Present and future markets for fish and fish products from small scale fisheries in Latin America

with a special attention to the cases of *Mexico, Peru and Brazil*

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I N D E X

Introduction

The first difficulty generally encountered when treating about "small-scale fisheries" is to define an appropriate meaning for this concept, which is based on a subjective word (what is "small"?).

In its meeting in Bangkok, in November 2003, the FAO Working Group on Small-Scale Fisheries has come across the same difficulty and, after abstaining from giving a precise definition, it has tried to provide a worldwide valid characterisation of the activity as follows:

"*Small-scale fisheries can be broadly characterized as a dynamic and evolving sector employing labour intensive harvesting, processing and distribution technologies to exploit marine and inland water fishery resources. The activities of this sub-sector, conducted full-time or part-time, or just seasonally, are often targeted on supplying fish and fishery products to local and domestic markets, and for subsistence consumption. Export oriented production, however, has increased in many small-scale fisheries during the last one or two decades because of greater market integration and globalisation. While typically men are engaged in fishing and women in fish processing and marketing, women are also known to engage in near shore harvesting activities and men are known to engage in fish marketing and distribution. Other ancillary activities such as net-marketing, boat building, engine repair and maintenance etc. can provide some fishery-related employment and income opportunities in marine and inland fishing communities. Small-scale fisheries operate at widely differing organizational levels ranging from self-employed single operators through informal micro-enterprises to formal sector businesses. This sub-sector, therefore, is not homogeneous within and across countries and regions and attention to this fact is warranted when formulating strategies and policies for enhancing its contribution to food security and poverty alleviation*."

In most languages of Latin origin (Spanish, Portuguese, French…), however, it is not so much the concept of "small" (i.e.: being below the average, in size or in magnitude) which is used, but the concept of "artisan" (i.e: a skilled worker who practices some trade or handicraft). In Latin America, the concept of "*pesca artesanal*" ("artisanal" fishery) is the one commonly used, as opposed to "industrial" fishery.

But this concept has also very different definitions according to the country:

- Currently, in Brazil, it is not the size of his gears, but the working relationship which defines an artisan fisherman: the artisan fisherman works autonomously, with his own gears, alone, with a relative or with associated persons, but without any employment relationship.
- In Mexico, the "small scale" or the "artisan" concepts are not commonly used, but there is a distinction of production areas: inland, coastal (until 3NM from the coastline) or high sea fisheries as well as a distinction of boat sizes (boats under 10 BRT are called "small boats" while those over 10 BRT are categorized according to the species targeted: tuna, sardine/anchovy, shrimp, white fish or multiple purpose).
- In Peru, artisanal fisheries are those practiced by boats having a fish hold capacity of less than 32,6 m^3 (about 30 MT) or less than 15 meters length, and destining the catches to direct human consumption, i.e.: all fisheries that are not classified as "large-scale" (practiced with boats having a fish hold capacity exceeding 30 MT) and do not sell their catches to fish meal plants, are considered "artisanal". There are also differentiated landing sites for artisanal boats and industrial ships, even in the same harbour.

All other Latin American countries have their own definitions, be them regarding sizes of gears, restricted working areas or employment relationship. In some countries, the differentiation is more important then in others and, according to the importance given to this differentiation, national fisheries statistics consider or not artisanal fisheries specificity.

The different ways of perceiving artisanal fisheries, be them labour relationship, limited working areas or limited sizes of gears can be seen as positive characteristics at the light of the current general worldwide worries. For instance their limited working areas highlight the important role of artisan fishermen and their communities in coastal management. The limited size of their gears is a positive support to the sustainability of resources. The free association of skilled workers of a community, without employment relationship, can also be seen as a very modern way of working and of creating wealth.

The semantic differentiation between “small-scale” and “artisanal” may also have some implication in the perception it gives to the public in general (or to the consumers). In some countries, for food products (as well as for any other), including fish, the seal “artisanal product” is normally perceived as a seal of quality and gives a plus to the product. It is not sure that a seal “small-scale product” would have the same effect.

1 – Artisanal Fisheries and Aquaculture in Latin America

In Latin American countries, with very few exceptions (as for instance the Brazilian whale hunting in the 18th century), all fisheries could be considered as being artisanal until the middle of the 20th century. As for semantics, we can therefore say that “artisanal” fishery is largely also a “traditional” fishery.

By the nature itself of the activity, for joining efforts or for common security, fishermen in quite all countries, always lived in communities. Fishermen villages along the coast or along rivers or fishermen districts in big coastal towns and cities, are normally established around small wharfs or landing facilities. Since the first half of the 20th century, most of these communities are organized in associations or cooperatives. The organization of fishermen communities in the first half of the 20th century was supported by the national Navies, as a mean of supervising national coasts through “the eyes and ears” of the fishermen. It was in this sense that the Brazilian Navy, for instance, organized a 4 years (1919 – 1923) mission of a cruiser to structure “fishermen colonies”, with basic medical care and schools and a strong sense of patriotism. Most of these colonies exist until today.

The modern Latin American industrial fishery sector was developed during the 1960’s and the 1970’s, targeting mainly the export markets. The development of industrial fishery focused shrimps, lobsters, tuna, hake and other commodities demanded by the growing international markets. Other industrial producers, however, focused more on the domestic markets, in particular the suppliers of canneries and of some processors of frozen seafood.

Artisanal fisheries have also improved during this period, regarding the modernization of boats and gears, with the utilization of bigger boats, with a growing use of steel or fibreglass in substitution to wood and the progressive substitution of oars and sails by inboard and outboard motors. However, they remained largely focused on the domestic markets, which were also growing everywhere, following the rapid population growth in most Latin American countries. The population growth was combined with its growing urbanization. Quite 80% of the Latin American population is currently urban, often concentrated in big cities.

In parallel to the development of fisheries, the overall development of the countries has constructed road nets along most of the coasts, facilitating the transport of catches to the markets and also encouraging tourism, which began to occupy large portions of the coastlines, be them beach residences of local urban middle and upper classes or hotels for national and foreign tourists. The impact of this evolution on traditional fishermen communities was multiple. On one hand, it turned easier the sale of their fish production through transport facilities or by bringing consumers close to the communities, at least during vacation times, but on an other hand it attracted many fishermen to other activities, like civil construction or tourist sailing promenades. Many fishermen communities, mainly small ones, did not resist and vanished. Other, better organized, quickly adapted to the new times and modernized their fishing activities.

The cases of Mexico, Peru and Brazil illustrate the general trend of the Latin American continent. One must not forget that these three countries concentrate more than half of the Latin American population and also more than half of the Latin American fish production, even if most of this production is of Peruvian *anchoveta* processed into fish meal (table 1).

Table 1 - Apparent seafood consumption – average 1999 -2001

Country	Production (MT)	Non food use (MT)	import-export balance (MT)	Population (1.000)	Per capita production (Kg)	Per capita consumption (Kg)
Mexico	1.366.071	238.725	- 92.070	98.928	13,8	10,4
Peru	9.032.601	8.302.807	-212.085	25.950	348,1	20,1
Brazil	922.658	60.635	229.241	171.795	5,4	6,5
Total Latin America & Caribbean	19.197.660	12.617.204	-2.147.991	520.214	36,9	8,7
3 countries/continent	59%	68.2%		57%		

Source: FAO, 2002, Fisheries statistics - Commodities

1.1 – The case of Mexico

There are around 1.650 fishermen cooperatives in Mexico, known as “Cooperative Societies of Fishery Production” (*Sociedad Cooperativa de Producción Pesquera*). These cooperatives were strongly encouraged by the Federal Government in the 1940’s and, during many years, they had the monopoly of the catch and marketing of 8 important species among which shrimps, lobsters and oysters.

Map 1 - Tamiahua, in Mexico

The case of Tamiahua fishermen cooperative is illustrative of how an artisanal fishermen can organize their community.

The town of Tamiahua is located at the southern mouth of the Tamiahua lagoon which has an extention of 88.000 hectares (around 100 Km long and 25 Km large). This lagoon has a double use: tourism and fisheries. Catches in the lagoon are allowed through concessions given to local fishermen organizations, having in mind the protection of habitats and the conservation of the resources. These fishermen organizations have agreed to

use only selective fishing gears which can secure the sustainability of the fishing activity and restrain the ecological impact of human activities. Main species caught in the lagoon are oysters, shrimps, and some white fishes.

Picture 1: Landing site of the Cooperative

The town of Tamiahua has 5.153 inhabitants (which represent 19.2% of the population of the whole municipality). It appears in the Mexican national statistics as having a high level of marginality, measured by its 0.58648 rate of marginality. There are 2.562 registered fishermen, 343 of which form the Cooperative "Fishermen of Tamiahua". This cooperative is legally established as a S.C. de R.L. de C.V., which means Cooperative Society, with Limited Responsibility and Variable Capital. It is a Social Organization, one of the biggest of the State of Vera Cruz. It was established in 1972 with 343 members and this number remains the same today, 33 years later, with however 20 aspirants to become members of the cooperative.

The cooperative counts with 20 years renewable concessions for the extraction or catch and the processing of oysters and shrimps, as well as authorizations for the catches of blue crabs and fin fishes (seabreams, snooks, mullets, sea trouts…) inside as well as outside the lagoon.

1.1.1 – production techniques in Tamiahua

Picture 2: typical fishing boats

a) <u>extraction of oysters</u>: This work is done with fibreglass boats with length of 18 to 23 feet and outboard motors of 15 to 40 HP. The extraction is made with grapples made with two rakes with 26 nails united in the middle and operating like pincers (picture 3). On banks with high oyster density, it is possible to extract around 200 oysters in one operation. Then the crew select those under 8 cm length which are returned to the oyster bank. The oysters with a proper size are then packed in bags of 35 to 40 Kg. These bags may contain up to 500 oysters each.

b) <u>shrimps catches</u>: This work is done by night from 7:30 p.m. to 5:.30 a.m. with only one person by boat operating a scoop net in a wooden corral (*charranga* –see picture 5).

c) <u>blue crab catches</u>: Normally two persons in the boat use crab pots for this activity. Pots are put in water with fish parts or chickens legs as baits for around 30 minutes.

d) <u>fin fish catches</u>: This fishing activity is done with gillnets having around 300 meters length and 3 meters height (mesh sizes between 76 and 102 mm, mono or multifilament of 0.2 to 0.55 mm) embarked on the same boats as described above. Nets are positioned in water for 8 to12 hours. The boat has a crew of 2 or 3 persons and meanwhile the net is in water, the crew often make noise on the surface in order to drive fishes directly into the net. Main species caught are sea breams, snooks, mullets,

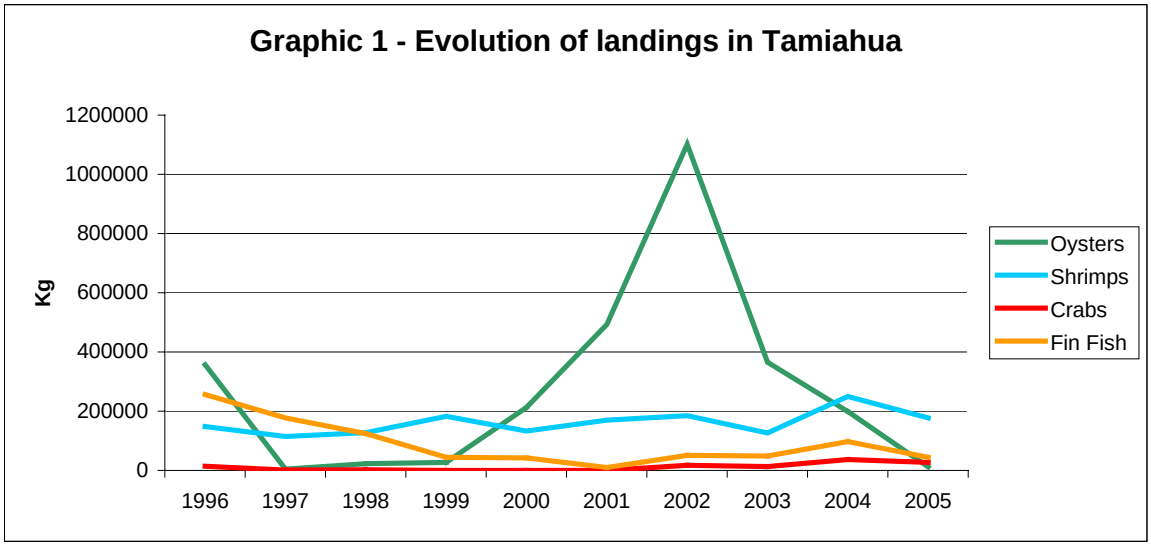
sea trouts, among others. The catches are kept on board in fish boxes with a capacity of 40 to 50 Kg, without ice. The boats come back in the evening to discharge the catches at the landing sites where fishes are kept in basins covered with a wooden panel.
Fishermen bring their production to the cooperative facilities in order to be sold locally, or to be sent to other towns of the region and to Mexico City. In this case, the production is placed in fibreglass insulated recipients and kept with ice. This ice is bought at the town ice plant at a cost of 90 to 100 Mexican pesos (US$ 8.40 to 9.50) per ice bar. The monthly average cost of ice for the cooperative is up to US$ 2.000, or an average cost of US$ 20.000 per year for the conservation of the production.

The catches of Tamiahua have evolved differently according to the species during the last 10 years, including 3 years when crab catches were banned (table 2). As a matter of fact, it is clear that, during this period, the exploitation of shrimps resources has shown a good sustainability, meanwhile oysters banks were highly exploited from 2000 to 2004 and particularly in 2002 (graphic 1). These high levels of extraction during 5 years have followed a period of 3 years (1997 – 1999) of low extraction which, on its turn, has followed the high production of 1996. This allows us to suppose that the exploitation of oysters in the lagoon is still not well managed, giving place to successive cycles of high and low productions.

Table 2 – Evolution of landings in Tamiahua (in Kg)

SPECIES	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Oysters	357,280	4,480	22,995	27,475	212,940	493,430	1,102,115	365,645	199,289	12,075
Shrimps	148,600	114,248	127,928	182,182	132,820	170,079	185,179	126,062	250,160	177,075
Crabs	13,649	908	1,973	0	0	0	17,344	12,588	36,462	26,810
Fin Fish	255,973	176,790	124,536	44,813	41,704	9,397	50,448	49,077	97,610	44,747

Source: Cooperative of Tamiahua fishermen; 2005 from January to September



Source: Cooperative of Tamiahua fishermen; 2005 from January to September

The cooperative regroups the productions of its members and sells them, after having selected them and lightly processed some species (table 3).

The preparation of the final product including the packaging and eventually the peeling of shrimp is done by women of the community. Actually, women do much more than simply processing fish: they are perceived by the entire community as the real

managers of the earnings made by their fishermen husbands furthermore to keeping home and family.

Table 3 – presentation of the different products sold by the cooperative

Product	Description/ Presentation	Packaging	Perceived quality
Fresh fish, whole	Diversity of species, washed and stored in plastic boxes with crushed ice	No packaging	Fresh, good flavour, nutritious, affordable prices
Blue crab, whole, crude	Whole, fresh	No packaging	Fresh, good flavour, nutritious, affordable prices
Crab meat	cooked	Nylon bags with 1 Kg.	good flavour, affordable prices
Shrimp	Blue and "coffee" shrimp, stored in plastic boxes with crushed ice	No packaging	Fresh, good flavour, nutritious, affordable prices
Oysters	Shell-on	In 45 Kg bags	Fresh, good flavour, nutritious, affordable prices.
Oysters	Shell-off	bags	iced, good flavour, affordable prices

Source: Cooperative of Tamiahua fishermen

Currently (November 2005), markets are variable according to the product. Oysters are sold in Mexico City and Guadalajara and shrimps mainly in Mexico City and Tampico. Crabs and fin fish are sold locally.

The Cooperative uses to sell most of its products to local wholesalers because it still lacks the means to sell it all by itself to retailers and consumers outside the town. The local wholesalers have better possibilities than the Cooperative to store and transport big quantities of products to the markets. Actually, the Cooperative has one truck to transport, but it is far not sufficient to transport the whole production. Similarly, the cooperative does not have enough space to display products for local retail. It works therefore with the 20 independent local fish stores of Tamiahua which take charge of selling the products locally. There is no supermarket in town and the closest one is in Tuxpan, 40 Km from Tamiahua. This supermarket, belonging to the CHEDRAHUI chain, normally buys weekly, directly to the cooperative 100 Kg of big shrimps, 50 Kg of small shrimps and 100 Kg of fin fish.

Retail prices for fin fish and crabs in Tamiahua are normally equal or sometimes higher than the prices at the Nueva Viga wholesale market in Mexico City. Higher prices (up to

35%) for shrimp and oysters in Mexico City makes it logical to sell these species there, albeit the need of a 500 Km transport.

Compared to the prices at the wholesale level, fishermen in Tamiahua are fairly paid for their production (table 4). This is definitely a result of joining efforts in a cooperative.

Table 4 - Evolution of prices (Mexican Pesos) in Tamiahua (October 2005)

SPECIES	Price paid by Cooperative to Fishermen (a)	Price paid by local wholesaler or retailer to Cooperative (b)	Δ a/b	Price paid by local consumer to retailer (c)	Δ b/c
Lisa	16.00	19.00	18.7%	21.00	10.5%
Sargo	35.00	37.00	5.7%	40.00	8.1%
Lebrancha	7.00	10.00	42.9%	11.00	10%
Robalo	70.00	75.00	7.1%	85.00	13.3%
Chucumite	30.00	33.00	10%	35.00	6.1%
Trucha pinta	30.00	33.00	10%	34.00	3%
Mojarra	30.00	33.00	10%	35.00	6.1%
Trucha blanca	15.00	20.00	33.3%	25.00	25%
Tilapia	10.00	15.00	50%	19.00	26.7%
Ostión*	90.00	100.00	11.1%	125.00	25%
Camarón grande	85.00	95.00	11.8%	120.00	26.3%
Camarón chico	55.00	65.00	18.2%	85.00	30.8%
Jaiba cruda	20.00	22.00	10%	25.00	13.6%
Palota	32.00	36.00	12.5%	38.00	5.6%
Cazón	15.00	20.00	33.3%	26.00	30%
Bacalao	24.00	26.00	8.3%	30.00	15.4%
Bandera	10.00	11.00	10%	13.00	18.2%
Cubera	27.00	27.50	1.9%	30.00	9.1%
Chabela	27.00	28.00	3.7%	30.00	7.1%
Chopa	10.00	12.00	20%	14.00	16.7%
Churro	3.00	4.50	50%	6.00	33.3%
Guachinango	55.00	63.00	14.5%	75.00	19%
Gurrubata	8.00	11.00	37.5%	14.00	27.3%
Jurel	12.00	15.00	25%	19.00	26.7%
Pargo	25.00	30.00	20%	38.00	26.7%
Pámpano	30.00	35.00	16.7%	40.00	14.3%
Raya	8.00	11.00	37.5%	15.00	36.4%
Rastrero	6.00	8.00	33.3%	10.00	25%
Ronco	5.00	7.00	40%	10.00	42.9%
Sierra	11.00	13.00	18.2%	15.00	15.4%
Tonton	8.00	11.00	37.5%	14.00	27.3%

Source: Cooperative of Tamiahua fishermen
Obs: 1 US$ = 10,66 Pesos Mexicanos in October 2005

Further to the fair prices to fishermen, we can conclude that the cooperative also makes a fair benefit from the sales. If we apply the above prices and gross margins by species to the quantities reported in table 4 for the 9 first months of 2005, we can estimate the following benefits for the cooperative:

- shrimps: 177,075 Kg X 10 MP = 1,770,750 MP = US$ 166,111
- finfish: 44,747 Kg X estimated average 5MP = 223,735 MP = US$ 20,988
- crabs: 26,810 Kg X 2 MP = 53,620 MP = US$ 5,030
- oysters: 12,075 MP X 10 MP = 120,750 MP = US$ 11,327

This makes a total gross benefit of a little more than US$ 200,000 in 9 months activity, which might be projected to US$ 270,000 for the year. If we consider the yearly US$ 20,000 cost of ice, the depreciation of the truck and its cost of fuel, the depreciation of

constructions and equipments (fish boxes, balances..) and possibly other small costs, there is still a clear net benefice for the cooperative and its 343 members.

During its 33 years of life, the Cooperative has managed to survive, to benefit directly its members and indirectly the whole community of Tamiahua. This is of course due to the traditional support given by the Mexican government to social organizations, and it is also due to the seriousness of the cooperative management during all those years. The monitoring of the present situation, the identification of problems and opportunities and the development of strategic plans (table 5) make the cooperative look like any professionally managed medium sized enterprise in the fishery sector.

The main difference with private companies, however, is the fact that the cooperative is owned by its members who effectively work and produce a common wealth from a common resource.

Table 5 – Main strategies and goals of the Cooperative of Tamiahua

Strategy	Impact	Actions
	Catches	
Modernizing equipments	Improved quality	▪ Develop research activities more related to inland waters, through consulting firms and research centres. ▪ Obtaining financing options for fishermen ▪ Install support activities according to the needs of changes. ▪ Inform the subsequent elements of the distribution chain about the benefits of the changes.
	Processing	
Develop processing activities	Add value to the products	▪ Search for financing options for the Cooperative
	Marketing	
Better positioning of the product on the regional market	Increase the demand for the product, increase the selling prices, improve the image of the products	▪ Implement market surveys through consulting firms ▪ Implement a publicity campaign in order to inform better the consumers ▪ Establish different levels of association with members of the distribution chain
	Transport	
Having more adequate transport unities	Reduce losses, More opportunities of delivery, better quality of the product	▪ Identification of better conservation and transport equipment ▪ Identification of financing possibilities for their acquisition.

Source: Fishermen Cooperative of Tamiahua – Strategic Plan; November 2005

The cooperative of Tamiahua can be considered as a well succeeded artisanal fishermen initiative in Latin America. It can also be shown as an example to many others, even if there is visibly still much that can be improved in its activity.

Picture 3: oyster grapples and shrimp scoop net

Picture 4: gear for blue crab catching

Picture 5: "charranga" for shrimp catch

Picture 6: fin fish catching operation

Picture 7: women peeling shrimp at the cooperative

Picture 8: typical Tamiahua's fish store supplied by the cooperative

1.2 – The case of Peru

In Peru, artisanal fisheries count 62.341 persons working in the activities (table 6), 80% of which directly involved in catches. Artisanal fishermen are organized in some 300 fishermen associations .109 marine and 13 inland landing places (caletas) are specially reserved to artisanal fishermen (MIPE, 2000). The artisanal fleet, estimated 6.258 boats, operates until 60 to 80 NM from the coastline. In 1999, its landings were up to 237.881 MT mainly fish destined to the domestic market direct human consumption.

Table 6 – Artisanal categories in Peru

Category	Number of persons
embarked marine fishermen	30.057
Coast collectors and divers	7.218
Fresh water fishermen	16.886
Artisanal processors	7.693
Artisanal fish farmers	487
total	***62.341***

Source: MIPE, 2000 – Agenda Pendiente pesca Artesanal

The artisanal fishermen are well distributed along the coast, even if one can notice a declining density from North to South (see map 2 and table 7). Each fishing boat is crewed by 4,5 fishermen in average.

Table 7 – distribution of artisanal fishermen along the Peruvian coastline

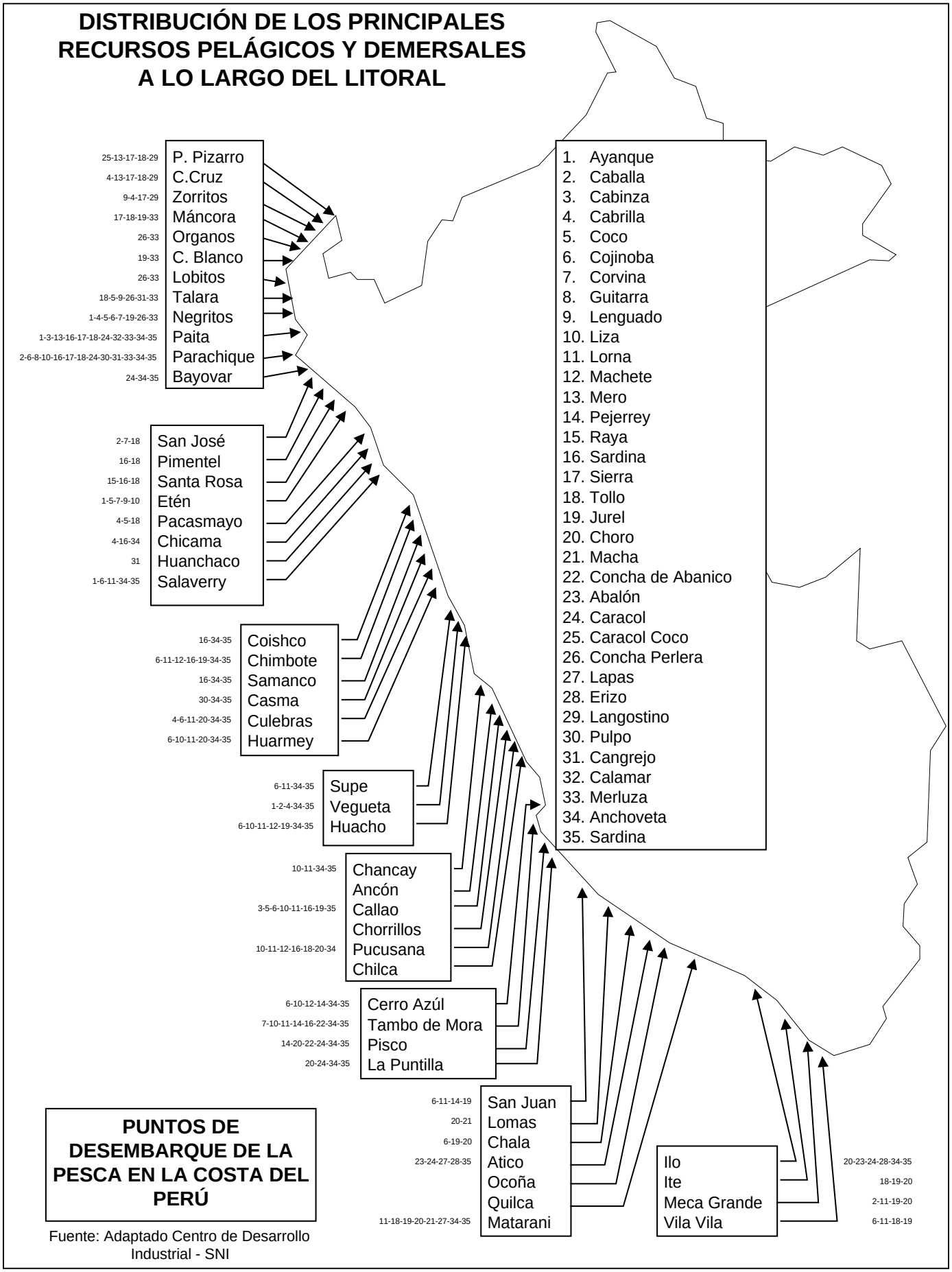
Marine Fishing zone (from North to South)	Number of artisanal fishermen	Number of artisanal fishing boats
Tumbes (Pto Pizarro – Cancas)	2.125	468
Piura (Máncora – Negritos)	3.576	911
Piura (Colán – Chulliyachi)	3.631	834
Piura (Parachique – Puerto Rico)	1.896	455
Lambayeque (San José - Chérrepe)	2.938	285
La Libertad (Pacasmayo – Puerto Morin)	1.080	172
Ancash y Norte Lima (Santa – Supe)	3.299	784
Lima (Calta Vidal – Callao)	2.146	741
Lima Centro y Sur (Chucuito – Cerro Azul)	1.440	474
Ica (Tambo de Mora – San Juan)	2.372	626
Arequipa	2.318	260
Ilo - Tacna	1.177	248
total	**28.098**	**6258**

Source: MIPE , 2000

Artisanal fishermen in Peru are encouraged by the National Direction of Artisanal Fisheries (from the Vice-Ministry of Fisheries), to join into associations, unions or companies, generally called social organizations. There are currently 108 of them working in Peru.

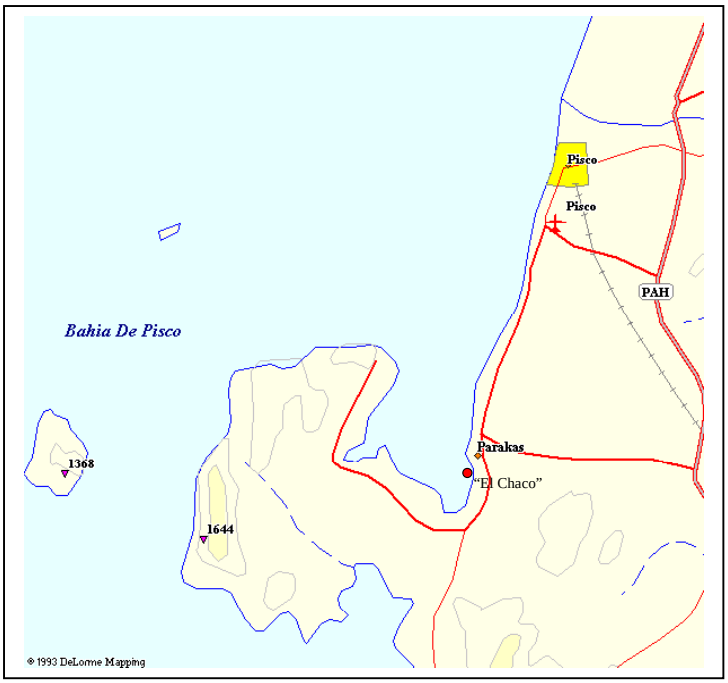
The fishermen community of El Chaco, located in the district of Paracas, 18 Km south of the city of Pisco and 260 Km south of Lima, illustrates well the variety of Peruvian artisanal fisheries . In this desert area crossed by the Southern Pan American highway, the first settlers appeared in the 1960's, and developed fishing activities as a mean of subsistence. The population of El Chaco did not grow very much and it is even declining slowly since 1980. National statistics report a population of 727 persons in 1961, 1.378 persons in 1981 and 1.196 in 2000.

Map 2 – Main landing sites of the Peruvian artisanal fishing fleet



Fuente: Adaptado Centro de Desarrollo Industrial - SNI

Map 3: Location of the fishermen community El Chaco



In fact, the fishermen community of El Chaco is close neighbour to the town of Paracas, in an important tourism zone based on the National Park of Paracas, which was created in 1975 as a reserve for biodiversity and ecosystem as well as for archaeology (pre-Incan relics). It is the only marine protected zone in Peru, and a field of research for many national and international NGOs like Pronaturaleza, ACOREMA, The Nature Conservancy or WWF. These NGOs have also implemented training for the fishermen as for resource management. This coast receives the Humboldt current which develops a rich primary marine life.

Picture 9: the artisanal fishing port of El Chaco

It also hosts one of the biggest Peruvian natural scallops banks, known as “La Pampa”.

According to the Viceministry of Fisheries, the community of El Chaco counts 190 fishermen, 165 of which embarked on 46 boats (table 8). The other 25 fishermen would in fact be stevedores (picture 10) working on the wharf.

Picture 10: the artisanal fishing port of El Chaco (2)

The embarked fishermen operate with traditional gears as gillnets, purse seine nets and longlines. Many of them are also divers who operate on the scallops banks.

The artisanal fishing boats are small as regard to the Peruvian legislation defining the size of boats (see table 8).

Table 8 – the fishing fleet of El Chaco

Fish hold capacity		Type of motor	
0.5 to 2 MT	24	Out board	32
2 to 5 MT	22	In board	14
total	46	total	46

Source: Viceministerio de Pesquerías

These boats operate basically gillnets, purse seine nets and longline, mainly for the catch of pelagic species, small and big . They also transport divers to the scallops banks.

Scallops (together with some abalone, mussels and top shell) are harvested from their natural banks by divers, most of them working in apnea. These banks are highly benefited by the *El Niño* phenomena which favours the boom of scallops production. When the phenomenon does no appear, natural banks grow deeper, outside the reach of divers. This encourages them to develop aquaculture. Based on natural seed extraction, this aquaculture activity suspend the scallops on lines hanging from floating frames. For being natural and harmless to environment, this activity is allowed even inside the natural park.

The third activity of the community is the harvesting of algae, mainly edible Rhodophytes.

Main catches of the fishermen community are the pelagic fishes, primarily anchovy and silverside (table 9).

Table 9 - Landings at El Chaco: January- August 2005

Especie	Tm
Scallops	655.6
Top shell	132.5
Abalone and mussels	18.4
Algae	531.8
Anchovy	5,215.8
Silverside	142.7
Mackerel	64.0
Horse mackerel	46.2
Limpet	1.1
Octopus	25.0
Mahi-mahi	20.0
Total	6,853.2

Source: Statistics from the Viceministry of Fisheries

The pelagic species (mostly anchovies) are sold to processing plants from the Pisco region where they are salted and marinated. The boat owner has two possibilities for this sale: he can sell his anchovy catches to the plant, and other species to general wholesalers or, more seldom, he can lease the boat and its crew to the plant for a trip. In this case the plant assumes all operating costs, rewards the crew and keeps the whole production.

The other species are bought by wholesalers on the wharf and transported to Pisco and to Lima where they are sold to other wholesalers or directly to retailers. Prices can climb hard during this meantime (table 10). Some supermarket chains, equipped with refrigerated trucks sometimes come from Lima and buy directly on the wharf. However, differently from traditional wholesalers, they normally do not pay cash.

Table 10: evolution of prices of selected species landed in El Chaco

Species	**Prices in Nuevos Soles/Kg[1]**						
	Wharf (a)	**Ventamilla wholesale market in Lima (b)**	**Δ b/a average**	**Local markets (c)**	**Δ c/a average**	**Supermarkets (d)**	**Δ d/a average**
Silverside	0.50	1.70-2.20	290%	3.0-3.50	550%	4.00	700%
Drum	0.50-0.60	1.50-2.00	218%	2.50-3.0	400%	3.50	536%
Snapper	0.50-0.60	1.50-2.00	218%	2.50-3.00		3.50	
Horse mackerel	2.00-2.20	3.50-4.00	79%	4.50	114%	5.00	138%
Blenny fish	2.50-3.00	5.00	82%	6.00-6.50	127%	7.00-7.50	164%
Crab[2]	4.00-5.00	8.00	78%	10.00	122%	12.00	167%
Scallops[3]	10.00	18.00	80%	22.00	120%	35.00	250%
Mussels	3.00-5.00	8.00	100%	10.00	150%	12.00-15.00	237%
Top shell	3.50-5.00	8.00-9.00	100%	10.00-11.00	147%	12.00-15.00	218%

Source: direct observation – Maria Ayala, November 2005
1 – 1US$ = 3,40 NS
2 – per dozen
3 – per "manojo" (= 8 dozens)

The very high margins obtained by wholesalers and supermarkets over the prices paid to this non-organized fishermen community of Peru can be compared to those observed in Mexico in the case of an organized cooperative of fishermen (table 4). In the Peruvian case, we can assume that the fishermen could get much higher prices if they were organized in a cooperative, using ice and, if not owning its transport means, at least able to attract more wholesalers and increase prices through competition for buying.

Prices of scallops are very low (US$ 0,30 per dozen at the wharf or US$ 0,66 per dozen at retail). Peruvian sanitary regulations for bivalves require the sale to be of live animals, but this regulation is not followed by the sellers and it is ignored by the consumers.

The cheapest fish species are kept in the community for self-consumption.

Women are very involved in local retailing. As they do not have any other way of conserving the fishes, they usually gut them and unshell the shellfish in order to offer it locally, including in Paracas. They also often offer prepared dishes, like the traditional "ceviche" or the "chupe" (a local soup). The sales by the women constitute an important income to the fishermen families.

Women are also employed as workers in the processing plants existing in the region. They work normally consists in gutting, heading and cleaning fish, mainly the anchovies destined to be marinated.

During the tourism season, in summertime, not only women but also children prepare hand-made articles out of the shells or out of sea lions teeth. Fishermen homes are also offered for lodging.

The community of El Chaco is constituted by fishermen families but still lacks a formal association or cooperative. In fact, they are simply individual fishermen living in the same area. Only the divers are somewhat organized, having joined the Shellfish Harvesters Association from Pisco which counts 65 members from both communities. They live in a marine protected area, in which they have received some training regarding environment protection given by NGOs. This highly natural and also cultural area receives many tourists, mainly in summer. Paracas is promoted in all tours sets offered to tourists visiting Peru.

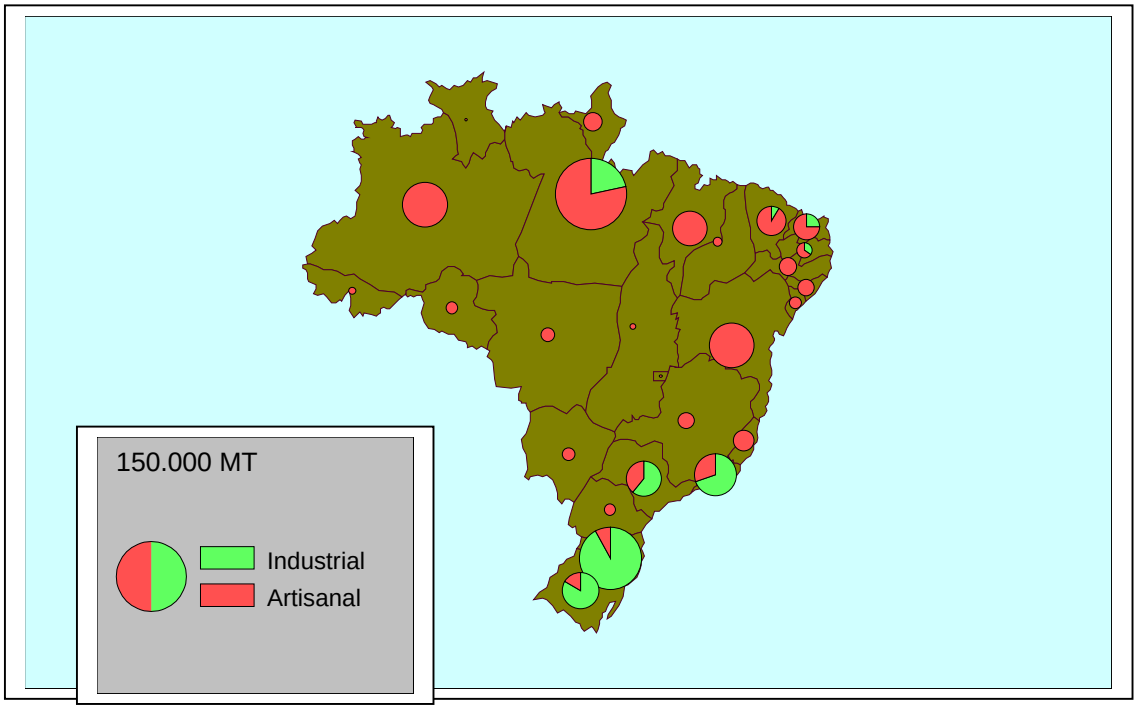
The small community of less than 200 active fishermen has shown a decreasing tendency, possibly due to the development of tourism which offers other working possibilities. It is not sure that the artisanal fishermen community will be able to survive as such for long, without organizing itself and without a stronger governmental support, be it from the municipality, from the province or from the Direction of Artisanal Fisheries of the Viceministry of Fisheries.

El Chaco illustrates the course of a great number of artisanal fishermen communities which have still been unable to take advantage from tourism to enlarge their fisheries activities with seafood shops and restaurants, for instance. The main chance of El Chaco is the fact that the area is classified as natural park. The environment-friendly activities of the fishermen, including scallop aquaculture, associated to a better control of the quality of their catches (especially by using ice on board) and also better sales could result in a revitalization of the community.

1.3 – The case of Brazil,

Organized by the Brazilian Navy at the end of 1st World War, the Fishermen Colonies in Brazil are currently 750, structured in 23 federations, almost 1 for each of the 24 federal States of the country, and count 326.696 fishermen. As regards to production, artisanal fishermen are currently responsible for two thirds (66%) of the total country catches of 712.143 MT in 2003 (see map 4).

Map 4 – Artisanal and Industrial Seafood production in Brazil –2003 (in MT)



Source: based on Brazilian Fisheries Statistics, IBAMA, 2004

Most of the fishermen colonies are in fact associations, not cooperatives. It is believed that there are currently around 50 fishermen and fish farmers cooperatives working in the country[1].
As for fish farmers, the 278.128 MT of farmed seafood produced in 2003 were due to the work of 19.277 registered fish farmers.

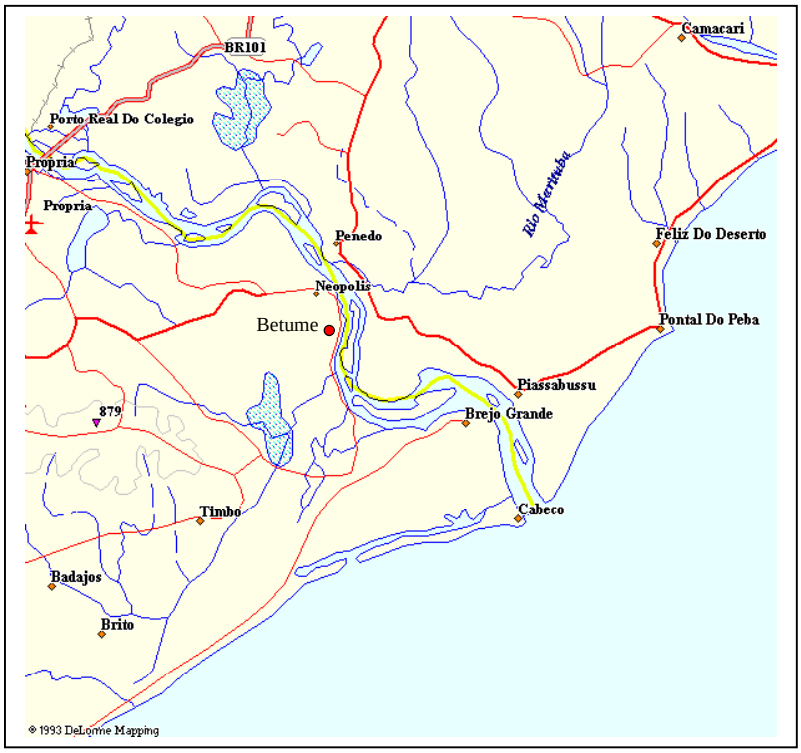
The case of the Women Association of Betume, in the North-eastern State of Sergipe is illustrative of the development of new associative organizations besides production, be it from fishermen or fish farmers.

This association is located in the village of Betume with 900 inhabitants, in the municipality of Neópolis (see map 5). Villagers normally live from rice culture and cattle. Betume is at the border of the low São Francisco river and the region was chosen at the beginning of the 90's by the Federal government to implement aquaculture of tilapia and other fresh water fish (mainly *Colassomas*). Many rice growers of the low São Francisco region have reconverted themselves into small fish

[1] By the end of 1999, The Brazilian Cooperatives Organization (OCB) had 14 registered cooperatives working in the fields of fisheries and aquaculture; The National Association of Fisheries Cooperatives (ANACOOP) counted 53 associated fisheries cooperatives and the Ministry of Agriculture had the formal register of 90 cooperatives, many of them, however, in precarious state or even deactivated.

farmers, producing each around 20 MT to 30 MT per year. These fish farmers are grouped in associations or cooperatives. The main problem of these cooperatives was that they had no way to process the fish neither to sell it further than locally.

Map 5 – Betume, nearby the mouth of the São Francisco river (1 cm ≈ 10 Km)



In 1997, a group of 14 women, wives and daughters of local Betume's farmers, joined efforts and established the Women Association of Betume having in mind to add value to the farmed fish, mainly by filleting it. With the help of the Federal organization CODEVASF, they managed to build a small processing workshop, equipped with stainless steel working tables, working tools as well as water and electricity supply.

With the help of an international cooperation project, funded by the Common Fund for Commodities and implemented by INFOPESCA, they installed a small ice plant (3MT/day) in order to keep the raw material as well as the processed product in the best possible conservation conditions. The surplus of the ice production is sold to local fishermen and fish farmers, as well as to restaurants. These ice sales allow the association to increase its working capital for the purchase of fish to be processed, as the Betume's Women Association, for the time being, does not produce its own fish.

The farm gate price of tilapia in the region ranges between R$ 2,00 to R$ 2,40 per kilo, around US$ 1,00/Kg (R$ 2,20 = US$ 1,00 in November 2005). The Association sells tilapia fillets at R$ 11,00, mainly and directly to restaurants in the region as well as in Aracaju, the capital city of the state of Sergipe. Having in mind that one needs 3 Kg of whole fish to process 1 Kg of fillets, the gross margin obtained per kilo fillet (R$ 4,40, or US$ 2,00), indicates a healthy business with a break-even point at only 1 MT fillet per month, able to pay a national minimum salary of R$ 300 for each of the 14 members of the association, if one considers that the sale of surplus ice covers the low operating costs (mainly fish transport).

Actually, the selling price is relatively high due to the special high quality of the product (see pictures 10 to 15). This quality is assured from the moment the fish is taken out of water, when it is immediately put into ice. The processing workshop is small, but it is

equipped as any processing plant and it should soon receive the authorization of the sanitary services to sell on the whole national territory. For the time being this authorization is only valid for the state do Sergipe. The white working clothes of the women, as well as the usual cleanliness of the working room show the attention given to hygiene and to the quality of the product. The final product itself: fresh fillet, wrapped in plastic and kept in ice, is without any doubt one of the highest quality seafood available in the region. Associated to the quality of the product comes the logistics of supplying rapidly and regularly clients willing to pay for the quality. In this sense, the choice of supplying restaurants rather than supermarkets or municipal markets was particularly very adequate.

The healthy state of the business has also been perceived by other villagers who are willing to join the Association, independently of gender. In November 2005, Betume's Women Association counted 15 members, 4 of which were men. The Association also encourages their villagers to farm tilapia in order to have an easier supply of raw material.

The case of Betume shows that artisanal fisheries or fish farming can begin by the establishment of an artisanal processing workshop. This initiative, led by women, has of course received the support of the federal government as well as from an international cooperation project. Without this support, it would have been very difficult for them to launch the workshop, having to pay for all the investments needed to begin a minimum viable production. One of the reasons for which the federal government and the international project supported the initiative was certainly due to the visibility of the association. The community of Betume has built its personality and has become known through the hard work of its women association, a first gender enterprise in the Low São Francisco region aquaculture sector.

Picture 11: tilapia artisanal fish farming in the Low São Francisco valley

Picture 12: Betume's Women Association workshop and ice plant

Picture 13: iced tilapia – high quality raw material

Picture 14: filleting table at workshop

picture 15: finished product duly wrapped

picture 16: selling at a fair in Aracaju

2 - The marketing of Artisanal fisheries production

The three cases presented above evidence the existence of innumerable different cases in the Latin American artisanal fisheries. In fact, artisanal fisheries and aquaculture are very dynamic and show different evolutions. According to its organization and to its working means, an artisanal community can sell directly to consumers or to a portfolio of retailers. Artisanal fishermen can also remain isolated and sell their production to the traditional middlemen they know, who controls the wholesale at their level. Prices for producers are obviously low when the product passes by two or three successive wholesalers, often with few ice, and takes some days before reaching the consumer. Traceability is also difficult to be kept in such conditions.

To a large extend, the marketing of the artisanal fisheries products in Latin America (but also elsewhere) faces the paradox that quality is inversely proportional to price. Actually, the best quality a fish can have is when it comes out of water when being caught. At this moment it is in the hands of the fisherman. As it goes through the distribution chain, from one wholesaler to another, to the retailer and finally to the consumer, the quality of the fish deteriorates meanwhile the price raises. At the end, the consumer receives the worst quality for the highest price when the fisherman had the best quality for which he received the lowest price.

For the time being, with few exceptions, the production of artisanal fisheries is normally marketed through the traditional distribution chain which leads from the production sites to the consumption centres. This distribution chain normally includes two wholesalers, one responsible for collecting seafood at the production sites and for transporting them to the seafood wholesale market in the main consumption centres and the other being responsible for the sales to the retailers of these markets.

Sometimes the second wholesaler is substituted by a processing plant that will produce any kind of value-added product from the raw material. The processing plant must not be confused with the wholesaler who freeze the products he receives and sell it frozen to retailers who, at their turn, defreeze the product and sell it as “fresh”. This second type of processing just adds costs to the product meanwhile it lessens its quality. This freezing often does not follow the good processing practices. It is normally due to a failure in the transport and distribution logistics of the fresh product. Bad practices of salting and drying the product has often the similar cost-added and quality-lessen effect.

Latin America countries have the particularity of having passed by a chiefly strong rural migration during the last 50 years. Today, 80% of their 520 million inhabitants are urban, most of them living in big cities. Over 50 cities in Latin America have more than 1 million inhabitants. 4 cities have more than 10 million inhabitant, two of them (Mexico City and São Paulo) being close to 20 million. The domestic markets in Latin America are therefore getting more and more concentrated on a geographic point of view. INFOPESCA had identified this trend already 10 years ago, when it began to survey the seafood markets in the big Latin American cities. The collection of already 14 published studies gives a broad illustration of Latin American urban markets:

Mexico City (1998)
Size of the seafood market: 145.555 MT/year (yearly per capita consumption: 8,6 Kg)
101.552 MT of the seafood are consumed fresh.

Bogotá (2001)
Size of the seafood market: 42.011 MT/year (yearly per capita consumption: 7Kg)

24.237 MT of the seafood are consumed fresh.
Supermarkets are responsible for 57% of seafood distribution, district markets for 33% and restaurants and institutions for 10%.

Caracas (2000)
Size of the seafood market: 48.478 MT/year (yearly per capita consumption: 15,2 Kg)
19.200 MT of the seafood are consumed fresh.
Fish stores are responsible for 34% of seafood distribution, municipal markets for 25%, supermarkets for 17% restaurants for 1% and others for 23%.

Maracay (2005)
Size of the seafood market: 5.870 MT/year (yearly per capita consumption: 9,3 Kg)
Supermarkets are responsible for 49% of seafood distribution, municipal market for 29%, fish stores for 16%, restaurants for 5%.

Valencia (2005)
Size of the seafood market: 16.836 MT/year (yearly per capita consumption: 19,8 Kg)
Supermarkets are responsible for 69% of seafood distribution, municipal markets for 15%, fish stores for 8%, and restaurants also for 8%.

Recife (2005)
Size of the seafood market: 26.872 MT (yearly per capita consumption: 8,05 Kg)
Supermarkets are responsible for the distribution of 34% of all seafood, public markets for 29%, restaurants for 6%, street markets for 4% and undetermined 27%.

Maceió (2004)
Size of the seafood market: 12.685 MT (yearly per capita consumption: 12,8 Kg)
The municipal market is responsible for 68% of the seafood distribution, supermarkets for 20% street markets for 7% and restaurants for 4%.

Aracaju (2004)
Size of the seafood market; 7.760 MT/year (yearly per capita consumption: 16,8 Kg)
2.076 MT of the seafood are consumed fresh
Supermarkets are responsible for 71% of seafood distribution, municipal markets for 20%, restaurants for 5% and fish stores and street markets for 4%.

Brasilia (1997)
Size of the seafood market: 23.201 MT/year (yearly per capita consumption: 12,8 Kg)
4.961 MT of this seafood are sold fresh.
Supermarkets are responsible for 59% of seafood distribution, restaurants for 17%, institutional catering for 14%, street markets for 4% and others 6%.

Rio de Janeiro (1997)
Size of the seafood market: 167.124 MT/year (yearly per capita consumption: 16,4 Kg)
54.452 MT of the seafood are consumed fresh.
Supermarkets are responsible for the distribution of 50% of all fresh seafood, street markets and ambulant vendors for 25%, fish stores for 15%, municipal markets for 7% and restaurants for 3%.

São Paulo (1998)
Size of the seafood market: 249.087 MT/year (yearly per capita consumption: 15,3 Kg)
145.317 MT of the seafood are consumed fresh.
Restaurants and institutions are responsible for 49% of all fresh seafood distribution, street markets and municipal markets for 35%, “catch & pay” sport fishing establishments for 12% and supermarkets for 4%.

Montevideo (1997)
Size of the seafood market: 12.400 MT/year (yearly per capita consumption of 9,1 Kg)
5.225 MT of the seafood are consumed fresh.
Municipal markets and street markets are responsible for 45% of the distribution of fresh fish, fish stores for 32%, supermarkets for 12% and restaurants for 11%.

Buenos Aires (1997)
Size of the seafood market: 109.730 MT/year (yearly per capita consumption: 9,5 Kg)
80.372 MT of the seafood are consumed fresh
fish stores are responsible for 36% of fresh fish distribution, open air markets and municipal markets for 26%, supermarkets for 23% and restaurants and institutions for 15%.

Santiago de Chile (2000)
Size of the seafood market: 161.000 MT/year (yearly per capita consumption: 26,4 Kg)
58.710 MT of the seafood are consumed fresh
Supermarkets are responsible for 45% of the seafood distribution, fish stores 24%, restaurants and institutions 16%, open air markets 15%.

This rapid overview of some big Latin American urban markets for fish products shows a variety of situations and a variety of yearly per capita consumption, from 7 Kg in Bogotá to 26,4 Kg in Santiago. It also shows a variety of relative importance of the different market segments (supermarkets, fish stores, restaurants, etc.).

As a matter of fact, the quality of fresh seafood along the distribution chain in Latin America has not received so far the same attention than on board fishing boats or in processing plants. The quality of fresh seafood presented to the consumers can therefore be very variable according to the outlet or according to the place it is sold. There is practically no training programme foreseen for seafood retailers nor for wholesalers in Latin America, apart from some efforts made internally by some international supermarket chains.

The relatively low per capita seafood consumption in most cities of the continent is also due to the small number of seafood retail outlets, compared, for instance, to the number of butcheries.

The export of artisanal seafood products has been experienced in various Latin American countries. The export can be of fresh fish as well as processed products. In this last case, the real clients of the artisanal fisheries are the processing plants which purchase indifferently from industrial or artisanal fishermen or from fish farmers. On its turn, the fresh fish to be exported requires a first class quality and an efficient transport logistics. Fresh fish exporters have generally only few customers abroad and supply them with few specific species. Very often, the exporters are in fact local agents of foreign importers. Prices paid to fishermen are normally a little higher than those of the local market, in order to encourage them to pay special care to their catches: use of ice, soft handling, short trips.

The common result of fresh fish export experiences is the depletion of the targeted species in the community working area. This affects directly the community and sometimes the exporter (or foreign importer agent). In fact, the exporter has the possibility to work with other communities as well as the foreign importer has the possibility to deal with other countries.

3 - Market potential for products of the Artisanal Fisheries and Aquaculture

The seafood produced by artisanal fishermen or fish farmers goes grossly through two possible channels. The first one is the processing industry and the second one is the fresh market. Despite the fact that there is no available statistics measuring the relative importance of both possibilities, it seems that on the continental scale, the fresh market is much more important than the processing industry as destination for the artisanal seafood. This difference might be around 80% - 20% or 70% - 30%, according to the experience of the author. Most of the fresh seafood goes to domestic markets but there are some examples showing that artisanal chilled seafood also can be exported by traders who have a good control of the transport logistics. Some markets also attract seafood from neighbouring countries. This is the case of Colombia where importers often buy fresh seafood from Ecuador, from Venezuela or from Brazil (85% from the Amazonian fresh water fishes purchased by wholesalers in Leticia come from Brazil).

As all research institutions point that most coastal species are already, or near to be, fully exploited, it is clear that artisanal fishermen cannot expect to produce much more quantities than they currently are. The challenge is thus not to produce more but to produce better. On a commercial point of view, it is not so much the case of selling more but of selling better. Selling better means here to sell the same quantities of catches for better prices.

The quality of the product supplied by artisanal fishermen is of course a strong component for increasing prices, but not the only one. Actually, all the problem lies in bringing to a consumer, willing to pay for quality, a product with, so close as possible, the same quality than when it was brought out of water by the fisherman. This demands a strong logistics as well as consciousness of the need of maintaining the quality along a rapid distribution chain. Customers willing to pay for quality exist everywhere. They are normally restaurants or specialized fish shops, eventually some supermarkets. The Women Association of Betume, for instance, has understood that better prices could be got by selling directly to restaurants products of higher quality. In this case, the regularity of supply is as important as the quality of the product.

The use of ice since the catch, the care in keeping catches on board and at the landing sites, as well as the promptness to transport it to the consumption centres, represent indispensable aspects of a better marketing. But there are also other possibilities to get better prices for artisanal seafood. One of them is to shortcut as many elements as possible in the distribution chain and to make use of existing market information. In Mexico, for instance, the daily evolution of prices at the Nueva Viga wholesale market is easily accessible on internet. The same happens for the prices at São Paulo CEAGESP wholesale market. These prices are used as reference prices for any seafood transaction in the country. Access to internet is democratising everywhere in Latin America as well as the use of cellular telephones, which helps fishermen communities to keep informed and to have arguments to negotiate. Pricing becomes more transparent. The fishermen cooperative of Tamiahua, for instance, is aware of the price differentiation according to the markets. That is why some of their products are sold locally and others are sent to the wholesale market of Mexico City or even Guadalajara.

Another way of getting better prices is to differentiate the product by making known and giving value to the community which produces it, and also by giving value to the “artisan” specificity of the product. Artisanal fishermen live in communities everywhere in the world. It is difficult to find isolated fishermen elsewhere than along some rivers, mainly in the Amazon region, and in these cases, fishery is more a subsistence activity

than a commercial one. As we have seen through the examples of Mexico, Peru and Brazil, there are a thousands of artisanal fishermen communities in Latin America. These communities are dynamic and have their own characteristics. While some communities just disappear over time, due to urbanization, depletion of their traditional fishing grounds, tourism invasion of their coastal regions or other causes, we see that other communities can adapt themselves to the newness and even get stronger and more organized.

Actually, most artisanal fishermen communities have characteristics that are already highly valued in present times. Not all communities have the same characteristics, but they can transfer on their products some of the values of the community perceived by the consumers. Linking the product to the community which produces it already includes the modern concept of traceability.

Some characteristics of fishermen communities, able to create a positive differentiation are as follows:

Environmental characteristics:
The fate of an artisanal fishermen community is definitely linked to the fate of the living resources existing in their area. The community is aware of this fact and participates actively in coastal management in order to secure the preservation of the resource, to fight sources of pollution and therefore to assure the ***sustainability*** of its main activity. It is particularly the case of Tamiahua fishermen who have a precise area in which they operate: the Tamiahua lagoon. The monitoring of resources and the choice of selective gears to be used in fishing activities are of course desirable by themselves, but it can also be widely disseminated toward the consumers: the fish they buy can be considered environment-friendly or ecological. Artisanal fishermen communities can be the closest to the concept of ***responsible fisheries***.

Tourism characteristics
Most fishermen communities are located in beautiful coastal landscapes which attract many tourists. This is sometimes seen as fatal to fishermen communities as tourism offers working alternatives and often bring fishermen to sell their lands and houses and move. Unfortunately, this is sometimes effectively the case. However, stronger communities have taken advantage of tourism, sometimes with the support of their municipalities, as artisanal fishermen's culture and the possibility to buy really fresh fish are tourism attractions by themselves, besides the landscape, the beaches and the sun. Fishermen do not need to go very far to sell their products and the prices of fish usually follow the natural inflation of any tourist site.

As an extreme example, we can cite the case of the fishermen colony of Copacabana beach in Rio de Janeiro, where the municipality has build for them a small fish store to sell their catches. In fact, the fishermen colony existed on that beach prior to its urbanization, at the beginning of the 20th century. Fishermen repairing their nets, pushing their boats to water or sorting their catches at their return are part of the landscape of Copacabana. Tourism and artisanal fisheries can have here a win-win relationship. The same happens in many fashion ports of the world, from Isla Margarita to Acapulco or from Punta del Este to Cancún. It is hoped that the fishermen from El Chaco will have the same fate.

Independently of their actual location, artisanal fishermen communities have anyhow the colour and the taste of vacations for most consumers. Associating the landscape of the fishermen community to the fish coming from there gives a positive image to the product for most consumers. ***Traceability*** here is a commercial argument.

cultural aspects

Artisanal fishermen have of course many common cultural characteristics: closeness to sea and nature, seamanship, hard work, solidarity in a life risking job… The world literature has always portrayed these characteristics which are very real. “The old man and the sea”, from Ernest Emingway, can still be found in many fishermen villages in Latin America, as well as some personages described by Jorge Amado in his books. The same happens with traditional popular songs, and the *jangadeiros,* sang by Bahia’s Dorival Caimi, still exist.

Further to common characteristics, we can also often find specific cultures in artisanal fishermen communities due to their national or ethnic origin. The national/ ethnical cultural image of the fishermen helps to differentiate their products. For instance the artisanal fishermen of Mar del Plata in Argentina have their roots in Sicilian immigration and until nowadays the Sicilian cultural image is associated to the artisanal fisheries of this Argentinean harbour, moreover when some of the species caught can be processed according to the traditional and original techniques. In this specific case it is the salted anchovy, *allici* style. In Florianópolis, Brazil, artisanal fisheries have been originally developed by Azoreans and some fishermen communities still maintain their traditions. The same happens in many communities along the Latin American coastlines: *Caiçaras* in Southern Brazil, *Miskitos* and *Garifunas* in Central America, *Quechuas* and *Aymaras* on the lake Titicaca, *Mayas* on the Yucatan peninsula... Most of them still have strong cultural values (language, songs and dances, mythologies, culinary, fishing techniques..) that can be somehow associated to their products in order to differentiate them. None of the three cases treated in Mexico, Peru and Brazil, however presented such strong characteristics.

Very often in Latin America, fishermen communities are associated to religious manifestations. Actually, this continent has the largest catholic population in the world. From patron Saint Peter to the Lady of Sailors (N.Sa dos Navegantes), passing by the Lady of Good Travel (N.Sa.da Boa Viagem), artisanal fishermen are commonly at the heart of huge religious ceremonies, including marine parades with hundreds of boats participating and being promoted and shown by the medias. Besides the Christian religion, also other religions have their links with artisanal fisheries, as for instance Yemanjá, the goddess of the sea of the Afro-American syncretic *Candomblé* .

Sometimes, an artisanal fisherman community can also be perceived by the public as a free association of artisans, without labour relationship (this is precisely the definition of artisanal fisheries in Brazil) . It can thus be seen as an economic alternative to the “traditional” capitalistic working relationship with bosses and employees. These images of equality and community come well into the current “alterglobalization” symbolic, a way of life that can be very fashion, mainly among the youth.

We see that artisanal fisheries can rely on a series of factors, or values, in order to promote their products. Of course, all the examples given above cannot be used in a same community, but it is possible to associate existing values of a fisherman community to its products once, of course, the objective quality of the product is effectively assured. Otherwise it is counter-productive.

The objective is to ***positively differentiate*** the product and to give its best possible image to the consumers. There is nothing new about this concept. French artisanal fishermen, for instance, have made an effort to differentiate their products not only from industrial products, by adopting a seal “artisanal product”, but also from aquaculture products, by adding to the seal the mention of “wild fish” (picture 17).

Picture 17: labelling an artisanal wild fish in France

This double differentiation justifies a higher consumer price on the market.

As for artisanal fish farming, this is still a very new activity on the continent. Most of the existing artisanal fish farmers do not live in communities as do artisanal fishermen. In some cases however, this might happen, as we have seen, in the low São Francisco valley. In this case, an effort of differentiation is under way through the adoption of a seal of geographical indication of origin. The region is culturally very rich and includes towns having kept their ancient colonial styles. The water of the river used by local fish farmers is particularly clean, after having been decanted in half a dozen successive dams along the river. Other artisanal Latin American fish farmers are betting on the seal "organic product" in order to increase their prices. It is however true that most of the fish farming practiced in the region is by "industrial" companies, be it for shrimp, salmon or tilapia.

There are still many constraints in Latin America artisanal fisheries to take fully advantage from the opportunities described above. Among the main constraints, we have:

- In many places, artisanal fishermen are still not perceived as real professional artisans of fisheries but only as second class fishermen. This is due to the fact that actually many poor persons have begun to fish as a way of survival when they had no other employment possibilities. It is also due to those who are only part time fishemen and go fishing only during some periods of the year in order to increase the family incomes. Normally, artisanal fishermen have low formal educational level and many of them (mainly the oldest) are still illiterate. This puts automatically artisanal fishermen on the lowest social scale in current societies. This perception of the general public often induces artisanal fishermen to consider themselves as such "lower class", and to dream of a better fate for their children, through education for instance: anything but artisanal fishermen, in the way they perceive their own activity.

- Many artisanal fishermen do not master their profession, use inadequate gears to work, have no real conscience of sustainability and do not care too much about the quality of their product. These could be classified as "bad professionals". In fact, in Latin American countries, there are few training schools for artisanal fishermen. Most of the few existing courses are about the organization and the management of associations or cooperatives, seldom about resource management, selective fishing gears, quality control or seafood marketing. This was not always the case and many older Brazilian artisanal fishermen still remember that during the 1940's and 1950's there were free "fishing boarding-schools" managed by the Navy and specially intended to artisanal fishermen sons. At that time, during and just after World War II, the Navy aim was to train young men living in fishermen communities for the control and defence of the coastline. Nowadays, in peace times in this region of the

world, a similar training could be given, for instance, for the control and defence of the marine and rivers environment.

- Domestic seafood distribution and marketing does not deserve the same attention from sanitary authorities than exports. Actually the national sanitary services controlling the export of seafood are different than those controlling domestic seafood marketing, which often remain under the authority of municipalities. The quality of seafood offered for consumption is very variable. We have seen above that most countries in Latin America also lacked training for seafood vendors. If the quality cannot be assured all along the distribution chain, it is unlikely that efforts at only one part of the chain can afford any result, including in differentiated prices.

Nevertheless, reality is not so good than the exposed opportunities might idealise, but it is also not as bad as the reported main constraints could suggest. In fact, the situation of most artisanal fishermen communities is very variable in all countries. Some of them are irremediably fated to disappear while some others can succeed alone. Many other, however, could be able to succeed if they can benefit some support.

4 – Main solutions to overcome the existing problems

The main positive characteristics we find in Latin American artisanal fisheries is that, all over the continent, they are organized in communities, colonies, associations, cooperatives, unions, etc., themselves regrouped in federations and confederations. It is together with these existing organizations that one can conceive solutions for a better marketing of artisanal seafood production.

It is true that many of the artisanal fishermen organizations are involved in local politics, and therefore some of them might be tempted in increasing the number of their members in order to have more political weight. But they are also aware that an increase in the number of fishermen in a community can jeopardize the sustainability of the fishery resources of this community. In some cases, the growth of fishermen communities can be attained through the conversion of part of the activities, from catches to fish farming. This has happened in the Brazilian state of Santa Catarina where decreasing artisanal fishermen communities were encouraged by low interest loans and technically supported by state extentionists, to farm mussels and oysters. In a period of five years, mussels and oyster productions in the state have grown from zero to 4000 MT/year. This example could be replicated in many other regions. For instance in Tamiahua, Mexico, where we have seen that the extraction of native oysters passes by highs and lows. With the continuous evolution of aquaculture technology, one can imagine that in a not so far future, many of the existent artisanal fishermen communities could become involved in sea ranching. This possibility also reinforces the need of having the communities well organized and involved in the coastal management of their region.

<u>Training needs</u>

It is clear from the above that the main solution to overcome the existing problems and to take full advantage of the potentialities is intimately linked to training. A sustainable production of high quality seafood, deserving better prices on the markets, needs organized artisans fishermen mastering their profession and open to innovations. Many modalities of training can be implemented. They require the political will of the countries governments and investments.

- *training of extensionists*: technical support to fishermen communities, be it for a better handling of catches, for a better knowledge of local resources, for fish

farming or sea ranching, for a better knowledge of market possibilities, etc. can be the result of the work of professional extentionists hired and trained by national or state (province, department) fisheries authorities. These extentionists can also be backed by local universities working together with the fishermen organizations in their communities. The contact of fishermen with students of different subjects (biology, sociology, veterinarian, geography, food technology, business administration, etc.) can only be enriching for both sides.

- *Artisanal fishery schools*: it can be specialization boarding schools for boys and girls coming from different fishermen communities where they will be practically taught during some months about fisheries techniques, environment, and other related subjects. It can be also a practical training at local schools of the fishermen communities, additionally to the normal national educational programme. This professional training aims to shape the new generations of artisanal fishermen, updated with the working techniques and with the issues of their profession as fishing artisans. According to local possibilities, a not-exclusive training modality could be formal supervised apprenticeships.

In parallel to the training of artisanal fishermen, one must also think about the training of seafood retailers even if they normally work indifferently with industrial, farmed or artisanal seafood. The training of national trainers in domestic marketing of seafood can be funded by specialized international organization (like FAO, for instance) and implemented by regional organizations (like the INFO network, for instance).

Investment and capital needs

Besides the training, the improvement of artisanal seafood marketing demands investments in equipment, civil works and working capital. This can only be achieved by some kind of organization like cooperatives, companies or associations legally entitled to market seafood. Investments include ice plants, workshops for light processing (filleting or peeling for instance), transport means (refrigerated trucks) and, of course, the working capital for bridging the prompt payment to the fishermen and the credit schedule to wholesalers or retailers. Normally, national or regional investment banks are entitled to supply low interest funds for this type of investment. Often, however, the banks do not have the technical background to appreciate investment plans presented by artisanal fishermen cooperatives. Often also, the artisanal fishermen cooperatives do not have the technical background to prepare an investment plan, when they are effectively aware of the possibilities of financing their investment needs with affordable interest rates. Sometimes the guarantees demanded by the bank might appear as not affordable by some cooperatives or associations.
The preparation of investment plans can receive the help of the extensionists mentioned above. Affordable interest rates and guarantees, on their turn, normally imply national economical policies giving priority to this type of investment.

As in the previous item, in parallel to the investment needs on the production side of the distribution chain, one must also foresee investments at the wholesale and retail side, in order to assure the supply of quality products until the consumers.

Legal and regulatory requirements

Most Latin American countries have extended legislations and regulations regarding artisanal fisheries and seafood distribution. We have seen that they might differ very much one from another, even in the definition itself of “artisanal fisheries”.

Fisheries legislations, including those treating about sanitary matters, are clearly not the only ones affecting artisanal fisheries. National legislation involving the establishment of cooperatives or other categories of associations also affects them as

well as national regulations regarding the registry of trade marks, seals of “artisanal products” or geographical indications of origin. Normally artisanal fishermen, their associations or cooperatives, or even the national fisheries authorities are not aware about all the possibilities offered by their existing national legislation. The preparation and the dissemination among all artisanal fishermen communities (and, in fact, among the whole fisheries/aquaculture sector) of national compendiums about the subject could be helpful.

The exchange of experiences and of evaluations of results of the legislation, inside the countries and among countries, could be organized together with national fisheries authorities, in order for them to estimate the adequacy of their legislations to their development policies and to allow them to find inspiration in other ways of mind. The organization of this type of meetings is the role of specialized international institutions.

Infrastructure needs

Most fishermen communities along the Latin American coastline are already linked by road to the main consumption centres and are served by electricity, telecommunications (including cell phone coverage) and drinkable water. However, there are still some isolated communities in some parts of the continent which do not benefit from this infrastructure. It is particularly the case in the Amazon, the Andean or the Mosquito Coast regions. With the rapid development of these regions, however, it is likely that in a medium term period (a couple of decades), basic infrastructure will be available everywhere on the continent.

5 - Conclusions

The current production of artisanal fisheries in Latin America is already responsible for the supply of most of fresh seafood to the domestic market of the region which concentrates over 500 million largely urban consumers. Artisanal fisheries are strongly organized everywhere on the continent, in communities, colonies, cooperatives or other kind of associations. The efficiency of those organizations in seafood marketing is however very variable.

The three case studies presented, from Mexico, Peru and Brazil, have illustrated a little of the variety of situations that can be found among artisanal communities in the Latin American region. They have also illustrated some of the market potentials that can benefit them as well as the consumers.

Quality is the master word for opening new market possibilities to artisanal fishermen once it is clear that most of the fishing resources are already fully exploited. The only way to increase artisanal production is by fish farming (and, in the future, by sea ranching) and some artisanal fishermen communities may convert their main activities from extraction to farming. This has already happened in some few communities in the case of bivalves farming.

The improvement of the quality of artisanal seafood production should allow improved incomes to artisanal fishermen if they can reach customers willing to pay for quality. This implies the choice of the distribution channels in which to invest. Restaurants, specialized seafood shops and some supermarkets are possibly the customers more likely to pay for quality.

The quality of artisanal seafood has two components: the first one is the quality that can objectively be measured (through organoleptic testing for instance) and can be assured by the good handling of catches, the use of ice as well as by an efficient transport logistics and rapid supply of the consumer. Actually, the quality makes only

sense if it is maintained all along the distribution chain, including the retailers, once the final price will be paid by the consumer.

The second component of the quality is much more subjective. It implies that the consumer perceives a difference between an “artisanal” product and an “industrial” product, even if only by means of the label, and that he is induced to buy the first one rather than the second. The experience with other food products (and not only food), shows that this is effectively the case worldwide, at least for a large market segment. In this case, traceability is a must, not only for sanitary reasons but mainly for commercial ones. It is a matter of promoting (through publicity and advertising) not only the product but also the producer, and keep both linked.

This also explains why it is better to speak about “artisanal fisheries” rather than “small scale fisheries”. The profound difference of concept leads us to see the fishermen and their communities with different eyes. Supporting those fishermen is not so much a matter of poverty alleviation but of promoting skilled artisans who are able, through their work and by selling quality products, to decently sustain their families. The promotion of the profession is also a way of increasing its self-esteem and attract the fishermen communities youth to assure the next generation of the profession.

To promote the artisanal fishermen communities together with their products is a way to differentiate the products. This promotion requires a solid investment in training, not only in topics of fishing technology, seafood handling and marketing, but also in matters of environment, sustainability of resources, coastal management and possibly fish farming. Other aspects of fishermen communities can also be valued when it is the case. Specific cultures (including ethnic or religious characteristics), labour relationship, environment care, landscape and tourism are among these aspects.

Investment needs include equipment (mainly ice plants and transport means) and working capital for the artisanal fishermen cooperatives. Training and affordable loans are thus the main ingredients of any programme aiming the development of artisanal fisheries marketing.

The concept of fishing artisan and some of the solutions recommended in the present document to improve the marketing of artisanal fishermen productions are currently being implemented in Mexico, Honduras and Cuba by the project “*Improving Marketing Efficiency of Artisanal Fishermen in Central America, Mexico and the Caribbean*”, funded by the Common Fund for Commodities, supervised by FAO and implemented by INFOPESCA.