. A transformation of fish from loins to canned may not always be accompanied by an increase in ex-factory price. In reality, tuna fillets are about USD 4-7/kg on the international market, while canned tuna is about USD 1/kg, meaning that tuna canners make money mainly by ensuring that they trade in huge volumes, given the minimal margins per can. This is almost value-loss from the unit price point of view, but offers traders with a convenient product that is preserved, and therefore can be marketed widely. Other forms of processing such as breeding and battering have similar price behaviors, but their value is again more in product diversification and preservation than unit price increase. Fisheries RoO may therefore benefit more from a use of net production costs criteria than *ex-factory price*.

In all, it is acknowledged that there will be need to develop standardised assessment methods for a value added criterion, with agreed limits of level of value added, and this will definitely result in increased cost of customs verification procedures. It is however the only (current) way in which all fisheries products would benefit from new rules of origin that seek to confer originating status to fisheries products that are ‘sufficiently worked’, and not just a few products. A compromise position would be for the ACP and EU to agree on a level of value addition that both parties see as being sufficient to have

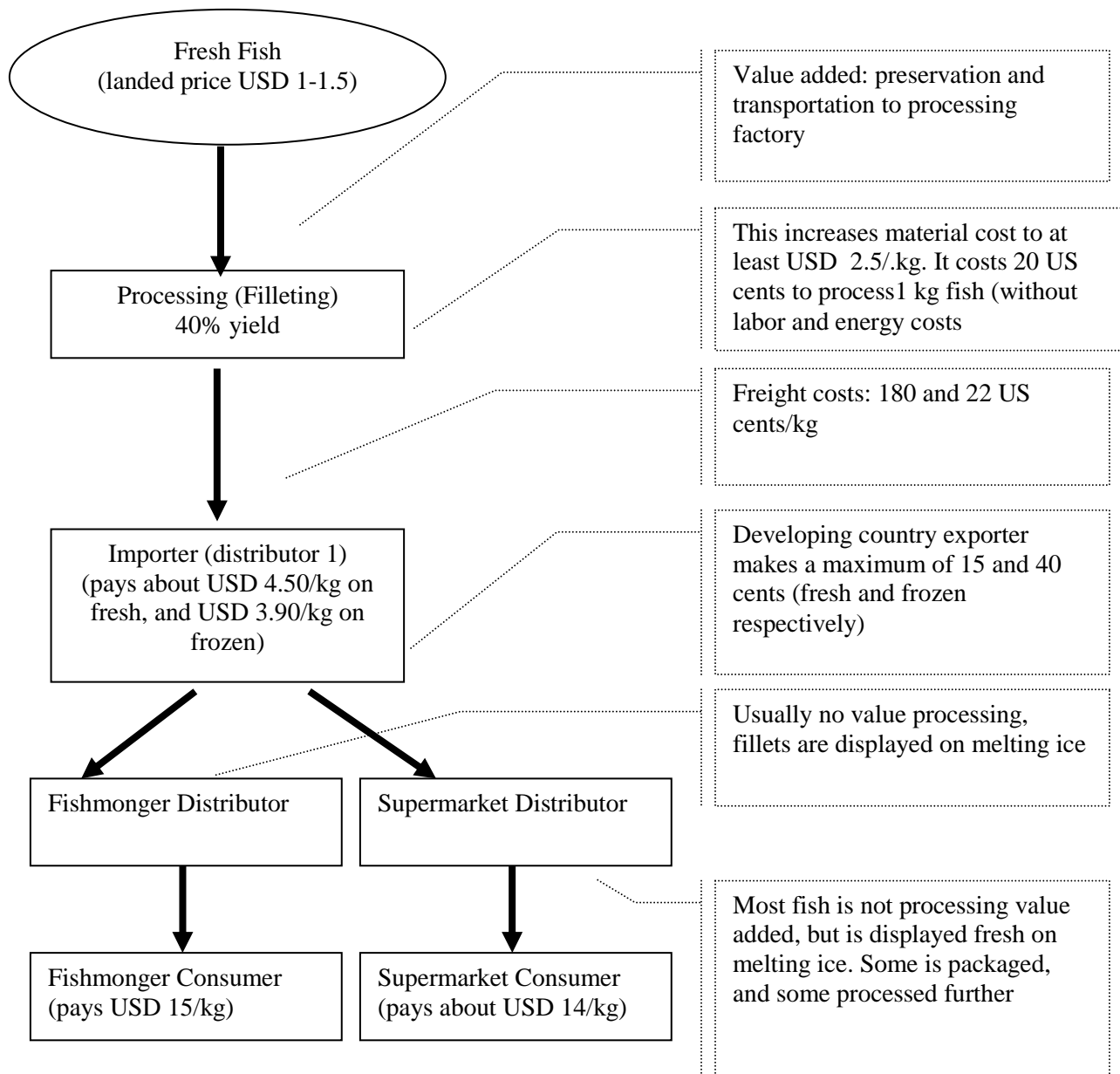
fisheries products from ACP states, which may not have qualified on the basis of their area or means of catch, conferred as originating. This value could be set low enough (not more than 15%) to accommodate transformed products such as canned tuna, and this would in turn lead to an almost automatic qualification of other fisheries products once they are processed, regardless of whether there was a CTH or not.

Export Fish Value Chain

As earlier discussed, developing countries are increasingly exporting various fishery products to developed countries. These include fish fillets (fresh and frozen), gutted and cleaned cephalopods, headed (and sometimes peeled crustaceans) and whole round and gutted fish. The products are either air freighted (when fresh) or shipped (frozen) to destinations depending on profit margins after freight costs. A typical value chain of export fin fish (tuna, tilapia or Nile perch) serves to illustrate the value and activities at each level of the chain.

There is at least a USD 10/kg difference between what a consumer in a developed country pays, and what is paid to the developing country exporter. The consumer price of fillet is about 250% more than the export price. Many developing countries assume that this huge difference in price may be explained by value addition activities that take place on the product prior to consumption. In reality however, most fresh fishery products exported from developing countries undergo minimal (if any) value addition at the developed country level. The highest (price) value for fish is in its fresh form; fresh fillets, crustaceans or cephalopods. As soon as any transformation (even freezing) is undertaken, the price falls. In this regard, fresh imports into developed countries markets are transported as soon as possible to retail places (supermarkets and fishmonger shops) and sold on melting ice. Apart from road transportation and some limited warehousing, fresh fish does not undergo any other value addition. Where then does the USD 10 difference go to? It is shared among the 3-5 step distribution chain in the destination market. This level of value capture at this end of the chain is disproportionate to the value captured at developing countries level, considering that the main value addition activities (catching, processing and air freighting) are undertaken there. Some explanation for this may be differences between exporting and importing countries in aspects such as taxation and the cost of doing business, but the margin are still too large to be fully accounted for this way.

Figure 18.5. Export Fish Value Chain



Barriers to Distribution Services in Export Markets

If indeed developing countries feel that their fish value is mainly retained at the market side of the chain, why don't they just set up distribution services and 'sell their own fish' in developed countries, and therefore capture the value themselves. This seems to be the best way of capturing and repatriating value for developing countries fisheries, but it is seriously impeded mainly by restrictions imposed by developed countries on services sector. There are 4 modes of services that are being negotiated at WTO and other multilateral trade negotiations between developing countries and developed countries. These include:

- Mode One (Cross Border) Services refers to cross border trade services where there is no movement of persons, such as financial transactions, consultancies or postal services.
- Mode Two (Consumption) Services refers to those services where the consumer moves to consume the service in a destination country, and returns back to his/her own country (e.g. tourism and medical services)
- Mode Three (Commercial Presence) Services refers to activities which necessitate physical presence of persons in another country to set up businesses. This includes activities associated with processing investment, banking or other Foreign Direct Investment (FDI) activities.
- Mode Four (Temporary Movement of Natural Persons) refers to the whole aspect of free movement of persons.

In order for developing countries to ‘sell their own fish’, there will be need for developed countries to open up more in mode 3. This should be justified by the fact that developing countries can be allowed to set up distribution systems for their products such as agrochemicals, banking and pharmaceuticals in developing countries markets, then developing countries should be facilitated to distribute whatever resources they have in developing countries. The ability of Iceland to set up Icelandic fish (Icelandic cod) distribution system in markets such as the USA is usually credited for the positive turnaround in the sector’s ability to contribute greatly to the country’s economic development. This was because Iceland was able to capture a lot of the margins in the marketplace by selling as close to the consumer as possible.

Value addition of export fish in markets

There is some value addition that takes place on developing countries fish after arrival in market destinations. This is usually targeted at fish that may not be sold in fresh state (either because it is frozen or is received in huge volumes which may not be conveniently sold fresh in the 2-3 days fish is able to stay fresh). These value added activities include:

- Processing of products such as canned fish, fish fingers (breaded and battered) or other preserved fish products (dried, smoked)
- Processing of shredded fish products such as surimi, fish sausages and fish pastes.
- Processing of fish extracts (e.g. EPA –*Eicosa pentaneoic acid*, and DHA –*docosa hexaneoic acid* which is used in medical nutrition)

Most of the processing that take place in developed countries can easily be undertaken in developing countries. These include portioning into consumer units, consumer retail packaging and caning. Even the complicated processing of surimi and dried fish technologies in consumer countries such as Japan can be undertaken in developing countries if sufficient capacity building measures are undertaken.

Policy considerations

There is a need for both developed and developing countries to work together in order to ensure that fisheries contribute more to development of economies in developing coastal and island countries. Such considerations may include the following:

1. Policy considerations at developing countries level that seek to minimise wastage of fisheries resources through post harvest spoilage. Such a policy could consider either introducing punitive measures for unhygienic handling and poor preservation of fish, or introducing rights-based fishing where citizens purchase access, therefore have more incentives to preserve their catch (since they paid for it). Post harvest preservation of fish may not be achieved wholly on voluntary basis without legislation back-up, since the price for fish for both those who choose to invest more ice preservation (where ice is available) and those who do not is usually the same at the early periods of a marketing day.
2. Policy considerations at international level aimed at removing the obscurity than now surrounds fisheries access agreements, and ensuring that these arrangements are regulated through international trade instruments implemented through World Trade Organization. This would make fishing access a tradable commodity, with various DWFN bidding for it, hence encouraging developing countries to capture more value. Such measures should also be accompanied by measures to eradicate any current subsidies, and residual impacts of past ones.
3. Policy considerations that aim at eliminating fish trade tariffs to developing countries. Other restrictive measures such as unfavourable rules of origin also need to be eliminated. There is genuine progress in multilateral trade negotiations such as between ACP, MERCOSUR blocks and the EU or USA in addressing these barriers, which should be encouraged.
4. Policies that seek to retain fisheries value at developing countries by discouraging export of raw material fish, and encouraging a certain level of value addition to be retained at country level.

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Chapter 19

Perspectives from Canada's Pacific Coast

Christina Burridge, Executive Director, British Columbia Seafood Alliance, Canada

Christina Burridge presented the effects of globalisation on the fishing industry of Canada's Pacific coast. Originally, Canada's Pacific coast was a high cost, low volume producer of fish focussing primarily on salmon and herring fisheries. These fisheries accounted for 85% of total landings. However, the fleet was both inefficient and seasonal. In addition, an inefficient industry structure and protective government regulation left the industry vulnerable, particularly during the mid-1990s, when farmed salmon production increased sharply.

For Christina Burridge the rapidly changing competitive environment, the collapse of the Japanese economy, the strengthening of the Canadian dollar, falling tariffs, rising fuel prices, consolidation of seafood distribution, increased outsourcing of processing and changing consumer preferences, all contributed to the collapse of the salmon and herring industries. By contrast, the groundfish and shellfish sector flourished as these were able to exploit the new competitive environment. While salmon and herring accounted for 85% of the landed value in the 1970's this had fallen to 25% by 2000; similar figures for the share of landed value made up of groundfish and shellfish are 15% and 75%.

The key lessons that can be drawn from these changes in industry structure in the era of globalisation are that an overregulated, inefficient industry structure created vulnerability to external changes. By contrast, fisheries characterised by market driven fisheries management approaches are thriving and can take advantage of the new opportunities created by globalisation.

Introduction

The Organisation for Economic Cooperation and Development (OECD) Fisheries Committee is tapping into the knowledge and experience of fishing industry participants around the world to gain insights on the effects of fisheries globalisation. This paper, offering a perspective from Canada's Pacific coast, is prepared by Stuart Nelson of Nelson Brothers Fisheries Ltd on behalf of Fisheries and Oceans Canada for presentation

at the OECD/FAO Workshop on the challenges and Opportunities of Globalisation in the fisheries sector which was held in April, 2007.

To shed light on how British Columbia's fisheries are variously faring under globalisation, three capture fishery case studies are explored: pink salmon, hake (Pacific whiting), and groundfish (trawl). Examination of these fisheries provides sharp contrasts in terms of the nature of underlying fishery resources, fisheries management regimes, and industry responses and financial results under an increasingly globalised business environment.

About Fisheries Globalisation

Before commencing an exploration of the case study on Pacific fisheries, a brief encapsulation of fisheries globalisation, pertinent to the ensuing analysis, is provided.

Globalisation in fisheries is a centuries-old occurrence, a product of the fact that “fisheries resources are not necessarily located in the vicinity of major consumption centres.¹” Though a flow of fish from regions of capture to sites of consumption is historical, “the market has undergone substantial change at a very fast pace in the last two decades. This is caused by numerous factors including the growing importance of the aquaculture sector, cheaper and faster modes of transport, improved marketing, lower market access barriers, more competition, constantly increasing consumer demand for fish and fish products in OECD countries, combined with declining fish stocks, the emergence of new players (especially China) in world fisheries markets as well as technological improvements.²”

The OECD has taken an interest in fisheries globalisation, recognizing that the process represents both exciting opportunities, for seafood businesses and seafood consumers, and serious threats, to economically disadvantaged participants and to vulnerable marine resources.

Fisheries globalisation creates a market “force” that is drawing fish and fish products to their highest value/lowest cost destinations. “Consequently, the fishing industries in OECD countries today are very internationally focussed, sourcing from all oceans, processing raw material in many countries and trading fish products all over the world.”

Taken to its logical conclusion, fisheries globalisation will see “trans-border production networks emerge where different elements of the value chain, to varying degrees, take part in the globalisation process by using the most profitable location for their activities.³” “In theory, a fully globalised and integrated fisheries economy is characterized by fully transferable (national and international) access rights to fish, no tariffs and trade barriers, no restrictions on foreign direct investments and fisheries services, and no nationality requirements on flags of fishing vessels and fisheries.⁴”

¹ “Globalisation and the Implications for the OECD Fisheries and Aquaculture Sectors.” Aug 30, 2005.

² *Ibid.*

³ *Ibid.*

⁴ *Ibid.*

The “force” of globalisation is (partially) frustrated by domestic regulations intended to encourage local utilization of resources. In some jurisdictions, “domestic operators and fisheries management authorities see the fisheries resources as a national endowment that should only be exploited by their own nationals. This is, however, contrary to the process of “globalisation” where market interdependence and liberalization suggests that the best, most cost effective producer with a comparative advantage undertakes the operation.⁵”

The spectre that globalisation-related demand pressures may negatively impact fish stocks is (hopefully) negated by sound fishery management practices that ensure conservation of seafood resources. However, “during the last decade over exploitation of fish resources has added a further dimension to the globalisation process. While consumers in OECD markets have been told that eating fish is healthy, their domestic resources have been dwindling, inter alia, due to poor management. Through necessity, fishing vessels and fish processing companies have been forced to look for raw material further afield.⁶”

There are three globalisation themes introduced in the above passages, with relevance to the Pacific experience described subsequently:

1. Fisheries globalisation, an accelerating phenomenon driven by increasing integration of markets, the growth of aquaculture, and technological advances (among other factors), brings tremendous economic opportunities and pressures to seafood businesses.
2. While globalisation may be seen as an unstoppable force, some jurisdictions use legislation, regulation, policy, or domestic practices to encourage local resource access and utilisation. In other words, seafood resources are “protected” from global exploitation in order to serve national socio-economic objectives.
3. Fisheries globalisation may result in unsustainable fishing pressure on stocks that are not properly managed.

The OECD, through work with fishery sectors and governments in member nations, is seeking to encourage the positives of globalisation – economic efficiency and enhanced profitability – while mitigating the negatives, such as undue displacement of local participation and over-exploitation of seafood resources.

The balance of this paper presents perspectives on fisheries globalisation from Canada’s Pacific coast. So that the subject fisheries – pink salmon, hake, and groundfish – can be considered in their proper context, an overview of the British Columbia seafood industry is first provided.

Context - A Recent History the BC Fishing Industry (1970s – mid 1990s)

From the early 1970’s through the mid 1990’s, the salmon and roe herring sector substantially *comprised* the BC seafood industry, accounting for 85% of landed value in the 1970s. Salmon provided the bulk of harvest volume and revenues, while roe herring

⁵ *Ibid.*

⁶ *Ibid.*

was generally a more lucrative fishery, bringing higher margins for fishers and processors alike.

Key elements of salmon/herring industry

Highly seasonal

Salmon are a migratory species, entering BC inshore waters each summer upon their return from the Pacific Ocean to spawn in the stream of their birth. The salmon migration affords a relatively brief harvesting window – the bulk of the fishery occurs between early July and early September.

The roe herring fishery is even shorter in duration than salmon, substantially occurring in as few as five fishing days during the month of March. Because herring are harvested for their roe, fisheries are mounted proximal to spawning grounds immediately preceding (or during) a spawn to maximise roe content.

Thus, BC's "anchor" fisheries were highly seasonal. This necessitated substantial fleet and processing capacities to handle large bursts of production in a relatively short time. It also implied considerable down-time when assets were substantially un-utilised.

Fishing fleet

Commercial salmon fishing is prosecuted by three gear types: seine, gillnet, and troll; roe herring is harvested by seines and gillnets. There is considerable overlap in the assets and individuals involved in the two fisheries.

As with inshore fleets in many fishery jurisdictions, the BC salmon and herring fleet was characterised by substantial numbers (about 4500 vessels until the late 1990's), and duelling objectives: economic returns (to investment and labour), and social benefits such as employment and access to Employment Insurance. Salmon and herring fishing was an important socio-economic activity for harvesters living in BC's many remote coastal communities, including First Nations fishers, who comprised about 1/3 of the fleet.

Fleet size and configuration evolved from historical participation levels. Dividing the available catch amongst the sizeable BC fleet meant marginal financial returns on average, though periodic "boom" years raised expectations that an annual income could be earned from a few weeks' work. It was often observed that "too many boats were chasing too few fish," to the possible detriment of both the resource and harvester incomes, but initiatives to bring economic efficiency to the fleet typically faced strong resistance. The tug between social and economic objectives remains unresolved today.

Processing sector

The processing sector structured around the need to handle the perishable production of thousands of vessels in a short time. The relationship between processors and harvesters has been described as patriarchal, with processors providing much of the infrastructure (fuel, stores, net-lofts, marine repairs, and revolving lines of credit) associated with small vessel operations in remote areas.

The “cannery in every cove” distribution of processing locations gave way to centralisation in Vancouver and Prince Rupert (the urban centres at the south and north borders of BC’s coast) by the 1980s. Tender vessels ferried the catch from the fishing grounds to the plants. The processing sector was highly concentrated, with a very few firms accounting for the bulk of fish purchases and wholesale receipts in the industry. Processing sector representatives lamented that BC comprised a high cost salmon/herring production environment: both fish prices paid to fishers and wages paid to shoreworkers were among the highest in the world.

The salmon/herring business is aptly described in the following quote from a 1979 OECD Report on Fisheries: “at the best of times uncertainty is an inescapable feature of the fishing industry from the opening action of dipping in to the sea to harvest its raw material until exposing the product for sale to an often incalculable demand on an uncontrolled market.” This speaks of a speculative business, one with high reliance on factors beyond the control of producers, such as commodity market prices, currency exchange rates, and interest rates. To play the salmon/herring game was to roll the dice and trust that circumstances would align favourably. Sometimes they did, and sometimes they didn’t. On average, returns to the BC processing sector were less than those earned in more conventional industries. Long term participation required patient, well-capitalized shareholders willing and able to endure a number of lean years in order to reap occasional windfalls.

Markets

The local (Greater Vancouver) market is minuscule, and Canadians, though voracious consumers of canned salmon, consume less than half of BC’s canned salmon production. Japan is the only outlet for herring roe. Thus, the BC seafood industry has always exported the bulk of its seafood production.

Canned and frozen salmon (headed and gutted) were the primary product forms. The UK and ANZA were the primary export canned markets, with Europe and Japan the main frozen markets.

Throughout much of the period, frozen sockeye and herring roe were the most lucrative items in the BC seafood product mix; a high level of dependency on the Japanese economy and market had developed.

Vertical integration/Value chain

The BC seafood industry featured a high degree of vertical integration. Its two largest firms, accounting for about 60% of the BC salmon catch, were owned by parent companies whose primary business was retailing food. Canned salmon was thus kept “in-house” from capture until placement on retail shelves⁷.

Fishers, typically, had little participation in the value chain other than delivering their catch to a processing company, and trusting that a fair and competitive price would be paid. They had little access to, or interest in, market information. Competition amongst

⁷ In practice, the fishing companies and retail outlets were autonomous businesses operating under an umbrella corporate structure.

fish buyers was the mechanism that fishers believed ensured them a fair portion of the market value of end-products.

Globalisation during the period

As an exporting industry, the BC seafood industry has always been deeply affected by events occurring outside the Canadian border. A relatively few variables exerted a large impact on financial results:

- Exchange rates – fluctuating rates strongly influenced marketability of product and prices realized in Canadian dollar terms.
- Interest rates – with the salmon pack put-up in a couple of months but sold throughout the year, financing requirements were substantial. Interest rate levels were determined by global economic conditions, and had a major impact on annual financing costs (and profitability).
- Alaskan salmon production – as the major supplier in the world salmon market, the level of Alaskan salmon harvests had a direct effect on export price levels – low production meant firmer prices, high production meant softer prices.
- Strength of national economies – the varying fortunes of economies in key markets had a substantial influence on the attractiveness (pricing, sales volume) of Canadian seafood products.

Collectively, these four factors – all entirely beyond the control of the BC industry - had a huge bearing on the success or failure of BC fishing enterprises. Recognition of the role of luck caused at least one BC participant to humbly observe that: “our good fortune is usually a result of someone else’s bad fortune;” and “when we succeed... it’s often in spite of ourselves!”

Regulatory Environment

Fishery Management

Fisheries and Oceans Canada (DFO) is responsible for management of marine fisheries in BC. By and large, DFO has managed BC’s commercial fisheries conservatively, preserving generally healthy stock conditions. Of course, there is significant variability in fish abundance from year to year related to ocean conditions, natural cyclicality, habitat, and fishing pressure. Salmon populations are particularly volatile.

In managing BC’s fisheries, DFO has always sought a balance between ensuring conservation of stocks, while allowing for reasonable economic opportunities. Over time, advances in fishing technology led to enhanced catching power and efficiency of the fleet. The traditional fishery management toolkit allowed few alternatives other than: shorter openings, smaller fishing areas, and limits on effort (gear specifications, size of vessels, number of vessels). Actions of this nature by DFO were inevitably greeted by further innovations by the fleet to ensure that as much fish as ever (if not more) could be caught under the new, restrictive, conditions. Restrictions had the unintended effect of *fuelling* fishing pressure rather than *curbing* it.

By the mid-1990s it was evident that in the salmon/herring sector, the very core of the industry, neither conservation nor economic objectives were being met, and that reform was needed.

Provincial Regulation

The provincial government regulates the buying and processing of the seafood harvest. In the late 1970's two key developments caused the Province to review its policy role with respect to the fishery. First, the extension of the EEZ to 200 miles in 1977 meant that BC fleets would have virtually unimpeded access to the Pacific coast's marine resources. Second, Japanese seafood firms, in order to secure supplies of raw material (mostly sockeye salmon and roe herring) began to invest in the BC seafood processing sector.

This combination of an opportunity to "Canadianise" the fishery, along with the perceived threat that foreign ownership in the processing sector could pose to a Canadianised industry, influenced the Provincial government to re-enforce its policy direction that:

- BC marine resources should to the greatest extent be harvested by the BC fishing fleet.
- The BC marine harvest should to the greatest extent be processed by the BC-based processing sector.
- That the harvest would be largely processed ashore, with processing at sea extremely limited.
- That export of un-processed fish (from fishing vessels or tenders) be tightly restricted.

The Pacific coast marine fisheries were thus viewed by the Province as supporting employment and economic activity within BC.

The Province's stance to encourage a "made-in-BC" fish buying and processing sector comprised a competitive shield of sorts for the Canadian shore-based industry, allowing it to develop somewhat sheltered from undue foreign or at-sea competition for resources.

Fully/Over Subscribed Resources

Both the salmon and herring resources in BC have long been "fully subscribed" with the total demands of users and would-be users greater than the available abundance of fish.

These key fish stocks, but particularly salmon, face strong demand from both First Nations (for commercial and food/ceremonial purposes), and from the recreational sector (both sport-fishers and charter/lodge operators). First Nations and the recreational sector have received escalating allocations – and heightened allocation priority – over time, at the expense of the commercial sector.

The public-at-large is also a major stakeholder in salmon – the salmon resource is viewed as an endowment to be protected and preserved. Salmon are embedded in the culture and values of British Columbians (or so the media reports). The public takes

solace when salmon stocks are healthy, and express outrage when they are in distress. They expect that salmon can support healthy aboriginal, recreational, and commercial fisheries, but are intolerant if high catch levels are perceived to compromise conservation levels. Given the incredible complexity of salmon – the high number of natural and man-made variables influencing their abundance – the public can never really grasp the overall health of salmon stocks at a point in time.

Thus, the demands placed on salmon, and the governments charged with managing them, are impossible to meet: every user demanding more salmon, concurrent with heightened conservation and protection measures. Over-subscription is yet another reason why considerations other than economics apply to commercial fishery management.

Secondary fisheries

During the 1970s and 1980s, BC's fisheries excluding salmon and roe herring were small scale and slowly developing. These fisheries tended to be conducted by the salmon/herring sector as "sidelines" – as ways of stretching the fishing season – or by very small fishing operations and processing firms comprising the "fringe" of the industry.

The groundfish trawl fishery was probably the most common "diversification" fishery practiced by the major players in the seafood industry. As a year-round, relatively high volume fishery, groundfish was attractive in terms of asset utilization – deploying vessels, plants, and employees that were otherwise idle for much of the year – and a means of absorbing a portion of annual overheads. Major seafood processors were ambivalent about the groundfish trawl fishery. A common sentiment: "absorbing overheads is a polite way of saying we're losing money." One company leader (whose firm is now a major presence in the renewed groundfish trawl industry) said, "I spent a large part of my career trying to get out of the groundfish business."

Summary of the salmon/herring era

This encapsulation describes the state of the BC seafood industry preceding an onset of globalisation factors in the early-mid 1990s. The BC seafood industry was dominated by salmon and herring, both highly seasonal fisheries. Capacities in the industry were geared to peak production, meaning full utilization was achieved only a few days per year, and over (or idle) capacity was the norm.

The fishing industry was a major employer in BC's coastal communities and amongst First Nations. Both DFO and the Province considered social objectives – provision of resource access to competing users and employment opportunities to BC residents - when managing and regulating the fishery. Economic efficiency was rarely an explicit objective of policy. The industry, faced with high wages and raw material costs, was a chronic "high cost producer."

Despite taking a rather insular view of resource utilisation, BC was an exporter of fish products, reliant on access to foreign commodity markets for the bulk of sales.

Under a traditional business environment, and using a speculative business model, the BC seafood industry generated financial results that were volatile, but generally acceptable (as long as the measurement goalposts weren't too high). Under a traditional

business environment, the speculative game played by the BC industry made sense, but the industry, lacking internal efficiency, was vulnerable.

Indeed, the business environment was poised for fundamental change, and the prevailing structure of the BC seafood industry was soon to be over-turned.

The “Onslaught” of Globalisation

Beginning in 1990, when farmed salmon first made inroads into wild salmon markets, a succession of events, many of them falling under the globalisation category, conspired to undermine the fragile salmon/herring sector that had dominated the BC seafood industry.

Globalisation – more variables

Over the course of the 1990s and early 2000s, the litany of external variables impacting the BC seafood industry along the value chain grew to include (but was not limited to):

Global economic conditions

- The bursting of the Japanese bubble economy, meaning downward pressure on prices for luxury fishery products like sockeye salmon and herring roe.
- Strengthening of the Canadian dollar against the US dollar (from CAD 0.62 in 2003 to CAD 0.90 in 2006) means lower effective prices for BC seafood exporters in most global markets.
- Rising fuel prices impacting harvesting costs.
- Reductions in tariffs of seafood products.
- A Japanese scandal concerning corporate gift-giving (bribery), which ravaged the market for high-end roe herring gift-packs (the mainstay of the BC industry).
- Consolidation of seafood distribution – fewer wholesalers and retailers, each with greater clout.

Global fish production

- The dramatic growth of farmed salmon (in Norway, Scotland, Chile, and Canada), from alternative to wild, to the pre-eminent product form. Farmed salmon first crimped wild salmon prices, then displaced wild salmon from traditional markets like Europe and Japan. Farmed salmon also stimulated new demand for fresh salmon in the USA market, and conditioned consumers to expect consistency and quality from salmon products.
- Development of other finfish aquaculture species, such as basa and tilapia, increasing the array of high quality seafood alternatives for consumers.
- Record wild salmon production levels in Alaska, Russia, and Japan, even as BC production levels slumped.

- Collapse of cod fisheries in the Atlantic.
- Collapse of groundfish fisheries in the west coast of the United States.
- Development of the Alaskan pollock fishery into the largest volume fishery in the world.

Global political events and rise of developing countries

- With the fall of the Soviet Union, Russian wild salmon was no longer restricted to domestic consumption, but was offered on global markets.
- The end of apartheid in South Africa, allowing that country access to foreign markets (*e.g.* hake).
- The emergence of China, Russia, Thailand, and other developing countries as low-cost re-processing centres, especially for value-added products.

Shifting consumer preferences

- Increasing per capita consumption of seafood in OECD countries.
- A burgeoning consumer concern about the sustainability of wild fish harvests, and awareness of supporting only sustainable fisheries. The growth of “eco-labelling.” The establishment of the Marine Stewardship Council as one body providing a “seal of sustainability.”
- Consumer awareness – preference in some cases – about “wild” vs. “farmed” seafood... providing the wild fishery is sustainable.
- Consumer acceptance of twice-frozen fish products.
- Traceability – tracking the catch from “boat to throat” as a stringent health and safety requirement.

Globalisation – A new “game”

For the BC seafood industry, the process of globalisation meant more business variables, more complexity, and more competition. It meant that the advantages brought by access to local stocks were diminished; seafood players could access raw material, purchase processing services, and source finished product from anywhere in the world. Proximity to resources and fixed assets were no longer prerequisite to participation in the seafood business; a mere “cell phone” equipped a knowledgeable seafood participant to “play the game”.

Globalisation placed greater emphasis on efficiency and adaptability. It meant daunting new challenges and exciting opportunities for the seafood industry.

At the same time, other factors were combining with globalisation to shape the BC seafood sector:

- Anomalous ocean conditions (for example frequent El Niño events) were having negative impacts on salmon ocean survival and recruitment of herring and groundfish stocks.

- DFO fishery management was becoming increasingly precautionary, with conflicts between conservation and economic objectives resolved increasingly in favour of conservation.

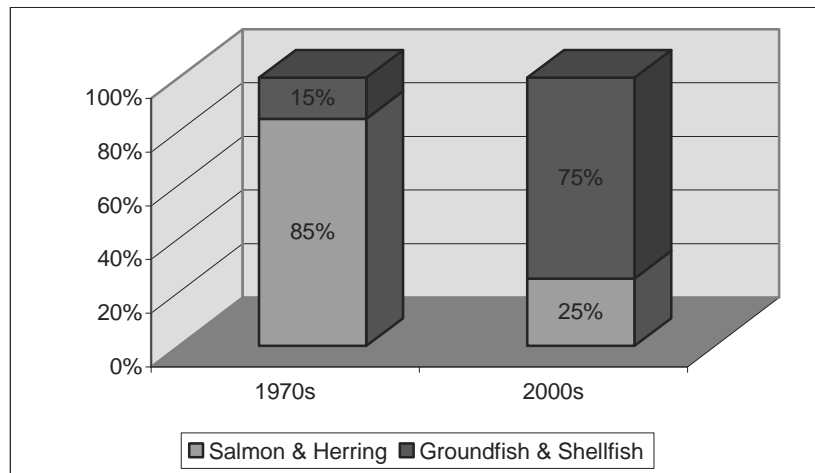
Impact on BC fisheries

Globalisation, combined with shifting ocean conditions and evolving fishery management philosophy, has created challenges effectively crippling the salmon/herring sector. Yet, over the same period, this very business and resource environment has provided opportunities allowing other Pacific fisheries – specifically groundfish and shellfish – to grow and flourish.

Groundfish comprises four distinct fisheries⁸: groundfish trawl, sablefish (also known as blackcod), halibut, and hook and line (rockfish, lingcod, and dogfish). The groundfish trawl fishery includes two of the subject fisheries for this study, hake and bottomfish. Shellfish includes shrimp, prawn, crab, sea urchins, geoduck, and sea cucumber.

Figure 19.1 shows the dramatic reversal of fortunes that has occurred in the last 15 years. The “core” and “secondary” sectors of the BC fishing industry have virtually reversed themselves in terms of relative stature.

Figure 19.1. Share of Public Fisheries Landed Value



The values underlying these percentages confirm the extent of the diminution of the salmon industry and the startling pace of growth in the groundfish and shellfish sectors⁹.

⁸ The fisheries are distinct in terms of licensing structure and fishery management; in reality, there is significant overlap in terms of species encountered and harvested.

⁹ Values are not adjusted for inflation.

Table 19.1. Average Annual Landed Value (CAD millions)

Period	Salmon	Herring	Groundfish	Shellfish	Total
1970s	99	35	19	5	158
1980s	199	53	50	21	322
1990s	146	55	112	86	398
2000s	47	36	132	116	331

The salmon sector, unable to cope with the pace and scope of change facing it, has withered. A substantial fleet rationalization program (CAD 285 million government funded licence buyback) reduced the eligible licences by 50% over the period 1996 to 2000, but failed to restore viability. Acrimonious relations between stakeholders – including the commercial and recreational sectors, First Nations, and DFO – preclude meaningful reform. The commercial salmon industry has lost a great deal of its former infrastructure, as exit and cost-cutting became necessary responses to tumbling revenues.

The groundfish and shellfish sectors, by contrast, have featured many successes. Part of the success is attributable to BC's endowment of species that are in strong demand in global markets: sablefish and prawns in Japan, geoducks in China, fresh groundfish fillets in the USA, and Dungeness crab throughout the world. Much of the success is because these BC participants have positioned themselves to benefit from opportunities presented by globalisation, while weathering its challenges.

Current state of the BC seafood industry

The transformation in the BC seafood industry described above – the decline of the industrial-scale salmon/herring sector concurrent with the proliferation of a multitude of groundfish and shellfish businesses – has been accompanied by fundamental changes in business structure and philosophy.

The processing sector, once dominated by four or five firms and united under the “Fisheries Council of BC” banner, is now less concentrated, more specialized, and highly fractured, with each firm pursuing its path independently. Companies avoid the undue risk and high capital requirements of a speculative business model, opting instead for a strategy that promises positive cash flows. The (painful) lessons of the salmon demise have been well-learned: overhead, debt, inventories, and surplus assets are to be avoided. On the positive side, firms are far more responsive to changing market and resource circumstances. On the negative side, access to capital is limited, as is the appetite to invest heavily in the business. This means that the bulk of production remains in commodity form, with value-adding initiatives in the minority.

Industry leadership has migrated from the processing sector to the harvesting sector. Most fisheries are organized into harvesting associations, and most harvesting associations work together in the “BC Seafood Alliance” (salmon is the notable exception). The BC Seafood Alliance strives toward forging effective partnerships with government and improving resource access security for harvesters. Fishers, through

harvesting associations, are now immersed in broad industry issues, and more knowledgeable about markets.

Where large processing companies once possessed the majority of fixed assets and expert personnel in the industry, these assets are now dispersed amongst more, smaller processors and a host of service-providers. Custom processors, un-loaders, truckers, and sales brokers abound. The preference for performing all functions “in-house” has been replaced by the practicality of extensive outsourcing. This allows participants to “play the game” without owning a surfeit of assets. A value-chain approach is becoming commonplace, whereby harvesters, custom processors, and brokers coordinate the handling and disposition of the catch, dividing the proceeds according to an agreed-upon formula. A small but increasing number of fishers market their own harvest, either through public sales floats or direct sales to retailers/restaurants.

Whether the transformation seen in the BC seafood industry in recent years is an improvement or a digression, in terms of ability to cope with a rapidly changing competitive environment, is moot. What is clear is that the impacts of globalisation on the BC seafood sector, given historical industry structure, the regulatory regime, and the resource situation, have been *enormous*.

The balance of this paper looks at current performance and future prospects for the three subject fisheries: pink salmon, hake, and bottomfish.

Profile of Subject Fisheries

Following are profiles of the three subject fisheries, providing indications of the scope of each fishery, a summation of its economic stature (past and present) in the BC fishery, an evaluation of the prevailing fishery management program, and an encapsulation of the resource situation.

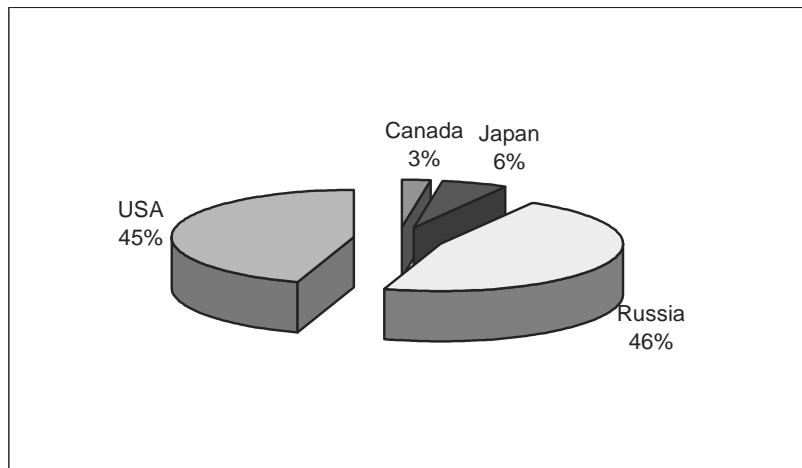
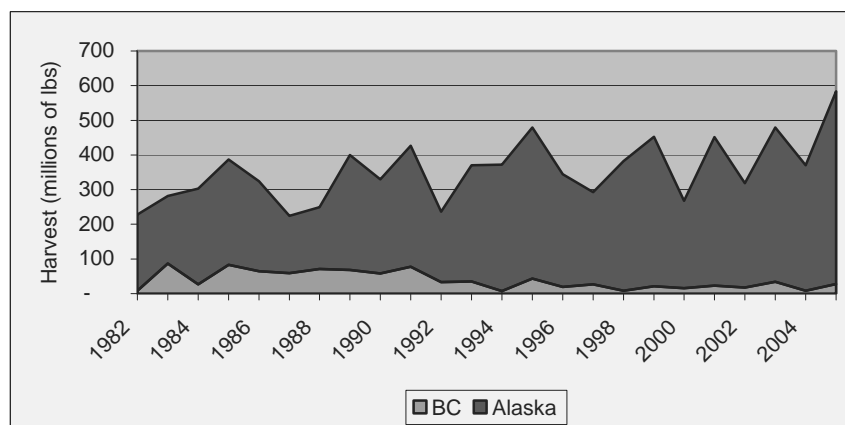
Pink salmon

Catch levels and values

Pink salmon is the most abundant and least valuable of the Pacific salmon species. Although pinks are BC's most numerous species, BC is a very minor player in the global scheme, averaging only 3% of world supply.

Figure 19.2. Share of Global Pink Salmon Catch by Nation

Average 1993-2004

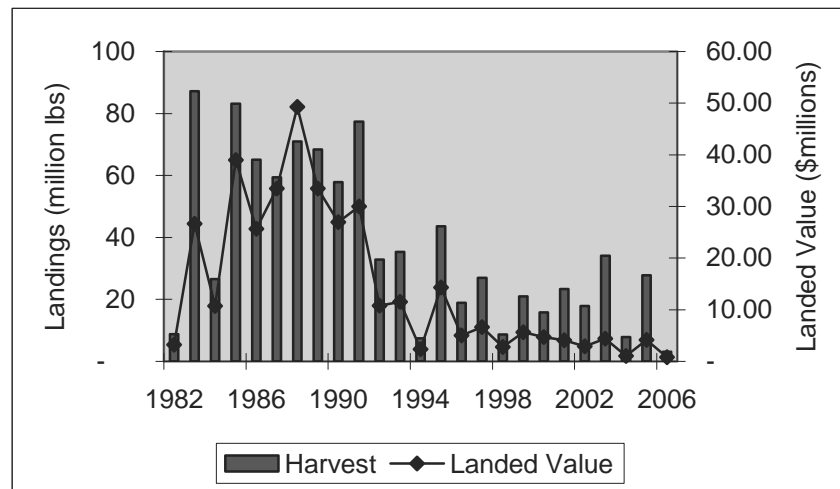
**Figure 19.3. British Columbia and Alaska Pink Harvest**

As with many fisheries, BC's direct competitor is Alaska, though in the case of pink salmon, BC poses little true competition to its neighbour. Alaskan catches have been consistently rising, while BC catch levels are in decline (indeed, they appear to have "flat-lined" in Figure 19.3). Reductions in BC pink harvests are attributable to three factors:

- Reduced resource abundance, particularly in north and central coast stocks. Extreme variability is a naturally occurring pink salmon attribute.
- Precautionary fishery management, meaning fewer harvesting opportunities.
- Industry not fully exploiting available pink harvest because of economic constraints.

Figure 19.4 demonstrates the magnitude of the reduction in catch volume and value of the BC pink harvest over time. The decline in landed value is steeper than the drop in landings, indicating that both volumes *and* prices have fallen.

Figure 19.4. BC Pink Landings and Landed Values



Economic overview

Historically, pinks accounted for about 30% of the BC salmon harvest (by volume) and 10% of the landed value. Virtually all of the catch was canned, with ½ pound cans on export markets the primary product form/market. In general, pinks made a more important contribution to processors bottom-lines than to harvesters – modest raw material prices and generally firm markets meant attractive margins. Pink salmon were a very quiet but important contributor to BC processing firms' financial health.

BC processors have always drawn from the generous supply of nearby Alaskan pink salmon to bolster domestic supply when needed¹⁰. With the current level of BC landings at less than 1/3 of historic levels, Alaska is now the primary pink salmon source for BC processors, who cannot count on the local supply to serve their markets.

The stature of BC-caught pinks has digressed from that of an important contributor (a backbone, even) to the processing sector, to a purely opportunistic activity around which salmon participants cannot even plan. Annual wholesale receipts of BC canned pink salmon averaged about CAD 100 million in the 1980s, compared to just a few million dollars currently¹¹. The decline of the pink salmon business played a large role in the demise of the BC salmon industry.

Fishery management

Pinks are managed along with other salmon species under a “derby” system. Despite programs to reduce the fleet and mitigate fishing pressure, such as a government funded license buyback and area licensing, the capacity of the fleet is still excessive when

¹⁰ BC can import round pinks from Alaskan tender vessels so long as Alaskan plants are operating at capacity, which is usually the case. BC processors are generally comfortable with their level of access to Alaskan pink salmon.

¹¹ Estimates.

compared to the magnitude of fishing opportunities. Over time, DFO has become increasingly precautionary in its commercial salmon management approach, while other user groups (First Nations and recreational sector) have gained allocation priority over the commercial sector. The pace of First Nations Treaty negotiations is accelerating in BC, and access rights to salmon are a form of settlement currency. Thus, the security of access to the resource perceived by license holders is tenuous.

Commercial fishing opportunities are few and sporadic when compared to the past. The mixed-stock fishery of old (where a host of co-migrating stocks were targeted) is being replaced by increasingly discrete management. Opportunities to harvest abundant species are routinely forgone to preserve co-mingling weak stocks.

Sockeye, coho, and chinook are the most valuable species in BC, and also the species that are in highest demand from users in all sectors. These species have a much higher profile than lowly pinks. A spawning shortfall in an important sockeye system may spark a frenzy of public outrage, while a similar event for a pink stream would likely go unnoticed. Pink salmon management, then, is perhaps more passive than that for other stocks, and pink harvesting opportunities are at times subordinated to those for more prized species.

The state of fishery management in the salmon fishery is a source of friction within industry and between industry and DFO. The fishery management system results in a pink salmon fishery that:

- Is virtually unpredictable, with openings often announced on short notice.
- Results in few, brief openings, with the bulk of a season's catch landed in a very few days.
- Motivates participants to focus on volume rather than quality.
- Precludes the fleet from accessing all available surpluses.

Initiatives to reform the fishery, to restore a more orderly and quality-driven harvest, have thus far been fruitless. The BC salmon sector has been unable to devise a system that addresses conservation concerns, economic realities, and social objectives. Most salmon industry participants agree that they system is broken, but so far, they have been unable to fix it.

Resource status and outlook

Shifting ocean conditions and other, poorly understood, environmental conditions have caused overall pink salmon abundance to decline in BC, though the state of pink stocks is not as dire as the reduction in catch levels indicates. It is not known whether reductions are transitory in nature – part of a long-term productivity cycle – or permanent. BC, especially the south coast, is perilously close to the southern end of the range of pink salmon in the North Pacific Ocean.

Even at current abundance levels, BC pink salmon stocks have the potential to support higher catch levels and more meaningful business activity.

Groundfish trawl

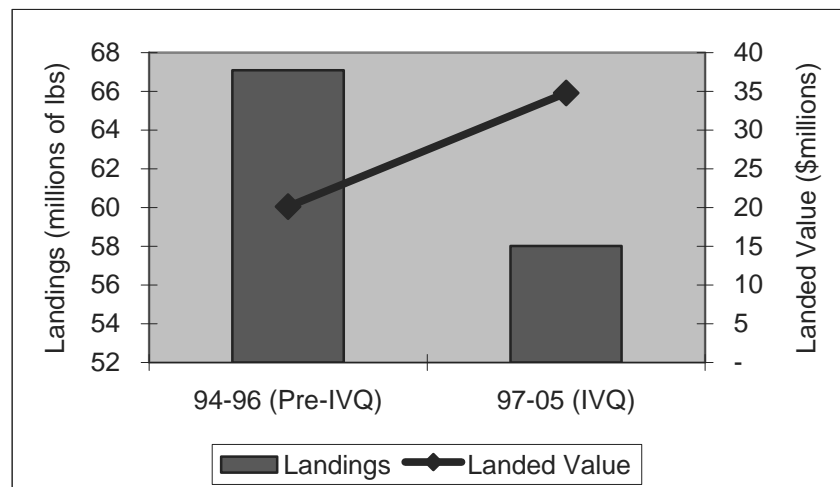
Catch levels and values

The BC groundfish trawl is a year-round fishery harvesting a suite of bottom-dwelling species. This includes a “core” group of species dominated by rockfish and soles (a variety of species) and including lingcod and Pacific cod; and a group of “developing” species, for which utilisation is steadily growing, including turbot (arrowtooth flounder) pollock, and dogfish.

This is a year-round fishery that, when compared to pink salmon and hake, offers stable harvesting and market-service opportunities.

The groundfish trawl fishery has operated under an Individual Vessel Quota (IVQ) management program since 1997. Under the program, the catch levels for core species have declined (because catch quotas are no longer exceeded) and catch values (both in per-pound and total terms) have risen. Greater value is being derived from less fish (see Figure 19.5).

Figure 19.5. Groundfish Landings and Landed Values (est)
Core Quota Species, Annual Averages for Period



Economic overview

Groundfish trawl was a high-volume, low value fishery for many years. The fishery appealed to salmon processors and “big-boat” fishers as an opportunity to extend asset utilization and amortize fixed costs over a greater production base. The fishery produced frozen fillet blocks at a time when Atlantic cod and lower-48 Pacific groundfish catches were still prolific. BC enjoyed few competitive advantages, and results were marginal.

As groundfish stocks in other jurisdictions were fished to decline, market opportunities improved for BC groundfish. Hard times in the salmon fishery meant greater interest in groundfish. Pressure on groundfish stocks escalated, and a passive fishery management approach was no longer appropriate. A series of increasingly

restrictive rules, including periodic trip and species limits, were met with even greater fishing pressure, misreporting of catches, and at-sea discarding. The ranks of participants, both vessels and processors, were swelling. The impacts of fishing on the plethora of groundfish stocks were unknown. Thus, DFO took the bold step of closing the fishery. It opened, months later, under an entirely new and unique management system.

The BC groundfish trawl sector is now the preferred supplier of fresh fillets to western USA markets (also known as the “I-5 corridor,” for the name of the interstate highway linking Vancouver and California’s urban centres).

Given that it is operating comfortably under DFO’s precautionary management mandate, it is clear that the groundfish trawl fishery is meeting conservation objectives. Together with the hake fishery, groundfish trawl is not only BC’s highest volume fishery, but it is also the highest landed value fishery in BC.

The bottomfish fishery has progressed admirably from its former “marginal” status.

Fishery management

In the groundfish trawl fishery an individual transferable quota system was implemented in 1997. Prior to that year, groundfish trawl was a derby fishery that combined over-exploitation of the resource and un-even economic results: too many vessels racing for their share of the catch, gluts of fish followed by droughts, and a high percentage of money-losing frozen production. The situation culminated in DFO closing the fishery on conservation grounds in 1996 until industry agreed upon a new system.

The ITQ system¹², crafted by a variety of interests in the groundfish trawl fishery including vessel owners, processors, union reps, coastal communities, the Provincial government, and DFO, sought to ensure achievement of conservation objectives, allow for economic growth, and encourage a fair distribution of economic benefits. This is a unique ITQ system embedded with safeguards in an attempt to “engineer” a groundfish trawl sector that meets the broad and diverse objectives of all stakeholders. These safeguards include quota holdings caps, species caps, curbs on quota transfers, sanctions for vessel owners improperly treating their crews, and incentives (additional quota) for business practices consistent with defined social objectives. Some stakeholders lobbied (and now long for) a more “laissez-faire” plan, while others strove for (and continue to desire) stricter controls on concentration of quota, quota leasing, and accumulation of quota by “armchair” fishers.

While no one admits to being completely happy, it is a compromise plan that all interests can live with. Though it contains curbs on free enterprise, the Plan paved the way for an orderly harvest, meaningful business planning, and improved responsiveness to markets.

The IVQ/GDA plan is extremely complex, with each vessel endowed with about 50 different quotas (combining about 20 species and five management areas). Because the

¹²

The management system is formally known as the Individual Vessel Quota/Groundfish Development Authority Plan (IVQ/GDA).

plan allows vessels to carry over un-caught quota to the following season¹³, few if any of the 50 TACs are reached each year.

Fishers are individually accountable for adhering to each of the 50-odd quotas. Some quotas are generous (target species) while others are small, amounting to a bycatch allowance. If a fisherman exceeds his quota for any species in any area, he is prohibited from bottom fishing in that area until the quota shortfall has been remedied (through quota transfer from another vessel). To ensure compliance, the fishery features 100% at-sea observer coverage, and 100% offload validation. All catch – whether retained or released – is accounted for.

Groundfish trawl licence holders contribute key advice to fishery managers, and contribute financially to (and co-manage) the research and stock assessment program. Given the stringent conservation measures in the plan, and the high costs borne by the fleet (at-sea observers, offload monitors, research and stock assessment, co-management) the BC groundfish trawl fishery proudly claims to be the best-managed trawl fishery in the world.

Given the complexity of the plan, the socio-economic compromises that it contains, the high degree of monitoring it requires, and the high cost to harvesters it brings, the plan was met, upon implementation, with scepticism and doubt. Participants surprised themselves with their adaptability.

Fishing under the new plan has been transformed. To harvest effectively under a multi-quota plan with full individual accountability requires avoiding non-target species for which quotas are slight and metering out the catch over the season. Selectivity and avoidance are keywords in the fishery. The change in fishing culture is startling. Draggers once boasted of how they loaded the boat in record time, of how they out-produced their comrades. Skippers were chosen for their ability to *produce*. Now, trawl fishers brag about how “clean” they can fish. Captains are favoured for their knack of *avoiding* certain species of fish. Fishers cooperate, rather than compete, on the fishing grounds. “Don’t set your gear there, Bob... there’s a big school of shortraker rockfish!”

As a counterpoint to the fishery’s accomplishments, conservation groups persistently note that the BC groundfish trawl fishery still has room for improvement, particularly with respect to bottom impacts and catch utilization.

Resource status and outlook

Many of the groundfish stocks targeted in the bottomfish fishery, such as rockfish and lingcod, are long-lived and relatively sedentary. Fluctuations in population tend to occur over a long period of time. Providing fishing pressure is appropriate, and ocean conditions allow for reasonable survival and periodic strong recruitment, stocks remain quite stable. Indeed, for most species, stock levels and catches have been very stable over the past 10 years.

Other species, most notably Pacific cod, are shorter lived, and abundance is highly variable. For such species, DFO applies its precautionary approach when setting catch levels to mitigate the impact of fishing on year-to-year abundance.

¹³ Up to 30% can be carried forward.

The IVQ/GDA management plan provides stock assessment scientists with a full picture of groundfish removals (including catches and releases) and a large number of biological samples. The task of performing regular stock assessments for the full suite of species is daunting, so research is performed according to priorities jointly established between DFO and industry.

The current scope and nature of the fishery strikes a pleasing balance for industry and DFO, aligning catch levels with both ecological and market objectives. Subject to the good graces of ocean conditions, the outlook for groundfish stocks – continued stability – is positive.

Hake

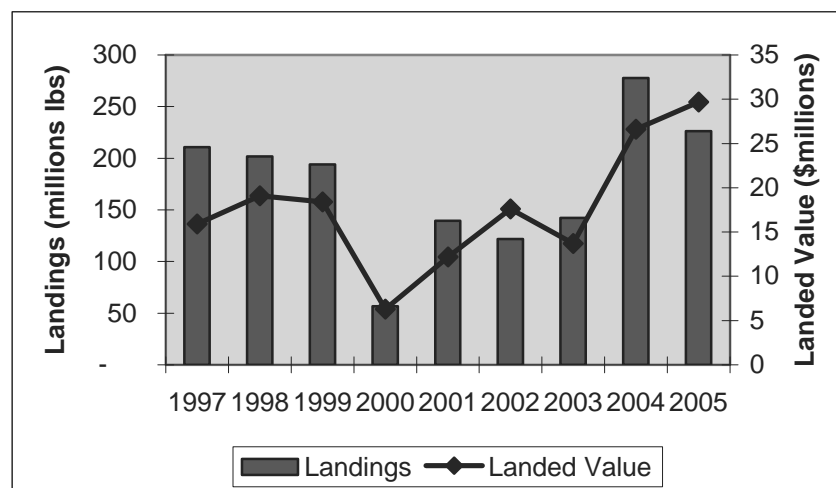
Catch levels and values

Hake (Pacific whiting) is to BC groundfish stocks what pink salmon is to BC salmon – the most abundant but lowest value species. As with pink salmon, BC is a relatively minor player in terms of world hake production, accounting for 5-8% of global supply. BC ranks behind Argentina, South Africa, Chile, and the USA (Washington/Oregon) as a hake producer. Total world production ranges from 1 200-1 500 tonnes annually.

Pacific hake is a trans-boundary stock, straddling Canadian and US waters. The two countries in the past disagreed on catch shares, and over-fished the stock to an extent. They have now forged a Treaty, ensuring cooperation in setting harvest levels. Unlike pink salmon, both catch levels and fish values have risen in recent years.

BC production and landed value is shown in Figure 19.6. Hake is BC's highest volume fishery.

Figure 19.6. Hake Landings and Landed Value



Economic overview

The BC hake fishery is relatively novel, with participation by the BC fleet commencing in 1978. The BC processing industry showed little interest in handling hake until the early 1990s. The Pacific hake species is plagued by an enzyme that degrades the flesh quality unless stringent handling protocols are observed (*i.e.* chilling, prompt processing). And, the BC processing sector was largely focused on more lucrative species, particularly salmon and herring. As an un-utilized resource, the Province made hake an exception to its prohibition on foreign/at-sea processing, allowing foreign motherships to operate offshore, purchasing, processing, and transporting finished hake products overseas. Through the 1980s and early 1990s the so-called “Joint Venture” fishery grew in scale and efficiency.

BC trawlers found the Joint Venture fishery to their liking. A local organization called the Hake Consortium of BC oversaw contracting of the factory ships and established delivery timetables and criteria for participating trawlers. A vessel simply towed for hake using its midwater trawl, and pulled alongside the factory ship, which lifted the cod-end of fish aboard for immediate processing. Never a fish scale onboard, and no need to run the fish to town! Although fish prices were low (less than 10 cents), the volumes and efficiency allowed profitable fishing operations.

By the early 1990s, advances in fish handling practices, processing technology, and seafood markets made the utilization of hake by BC shore plants feasible. The downturn in the salmon business provided motivation to find alternative activities. A few shore based plants located in small communities on the west coast of Vancouver Island invested in processing equipment, mostly surimi capacity. Local governments provided infrastructure to support this much-needed injection of industry. Senior governments confirmed that shore-based hake processors would have priority access to the hake resource, and so the Joint Venture became a “safety valve” fishery, handling only quantities of fish not required by the shore sector. Acrimony over domestic hake allocation – shore vs. Joint Venture – developed. A strong appeal of shore-based processing was the high level of employment associated with hake – large volumes over a 5-6 month season.

Over virtually the same period as the pink salmon business has fallen, the hake business has developed from scratch to become an important contributor to the groundfish sector and BC seafood industry. It has gone from being an entirely un-utilized resource, to the subject of a spirited annual allocation debate.

Fishery management

As noted previously, hake is managed under the same IVQ/GDA plan as bottomfish, though in many respects, hake is a distinct fishery, and business, from groundfish.

While the bottomfish fishery digressed into a race for fish with rampant discarding in the years preceding 1997, the hake fishery has taken a different path. This mid-water trawl fishery is virtually “clean” (there is very little bycatch). The BC hake fishery developed under the Joint Venture system, whereby production was effectively scheduled and the quantity of catch per vessel was known ahead of time; the Joint Venture fishery closely resembled a quota system.

With implementation of the IVQ system, an orderly harvest is now facilitated in the shore-based fishery as well. The system supports sound business planning. Implementation of the Canada-US hake treaty will bring joint fishery management, and agreed upon national catch shares, to hake management.

Resource status and outlook

Hake is among the short-lived (7-8 years), migratory groundfish species that features widely varying abundance. The Pacific hake biomass fluctuates with ocean conditions and recruitment levels, and catch-ability is linked both to abundance and varying fish distribution. While annual TACs will follow abundance patterns, joint Canada-USA fishery management under the Treaty will ensure improved long term stock sustainability.

Impacts of Globalisation on Subject Fisheries

The preceding section provided overviews of each subject fishery. How each fishery has fared under the pressures of fisheries globalisation is strongly influenced by its stature, structure, and recent history. In this section, the globalisation forces impacting each fishery are identified, the responses to date are described, and a brief analysis is offered.

Pink salmon

Globalisation challenges and opportunities

A list of key globalisation-related challenges and opportunities in the BC pink salmon industry follows:

Table 19.2. Globalisation Challenges and Opportunities for Pink Salmon

Pink Salmon Globalisation Challenges	Pink Salmon Globalisation Opportunities
Growth of world pink harvests (Alaska and Russia), concurrent with decline of BC harvests, means BC market share and market clout has declined.	Growing demand for seafood generally. Growing demand for wild salmon. Pink positioned as "most affordable" salmon.
The vast majority of pink production has historically been canned.	For canned product, BC must focus on other product forms, such as ¼ lb, skinless boneless, easy-open, and others.
Canned pink salmon markets are chronically over-supplied.	
Canned pink markets are stagnant (not growing).	
Canned pink price levels have weakened substantially in recent years.	
BC canned pink production is no longer economic	

Pink Salmon Globalisation Challenges	Pink Salmon Globalisation Opportunities
(1/2 pound form); BC is not a low cost producer.	
Alaska has out of necessity developed frozen pink markets. Up to ½ of Alaska's production is now frozen, generally in round or butchered form, for re-processing elsewhere in the world.	BC is in a position to benefit from Alaskan initiatives... let Alaska blaze the trails and make developmental mistakes.
A small fresh and value-added business has also developed.	
While Alaska has been developing new products and markets, BC has been on the sidelines.	
There is a growing consumer movement toward sustainable wild fisheries and eco-labelling.	The conservatively managed BC salmon fishery is in the MSC certification process. Certification may offer new market avenues.
The Alaskan salmon fishery is certified by the Marine Stewardship Council (MSC), while BC is not.	
Emergence of low cost processing operations in China, Thailand, and other locations with low wage rates.	Developing markets represent an outlet for round or butchered frozen BC pinks. A new low value but high volume business.
"Developing countries" as major importers of raw material for value-added processing. BC cannot compete with this cost structure.	BC has the advantage of working on fresh fish, can produce once-frozen fillets and other products.
Acceptance by global consumers of "twice-frozen" product.	BC's proximity to pink stocks and US market provides a differentiation avenue (fresh, once-frozen products).
With farmed salmon, there is a huge volume of salmon in the marketplace. Farmed salmon sets consumer's expectations of quality and consistency at a very high level.	A distinct consumer awareness (sometimes preference) for wild salmon has developed.
Farmed salmon holds a host of competitive advantages over wild salmon.	Pink salmon has the opportunity to fill a niche below farmed salmon in the product/value spectrum.
Widespread availability of farmed salmon relegates pink to the bottom of the salmon value spectrum.	Pink salmon is cheap (inexpensive) enough that it can be used as an ingredient in value-added products such as burgers.
BC processors are already involved in the Alaskan salmon industry. Investment and resources may be directed to Alaska rather than BC.	Pink salmon is not a fishery/business that appeals to all BC participants. Those choosing to participate should be able to source raw material on favourable terms.

BC industry response

The BC pink salmon sector has to a much greater extent been flooded by the challenges of globalisation than it has benefited from its burgeoning opportunities.

The pink business has shrunk dramatically. A marked reduction in wholesale prices in the ½ pound canned market, BC's primary product form, meant dramatically lower ex-vessel fish prices to harvesters. Prices fell below 15 cents per pound, with fish volumes sporadic. The economics made sense for neither harvesters nor processors. Even with limited fishing opportunities, a portion of the available pink harvest has been forgone.

For a large portion of the industry, pink salmon have ceased to be a meaningful business activity. Some simple rationale for dedicating resources elsewhere: a four-pound pink, at 15 cents/pound, is worth 60 cents; a six-pound sockeye, at CAD 2/pound, is worth CAD 12. It takes 20 pinks to equal the value of one sockeye... and there aren't that many pinks available. So where will effort be directed? Sockeye.

Even those with a will to handle pink salmon struggle with the sporadic, uncertain supply. Developing products, building customer goodwill, and supporting marketing programs is frustrating at best, impossible at worst, without a secure and reliable supply of product.

Not all participants have forsaken pink salmon. A few processors still consider pinks to be an important part of their business, and are focusing on strategies to differentiate their product from pure commodity forms. Effecting such a strategy requires substantial investment in equipment, and use of Alaskan pinks as a backstop of production. It also requires courage; said one processor of his pink salmon program, "we've invested millions of dollars we don't have."

Globalisation has provided another intriguing option – being a marketer of product without being a producer. That is, exploiting "long" global supply by buying processed product on the open market for re-sale. Canada's pre-eminent canned salmon brand, "Clover Leaf" was until recently owned by BC's biggest fish processing company, BC Packers. It made sense that BC's largest fleet supplied Canada's biggest label. When BC Packer's parent company opted to exit the BC seafood business, however, the Cloverleaf label was sold to a US company, Bumble Bee, having no footprint in the salmon industry. Cloverleaf, sourcing strictly from the open market, remains Canada's premiere canned salmon brand.

Even companies that market pink salmon but have not shed their fleet connections have altered their business practices. The adage "catch all you can, and can all you catch" has given way to "source the product you need to fill your markets" (not nearly as clever, but a sensible shift nonetheless).

Analysis

BC pink salmon is a case of a business with fragile fundamentals - including an inefficient industry structure, market-indifferent fishery management, and a volatile resource base – buckling under the pressures of globalisation.

Industry participants are quick to identify the obvious solution to the pink salmon problem – develop a market-responsive fishery management system for the salmon fishery. Pointing to fishery management as a problem does not imply that DFO takes the (sole) blame; it is widely recognized that industry shoulders the primary responsibility for devising a management system that addresses DFO's conservation constraints, while meeting the diverse socio-economic objectives of the industry. But BC's salmon

participants are surprisingly willing to endure year-after-year of dismal financial performance rather than accept some necessary compromises.

Given a sound fishery management footing, the BC pink salmon industry is positioned to exploit either or both two strategic directions:

- Becoming an effective supplier of raw material (round-frozen or butchered) to developing nations such as China and Thailand. That is, a low cost, high volume supplier of raw material for re-processing.
- Value-added pink salmon production, exploiting BC's advantage of working from fresh product to service fresh markets or "once frozen" frozen markets.

The pink salmon business in BC enjoys substantial upside. Though pinks will never be a shining-star of the BC seafood industry, there is little business reason that they cannot return to "quiet contributor" status.

Groundfish

Globalisation challenges and opportunities

Globalisation-related challenges and opportunities in the BC groundfish trawl fishery include:

Table 19.3. Globalisation Challenges and Opportunities for Groundfish

Groundfish Globalisation Challenges	Groundfish Globalisation Opportunities
Fluctuating foreign exchange rates have worked against the BC groundfish sector.	
The Canadian dollar has strengthened against the US dollar from CAD 0.62 in 2003 to CAD 0.90 in 2006.	
BC sells the majority of its groundfish products in fresh fillet form to the USA.	
Though prices have remained consistent, or even risen, in US dollar terms, effective prices to Canadian producers have plummeted – a CAD 3.00 US fillet worth CAD 4.80 per pound only netted CAD 3.30 in 2006.	
The primary market for BC groundfish is the western USA, particularly California.	Seafood demand is growing rapidly in BC's primary market (western USA). This provides a partial buffer against growing competition.
This market is being flooded with a host of farmed whitefish species that are being embraced by consumers (eg. basa, tilapia, catfish).	Fresh wild groundfish is an established product with consumer appeal.
BC groundfish products are maintaining sales volume, but losing ground as the overall seafood market grows.	The decline of other groundfish fisheries, particularly that off the coast of Washington-Oregon-California, has provided an opportunity for BC to service fresh markets.
BC must work hard to maintain its primary market, given the array of farmed seafood alternatives.	
The market has a strong preference for fresh product over frozen (especially for wild product).	BC is ideally situated to serve the fresh whitefish fillet market in California.
Frozen BC groundfish fillets are dramatically reduced in value vs. fresh, since there is an enormous world supply of low-cost frozen wild whitefish. A high-quality BC rockfish fillet fits in the same (low) value realm as frozen pollock.	
When the BC groundfish fishery experiences periodic landing "spikes" a portion of production is inevitably frozen. Prices for BC <u>frozen</u> groundfish fillets have declined.	

Groundfish Globalisation Challenges	Groundfish Globalisation Opportunities
Emergence of low cost processing operations in developing countries with low wage rates.	Developing nations represent a new market outlet for round or headed and gutted low-value (developing) groundfish species such as turbot.
“Developing countries” as major importers of raw material for value-added processing. BC cannot compete with this cost structure.	
Acceptance by global consumers of “twice-frozen” product.	
There is a poor public perception of bottom trawling.	The BC groundfish trawl fishery can position itself as a world leader in responsible trawling practices.
Despite the strong conservation record of the BC trawl fishery, constant vigilance is required to defend and justify the fishery.	
Well-intentioned environmental legislation (Species at Risk Act) can prove problematic when applied to multi-species fisheries.	
The increase in global oil prices has caused marine diesel fuel costs to spiral. Rising fuel costs are a major cost factor in the BC groundfish trawl fishery.	Technology is available from around the world to encourage more fuel-efficient operations: fishing gear, flow metres, high efficiency engines.

BC industry response

The BC bottomfish sector has benefited from a combination of good management and good fortune. Concurrent with the BC industry implementing a new fishery management plan to address conservation and socio-economic shortcomings, globalisation events favouring BC developed. The collapse of competing groundfish fisheries positioned BC as the preferred supplier of fresh fillets to the western USA (it didn't hurt that American consumers failed to realise that the “local” groundfish species they were enjoying no longer came from their local waters). A weak Canadian dollar relative to the US currency allowed sound values for American customers and strong prices for Canadian exporters. Growing seafood demand in the US helped preserve BC's market position.

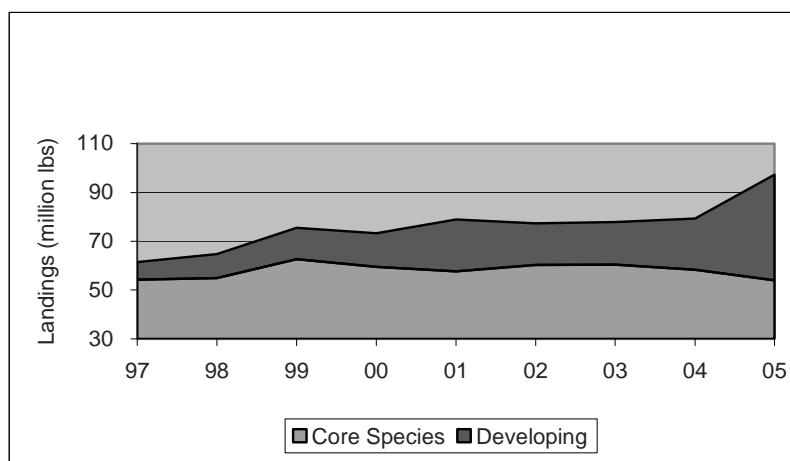
This window of agreeable competitive conditions allowed the BC groundfish sector to gain familiarity with a complex new fishery plan, develop its “fishing-to-market” acumen, and enjoy profitable operations. Participants who had initially resisted the new management plan now lauded themselves as business visionaries. During this period, the strategy for improving financial returns was clear – purchase (or rent) more quota; more quota meant improved returns.

Of course, a competitive climate-change was inevitable, and a host of globalisation factors began to heap challenges on the industry. A rapidly strengthening Canadian dollar meant rapid devaluation of product values. An array of farmed white fish products quickly gained consumer acceptance. The fresh market was increasingly intolerant of any

spot surge in BC fresh fillet production. Prices for frozen products declined. Fuel costs (a major cost-factor in trawling operations) spiked, tracking the price of crude oil in world commodity markets. In the course of a couple of years, the competitive environment turned decidedly difficult, placing pressure on financial returns.

The groundfish trawl sector was bruised, rather than battered, by these developments. Participants recognised that more-precise execution of harvesting-processing functions was necessary. With lower returns from core operations, they turned greater attention to deriving value from heretofore “marginal” species such as turbot (arrowtooth flounder), dogfish, and pollock. Much of this production was exported in frozen h&g form to developing countries for re-processing. Figure 19.7 shows how utilisation for these developing species has risen. Also, opportunities to hive higher-values species out of the fresh-fillet mix were explored. Ethnic markets for whole red-snapper (rockfish) were exploited.

Figure 19.7. Groundfish Landings
"Core" and "Developing" Species



The industry recognised that the “honeymoon” period succeeding implementation of the IVQ/GDA plan was over, and that the future would be characterized by lower margins, the need to further develop products and markets, and the importance of sound execution of business functions.

Analysis

The BC groundfish trawl industry enjoys sound fundamentals – a stable year-round resource, a market-responsive fishery management program, a high degree of industry-government cooperation, and a strong competitive position – and is therefore well-positioned to benefit from the opportunities of fisheries globalisation while enduring its challenges.

An important factor giving the groundfish industry competitive strength and resilience is that it is entirely self-adjusting and largely self-reliant. A high degree of fleet rationalisation has occurred over the past several years, with quotas fished by fewer vessels owned by fewer individuals and companies. There are now 45-50 active trawlers

in the fishery, whereas 142 vessels received an initial allocation of quota. There is a high degree on integration between the harvesting and processing sectors. The largest groundfish processors were always significant owners of trawl vessels. Now, successful trawl fishers have entered the processing fray. The security provided by the quota system motivates vessel owners to pursue their own business paths. There is a great deal of individual initiative taken, so product and market development is not the burden of a few processing companies. Virtually every vessel in the groundfish fishery executes a unique business plan, targeting a different mix of fish and different market avenues. Groundfish trawl is a rather close-knit fishery, with generally cooperative and harmonious internal relations, and an effective working rapport with DFO.

The prospects for the groundfish trawl fishery are strong, abetted by a sound management plan that encourages responsible fishing practices and meaningful business planning. The industry requires further business development in order to best deal with future globalisation developments:

- Capital expenditure in the fishery has thus far been dominated by purchases of quota. Investments in vessels and plants have largely been neglected. The industry will need to address physical asset issues in the future to ensure continued competitiveness.
- Over-reliance on the western USA fresh fillet market is recognized, so further product-market diversification measures are required.
- The fishery can continue to improve catch utilization and selectivity in order to pre-empt criticism from the environmental sector, and preclude interruptions under environmental legislation (Species at Risk Act). Further, improved resource stewardship makes sound business sense.

Hake

Globalisation challenges and opportunities

A list of key globalisation-related challenges and opportunities facing the BC hake industry is offered below:

Table 19.4. Globalisation Challenges and Opportunities for Hake

Hake Globalisation Challenges	Hake Globalisation Opportunities
Canada is a minor global hake fishery.	World demand for white fish products is growing.
Larger global hake fisheries such as those in Argentina, Africa, Chile and the USA have a strong bearing on price levels, and marketability, for BC hake.	Hake catch levels in other jurisdictions have been down in recent years, allowing BC hake to make market inroads.
Hake is a generic white fish product. Hake markets are influenced by production of other abundant white fishes around the world.	
There has been rapid development of large scale fisheries in the southern hemisphere for low-value species such as threadfin bream, itoyori, and jack mackerel. Products from these fisheries may go head-to-head with hake (particularly in surimi markets).	
These fisheries provide formidable competition for BC hake from in the surimi business.	
Emergence of low cost processing operations in Russia and China.	Developing markets represent an outlet for round or h&g frozen BC hake. A new low value but high volume business.
“Developing countries” as major importers of raw material for value-added processing. BC cannot compete with this cost structure.	BC has the advantage of working on fresh fish, can produce once-frozen fillets.
Acceptance by global consumers of “twice-frozen” product.	BC’s proximity to US market provides a cost and differentiation avenue (once-frozen products).
Much of global white fish harvesting and processing is by factory trawlers or motherships. These operations enjoy greater efficiency and lower costs than shore-based plants.	Joint Venture fishery is used as a “safety net” in the BC hake fishery.
BC regulations limit the use of factory trawlers and motherships in fisheries, placing BC at a cost disadvantage.	BC regulations allow a BC catcher-vessel to head, gut, and freeze its own catch (but not fillet).
Fluctuating foreign exchange rates have worked against the BC hake sector.	
The Canadian dollar has strengthened against the US dollar from CAD 0.62 in 2003 to CAD 0.90 in 2006.	

**Hake
Globalisation Challenges**

The US is a significant customer of BC frozen hake fillets.

Many international transactions are conducted in US dollars.

**Hake
Globalisation Opportunities**

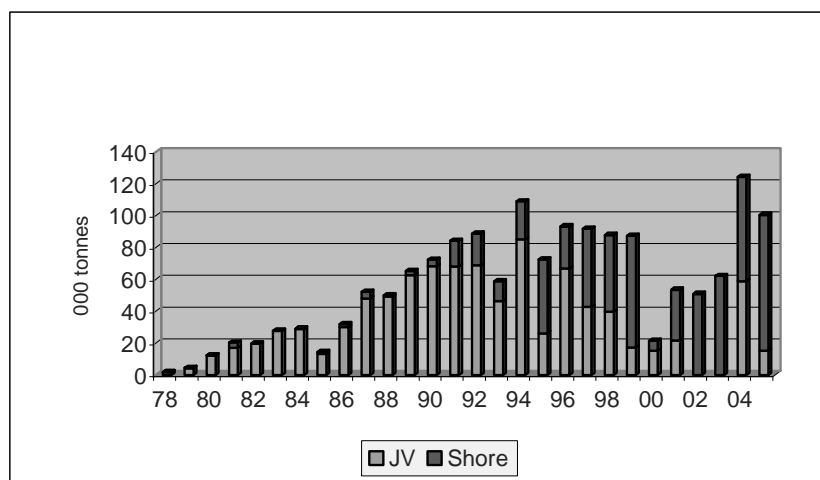
Industry response

The pace of change in the BC hake industry has been breathtaking. Thirty years ago, hake was completely un-utilized by the BC fishing industry, exploited only by foreign fleets. Fifteen years ago, there was virtually no shore-based processing of hake by the domestic industry. Five years ago, BC hake processing meant surimi processing. Three years ago, surimi processing virtually ceased. The last two years have been, financially, the best ever enjoyed by the hake sector.

The shore hake sector in BC developed around the surimi business. The proximity of prime hake fishing grounds off the west coast of Vancouver Island to the communities of Ucluelet and Port Alberni provided strategic opportunities to accommodate hake processing. Government strongly supported development of a BC shore-based hake sector, according the shore sector priority access to hake stocks (vs. the Joint Venture fishery). By the late 1990s there were three plants operating in the area. As surimi is a pure commodity product, and BC producers were enduring a production learning curve, results were uneven. When market demand was strong, the plants operated to capacity; when demand slackened, the plants reduced throughput. This pattern frustrated fishers, who were accustomed to the greater reliability and higher prices of the Joint Venture fishery. The evolution of the hake fishery, from Joint Venture to shore-based, is charted in Figure 19.8.

Figure 19.8. Pacific Hake Landings

Joint Venture and Shore



Recognising the frailties of the surimi business, some hake processors began to develop fillet programs.

In both surimi and fillet production, processors faced the challenge of dealing with Pacific hake's high perishability. Quality and recoveries improved over time owing to investments in equipment, improvements in fish-handling practices, and experience in dealing with this finicky species.

BC hake producers developed significant acumen as surimi producers. On a "technology sharing" mission to Chile, a group of BC hake processors magnanimously offered to share some of their surimi insights with their Chilean counterparts. Instead, they found that the Chilean industry had largely progressed beyond surimi, focusing on a host of fillet and value-added products. "We went to see a third world country... and found that we were it," lamented the mission leader.

Indeed, surimi-reliance proved problematic. Markets were chronically over-supplied. "Junk fish" like jack mackerel in Chile, and itoyori in the Indian Ocean, were used to supply an acceptable quality of surimi, at a price that BC could not match. The pattern of volatile utilization by the BC shore sector continued.

The surimi business in BC hit its nadir in 2003, when sales of BC surimi were stalled owing to, of all things, an outbreak of "mad cow disease." Because of a BSE-infected cow originating at an Alberta cattle farm, Canadian beef was, for a period, banned from Asian and American markets. BC surimi uses, as a minor ingredient, a beef-plasma binding agent. This additive was sourced from a US company. BC surimi therefore contained trifling amounts of (American) beef. In the eyes of the international trading community, however, BC surimi effectively became a Canadian beef export, and was treated as such. Even sales to the USA (where the beef additive originated) were prohibited. Globalisation gone mad! Surimi production was halted during the 2003 fishing season, and never re-commenced. Growing fillet production ensured some utilization of hake stocks in 2004, and a substantial Joint Venture fishery was allowed that year.

At the same time, BC hake participants saw sudden, strong interest from Russian and Chinese firms in the purchase of headed and gutted frozen hake. H&g production is very simple, requiring dressing machinery commonplace in BC (much of it idle salmon equipment). Both volumes and prices soared. Though margins were slim for processors, ex-vessel prices exceeded that supported by surimi. Surimi capacity has now been largely dismantled.

Strong demand, low capital entry requirements, and a healthy supply of fish attracted new BC participants to the h&g hake business. Shore utilization has reached record levels. Two entrepreneurs have fitted "factory-scale" trawlers to catch and freeze hake on a scale greater than that previously seen in the BC fleet (operating under Provincial rules, they are not permitted to fillet). The largest fishing operations in the hake fishery are also the largest processors. The sector is now enjoying a "high".

Analysis

The story of BC hake takes many twists because hake is a pure commodity product, highly subject to the shifting forces of globalisation. Globalisation has presented opportunities, snuffed them out, and offered entirely new prospects. Further challenges are clearly on the horizon.

While the BC hake sector is currently enjoying strong results, the industry is clearly vulnerable to shifting global supply and demand conditions. At least half of production is put up in h&g form. The h&g business is highly sensitive to small changes in price, and demand shifts are likely as global fisheries production varies by jurisdiction. A primary appeal of hake for h&g processors is that they can enter and exit with little notice or risk. This suggests an opportunistic activity, not one that is sure to endure.

The largest firms in the hake sector have vertically integrated in vessels, quotas, plants equipment, and market development. They have invested heavily, though they are by no means “heavyweights” in the global seafood business. Fillets and other value added products make up an increasing portion of their product mix. They are attracted by the solid fundamentals of the fishery, including the management plan, the relatively long fishing seasons (May-October or longer), and the growing white fish market segment. This approach, accounting for less than half of the current hake catch, is the one that offers enduring business security.

The hake sector is still in a maturation process – after all the industry is brand new by historical standards – and needs to address outstanding issues:

- Recognising that the h&g sector of the industry is fragile. It emerged from nowhere, and could return there if globalisation circumstances conspire against it. Complacency would be a mistake... full utilisation in the future is not a given.
- The ongoing role, if any, of the Joint Venture fishery. There are those that feel it is anachronistic, and others who believe it is a necessary safeguard for the industry until industry has further matured. Either way, the annual acrimony of the “shore vs. JV” debate is an unproductive disruption.

Pacific Fisheries in the Global Environment

At the outset of this paper three themes of fisheries globalisation, drawn from OECD publications, were identified. Subsequently, globalisation in the BC seafood industry in general, and for three subject fisheries specifically, was examined. To conclude this paper, the BC experience is considered in light of globalisation “theory”.

- 1) Fisheries globalisation brings tremendous economic opportunities and pressures to seafood businesses.

The BC experience fully supports this notion. As an exporter of seafood products, the BC seafood industry has always been subjected to global economic forces. In simpler days, a relatively few factors, such as exchange rates, Alaskan fishery volumes, interest rates, and general economic conditions, influenced results. Though entirely beyond the influence of seafood participants, these factors collectively comprised a tolerable level of risk.

The acceleration of fisheries globalisation, beginning with salmon aquaculture but including a lengthy list of factors, produced a far more complex and risky business environment prompting a fundamental re-structuring of the BC industry. The industry of old was largely dismantled. Capital intensive and speculative strategies were replaced by low risk, cash-flow-positive ones. The industry became by necessity nimbler and more responsive to markets. It also became more fractured, and less willing (and able) to summon capital.

In the various BC fisheries, impacts of fisheries globalisation are closely related to the applicable fisheries management framework. A fishery providing secure and reliable access to the resource, that supports business planning and market service, positions a fishery for success in confronting a complex and challenging environment. A fishery lacking these characteristics sets up a fisheries sector for failure.

In the pink salmon fishery, where fishery management is judged by participants to be a failure, fisheries globalisation has virtually grounded the business. Pink salmon, always a quiet contributor to salmon financial results, has become an economic non-entity. In the groundfish trawl fisheries – bottomfish and hake – an innovative fishery management plan has allowed industry to exploit the opportunities afforded by globalisation and to withstand the challenges. Though still vulnerable to shifts in the competitive landscape, the groundfish fisheries are only ten years into a unique management plan, and will continue to evolve.

- 2) Some jurisdictions retain legislation, regulation, policy, or domestic practices to encourage use of local resources to serve national socio-economic objectives.

British Columbia is also a prime example of this statement. In BC, the idea that Pacific fish stocks could be handled by a network of global service providers, with the functions of the value chain (harvesting, processing, marketing, distribution) carried out by the most efficient player, has received little support. The federal and provincial governments, and industry itself, view fish resources as an instrument of social, as well as economic, policy. In BC, the issues of “how fish are shared”, and “who benefits from the fish”, have received as much attention as the issue of “how to be viable in the fish business.” Although globalisation requires seafood businesses – especially businesses that are dwarfed by global competition – to be efficient and flexible, the debate over fish in BC is dominated by non-economic considerations.

BC's industry was for many years insulated from some of the realities of the world marketplace; either sheltered by regulation, or un-concerned because of internal concerns. BC's approach to resource management has clearly placed constraints on its seafood industry's ability to compete in the face of accelerated fisheries globalisation. The demise of the salmon/herring sector, and the emergence of a host of fisheries like groundfish (bottomfish and hake) is in part a product of this approach. Today's industry is in some respects successful, but also highly vulnerable.

This is not to say that BC's approach is right or wrong. “Social” fish policy has preserved a mostly “made in BC” seafood industry. The industry may not be a world leader in technology or product development, and it is certainly not the most prosperous in the world (a glimpse at the BC Exhibit in the European Seafood Exposition confirms this), but it is largely owned and controlled by BC interests.

3) Fisheries globalisation can result in unsustainable fishing pressure.

With DFO adopting a precautionary fishery management approach in the late 1990s, and with the advent of environmental legislation such as the Species at Risk Act, BC fisheries are relatively safe from the pressures to over-harvest that may accompany fisheries globalisation.

A lack of responsiveness to markets, in this respect, is a virtue. Virtually all of BC's commercially exploited fish resources are in reasonably healthy condition. However, it is clear from BC's groundfish fishery that designing fisheries that mutually meet conservation and economic objectives is possible, and that doing so better positions businesses to meet the challenges, and exploit the opportunities, of globalisation.

Outlook for Pacific Fisheries

The fundamentals of the BC seafood business – healthy resources, growing global demand for seafood, and a strategic location for servicing Pacific Rim markets – suggest boundless opportunities for the industry. The tendency of this exporting industry to focus inward, to allow resource access and allocation conflicts to fester, and to struggle over an acceptable balance between social and economic objectives, suggests an industry stifled from realizing its full potential. The recent track record of this industry composed of players that are diminutive on a global scale is, indeed, spotty; there are sectors performing well, such as groundfish and hake, and sectors performing poorly, such as pink salmon.

A common-denominator of now-prosperous fisheries sectors is that they have resolved internal differences, and established effective, cooperative relationships with regulators and members of the value chain. A sustainable, co-managed fishery provides a foundation from which to forge viable businesses. Participants that build on a solid fishery foundation by engaging in meaningful business development initiatives, such as product and market development and best-practices in fish-handling and processing, stand the best chance of flourishing in an ever-changing global competitive environment. Sectors failing to adopt a cohesive, cooperative, business-minded approach are destined to flounder.

Table of Contents

	Page
List of Acronyms	7
CHAIR’S SUMMARY REPORT	
Lori Ridgeway	11
PART 1. OPENING OF THE WORKSHOP AND KEYNOTE ADDRESSES	21
Chapter 1. Welcome Address by the Minister of Fisheries, Iceland	
Einar Gudfinnsson	23
Chapter 2. Welcome Address by the Minister of Fisheries and Marine Resources, Namibia	
Abraham Iyambo	29
Chapter 3. Keynote Opening Speech: Globalisation Overview	
Alastair Macfarlane	35
PART 2. RETAILING AND DISTRIBUTION OF FISH: TRENDS AND ISSUES	69
Chapter 4. Global Seafood Sourcing: A Restaurant Perspective	
Roger Bing	71
Chapter 5. Buying Power as an Instrument of Change	
Peter Redmond	77
Chapter 6. Meeting Customer Needs for Seafood	
Peter Hajipieris	81
PART 3. PROCESSING FISH: WHERE, WHY AND HOW	85
Chapter 7. Seafood Processing – Local Sources, Global Markets	
Alda Möller	87
Chapter 8. From Local Production to Global Trade: The Danish Seafood Industry in Transition	
Poul Melgaard Jensen	117
Chapter 9. Fish Safety and Quality Challenges by Developing Countries: The East African Nile Perch Case	
Nancy Gitonga	123

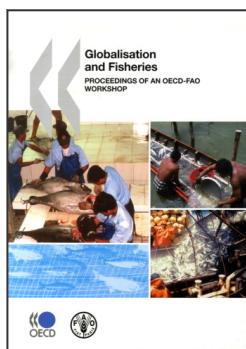
PART 4. IDENTIFYING THE PARAMETERS WITH WHICH WE ARE WORKING IN THE HARVESTING SECTORS	143
Chapter 10. Are Present International High Seas Governance Structures Sufficient to Reap the Benefits of Globalisation?	
Michael Lodge	145
Chapter 11. Fisheries Agreements and their impact on the Globalisation of the Fisheries Sector in Mauritania	
Chérif Ould Toueilib	159
PART 5. IDENTIFYING THE PARAMETERS WITH WHICH WE ARE WORKING IN THE AQUACULTURE SECTOR	193
Chapter 12. Impact of Globalisation – Challenges and Opportunities for Indian Aquaculture	
G. Mohan Kumar	195
Chapter 13. Aquaculture in a Global Age – The European Perspective	
Richard Bates	215
Chapter 14. Organic Aquaculture – Opportunities for Emerging Markets of the Environmental Challenge for Exporting to Europe	
Markus Stern	219
Chapter 15. Meeting the Demands and Challenges of Globalisation of Trade in Aquaculture: The Role of a Regional Inter-Governmental Body	
Sena De Silva	229
PART 6. LINKAGES ALONG THE VALUE CHAIN	241
Chapter 16. An Investor’s Perspective	
Kristjan Davidsson	243
Chapter 17. Microfinance, Small Scale Fisheries and International Fisheries Trade in Selected APRACA Member Countries	
Thiraphong Tangthirasunan	247
Chapter 18. Globalised Out? – A Case for Fish Trade in Developing Countries	
Stephen Mwikya	269
Chapter 19. Perspectives from Canada’s Pacific Coast	
Christina Burridge	293
ANNEX A. BIOGRAPHIES OF EXPERTS AND AUTHORS	329
ANNEX B. LIST OF PARTICIPANTS	335

List of Acronyms

Acronym	Definition
ACIAR	Australian Centre for International Agricultural Research
ACP	African, Caribbean and Pacific States
ADB	Asian Development Bank
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of South East Asian Nations
BAAC	Bank for Agriculture and Agricultural Cooperatives, Indonesia
BCM	Central Bank of Mauritania
BKK	Badan Kredit Kecamatan
BMP	Better Management Practices
BRI	Bank Rakyat Indonesia
BRI-UD	Unit Desa (BRI-UD) or Village Bank
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CECAF	Fishery Committee for the Eastern Central Atlantic
CCRD	Credit Committee for Rural Development
CFP	Common Fisheries Policy
CIB	Consolidated Investment Budget
CNROP	National Centre for Ocean Research and Fisheries
CTH	Change in Tariff Heading
DC	Developing country
DFID	United Kingdom – Department for International Development
DSPCM	Delegation for Fisheries Surveillance and Inspections at Sea
DWF	Distant Waters Fishing Fleet
DWFN	Distant Waters Fishing Nations
EBA	Everything but Arms Initiative
EC	European Community
ECOWAS	Economic Community of West African States
EDF	European Development Fund
EEC	European Economic Community
EEZ	Exclusive Economic Zone
ENEMP	National Maritime Training College
EPA	Economic Partnership Agreement
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GATT	General Agreement on Tariffs and Trade
GCFM	General Fisheries Council for the Mediterranean
GDP	Gross domestic product
GRT	Gross registered tonnage
GSP	Generalised system of preferences
GT	Gross tonnage
HACCP	Hazard analysis critical control point
HIPC	Heavily indebted poor countries

IATTC	Inter American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tuna
ICNAF	International Commission for the Northwest Atlantic Fisheries
IDRC	International Development Research Centre, Canada
IMF	International Monetary Fund
IMROP	Mauritanian Institute for Ocean Research and Fisheries
IPOA	FAO International Plans of Action
IRM	Islamic Republic of Mauritania
ITQ	Individual transferable quota
IWC	International Whaling Commission
LDC	Least developed country
MAED	Ministry of Economic Affairs and Fisheries
MDG	Millennium Development Goals
MEEZ	Mauritanian Exclusive Economic Zone
MFN	Most favoured nation
MFP	Mauritanian Fisheries Policies
MPEDA	Marine Products Export Development Authority, India
MPEM	Ministry of Fisheries and the Maritime Economy
MSMEs	Micro, Small and Medium Enterprises
MSY	Maximum sustainable yield
NABARD	National Bank for Agriculture and Rural Development
NACA	Network for Aquaculture Centres in Asia Pacific
NACSA	National Centre for Sustainable Aquaculture
NASCO	North Atlantic Salmon Conservation Organisation
NBC	National Bank of Cambodia
NFF	National Federation of Fisheries
NGO	Non-governmental organisation
NSO	National Statistics Office
OECD	Organisation for Economic Co-operation and Development
PNBA	Banc d'Arguin National Park
PND	Diawling National Park
PRSP	Poverty Reduction Strategy Paper
QUEDANCOR	Quedan and Rural Credit Corporation
RDB	Rural Development Bank
RD&E	Research, Development, and Extension
RFMO	Regional Fisheries Management Organisation
RoO	Rules of Origin
SCM	Subsidies and Countervailing Measures Agreement of the WTO
SEAFO	South-East Atlantic Fisheries Organisation
SHG	Self-Help Groups (Self Help Group-Bank Linkage Program)
SIFFS	South Indian Federation of Fishermen Societies
SIOFA	South Indian Ocean Fisheries Organisation
SIPPO	Swiss Import Promotion Programme
SMCP	Mauritanian Fishery Product Marketing Company
SPS	WTO Agreement on Sanitary and Phytosanitary Measures
TAC	Total allowable catch
TBT	WTO Agreement on Technical Barriers to Trade
UICN	World Conservation Union
UNCLOS	United Nations Convention on the Law of the Sea
UNFSA	United Nations Fish Stocks Agreement

VA	Value-added
VASEP	National Fish & Seafood Association
WB	World Bank
WCPFC	Western and Central Pacific Ocean Fisheries Commission
WTO	World Trade Organization



From:
Globalisation and Fisheries
Proceedings of an OECD-FAO Workshop

Access the complete publication at:
<https://doi.org/10.1787/9789264037779-en>

Please cite this chapter as:

OECD/Food and Agriculture Organization of the United Nations (2008), "Linkages Along the Value Chain", in *Globalisation and Fisheries: Proceedings of an OECD-FAO Workshop*, OECD Publishing, Paris.

DOI: <https://doi.org/10.1787/9789264037779-8-en>

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