

# CRUSTACEAN PRODUCTION AND MARKETING, WITH SPECIAL REFERENCE TO EUROPE AND ITALY

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## Abstract

The present financial world crisis has produced severe changes in many sectors on a global scale. Most of the production, trade, imports and exports related to high-quality food for human consumption and well-being are involved, and the high-priced shrimp sector, in particular, has been affected. It is clear that, in these circumstances, additional information to that for normally managing the “business” is needed to be able to assess the situation in more depth, to foresee expected evolutions and to take further action accordingly aimed at a sustainable and remunerated development in difficult times.

The presentation is an overview of available basic statistics and trends on production, imports and exports of shrimp fishery from the global viewpoint down to the situation in Europe and then in Italy. The presentation will also focus on the importance nowadays of sectoral information systems which, while providing information, also enable discussions and forums between the stakeholders, such as producers, traders, managers and consumers, etc.

National entrepreneurs should be solicited to access international systems when data are aggregated globally (to have a global vision) and participate in systems close to their own realities where they can find national peculiarities. It is therefore extremely important for modern actors to be both members of a wider system and, at the same time, exchange information on related national issues.

## Summary

Official statistics show a separate development over time for fisheries and for aquaculture (even in prices their development was completely different). The captures of wild shrimp remained stable for almost the whole decade, while we have found a significant increase in the aquaculture production, which is also expected to grow in the coming years. The main reason is probably that aquaculture has benefited to a larger degree from technological improvements, increased yields in production and improved logistics and distribution systems (new producers from more remote areas can export their goods to developed countries, and also their costs are much lower, in particular labour costs). This is also reflected in prices. Capture fisheries are frequently energy and capital intensive and their costs are today higher than those for farms due to all the improvements mentioned earlier. Although the demand is high, it is covered thanks to the contribution of the farms as nowadays there is a large number of shrimps producers. The wild captures remain stable, but we will probably see a further increase in aquaculture production due to all the improvements in the whole process, but even consumers are increasingly concerned about sustainability issues, especially over-fishing. The high number of shrimps producers localized in countless areas and under different production and managerial policies need to be constantly kept updated/informed on the regulations issued and frequently reviewed in buyer countries and by consumers associations. In this scenario, the role of capillary and timely information is vital.

## Introduction

As the subject of the contribution to this congress indicates, this discussion will mainly focus on the situation and trend of Shrimps data in general in Europe and Italy and its interaction with the fishery and aquaculture as a whole. The second main discussion item is the role and importance that the information management plays in this dynamic sector.

The world fisheries have undergone more than one century of very intensive active development. In table 1. total world production from fisheries and aquaculture is presented for reference. This development has been assisted by impressive changes in technology and market advances. The management measures recommended, over many years, to be adopted by many countries are mainly designed to assure a sustainable exploitation of the resources, to limit fishing effort, to protect the ecosystem biodiversity, to develop aquaculture and to apply the principles of the FAO Code of Conduct for Responsible Fisheries. Nevertheless, for various reasons, in recent years some important fisheries collapsed leading to dramatic socio-economic problems, underlining that the main issues to be faced by fisheries today are, among the most important, over-capacity and over-fishing.

**Table 1. World fisheries and aquaculture production (2001-2008) – million tonnes.**

Year	2001	2002	2003	2004	2005	2006	2007	2008
<b>World total</b>	135.1	138.3	138.4	146.8	149.9	151.2	155.3	159.1
<b>Total capture fishery</b>	90.8	91.0	88.2	92.3	92.2	89.9	90.1	92.6
<b>Total aquaculture</b>	44.3	47.3	50.2	54.5	57.7	61.3	65.2	66.5

Many other problems progressively emerged: environmental impacts of fishing; land-based pollution and degradation of fisheries' ecosystems; seafood safety and quality; impact of globalisation on fisheries and fish trade; the role of subsidies; the question of safety on board; the importance of small-scale fisheries, the insufficient level of scientific research, and more generally the poor quality of the information available for policy, planning and management of fisheries.

The survival of certain levels of capture fisheries and aquaculture as important economic activities in the future requires a profound modification of the way in which some elements of these industries operate.

As far as the contribution to the world food supply is concerned, according to FAO, (SOFIA 2008), capture fisheries and aquaculture supplied the world with about 110 million tonnes of food fish in 2006, (115 million in 2008) providing an apparent per capita supply of 16.7 kg (live weight equivalent), which is among the highest on record. Of this total, aquaculture accounted for 47 percent. One of the consequences of the economic crisis in late 2008 and throughout 2009 was the response of aquaculture producers to invest less in future production by reducing stocking levels. Since then, demand in many developing countries especially in the Asian and South American regions has been quite resilient, and developed country demand is also now picking up again. As a result, prices for many farmed products such as shrimp, catfish, tilapia and salmon have risen significantly in 2010.

World production of "Shrimps" generated by fisheries and aquaculture has today reached a level of about 6520 thousand tonnes with an import/export portfolio of millions of Euros. Moreover, according to many experts and studies this resource is the most (or among the most) *internationally-traded fishery commodity in terms of value*.

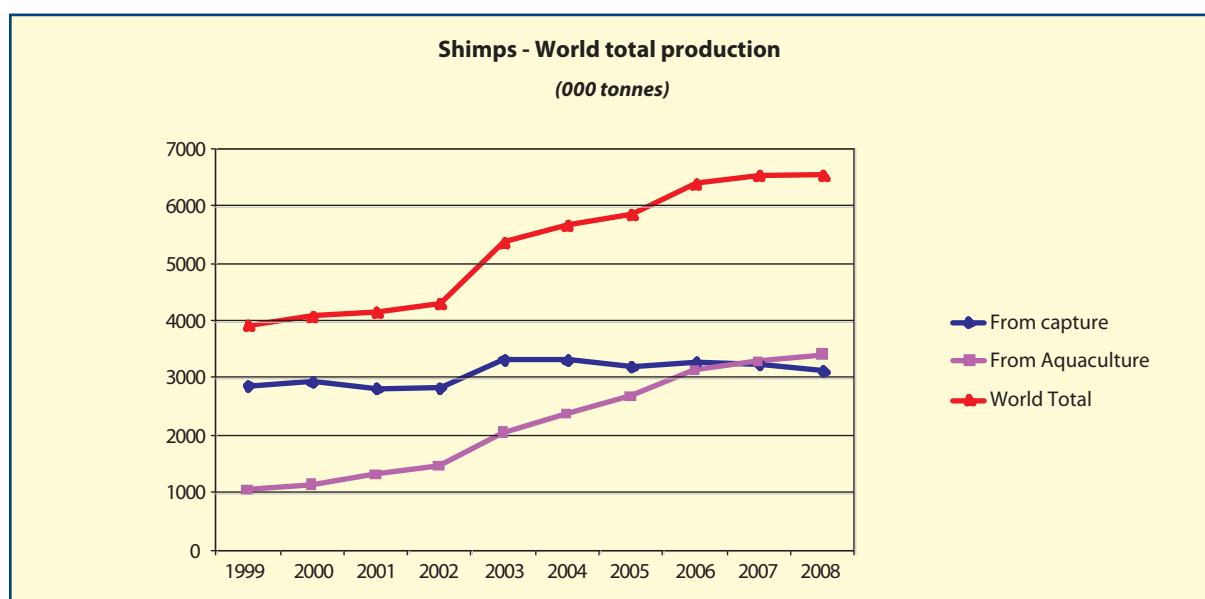
Shrimp Fishery, regardless of whether captured from the wild or from aquaculture, is an important human food resource that embraces important economic and social aspects practically worldwide. A report from FAO stated that "Shrimp is now the most important internationally traded fishery commodity in terms of value. In many tropical developing countries, it is the most valuable fishery export; the employment aspect is also significant. The economic importance of shrimp needs to be reconciled with considerable concern about the environmental impacts of shrimp fisheries" (Gillett, R. FAO-2008)

## Discussion

Focusing mainly on Shrimp production it can be estimated that the captures of wild shrimp remained stable for almost the whole decade (from about 2883 thousand tonnes in 1999 to about 3120 thousand tonnes in 2008 with the highest peak of 3330 thousand tons reached in 2005), while a significant increase of the aquaculture production has been observed (from about 1050 thousand tons in 1999 to presumably about 3400 thousand tonnes in 2008), which is also expected to grow in the coming years. The main reason is probably that aquaculture has benefited to a larger degree from technological improvements, increased yields in production and improved logistics and distribution systems (new producers from more remote areas can export their goods to developed countries, and also their costs are much lower mainly due to labour costs). With a weaker dollar over the last years, South American countries faced problems when competing with Asian countries, which

had lower costs at the moment of producing but were already using the same technology which helped them to become not only more competitive, but also to reach the quality standards of the markets. The weakness of the US currency has influenced commercial decisions. Developing countries confirm their fundamental importance as suppliers to world markets with close to 50% of the value and to 60% of the quantity of all fish exports. Imports are mostly by developed countries, which represent about 80 percent of the total import value of USD 108 billion (2008).

**Figure 1. Total world production of shrimps showing the different growing pattern for wild and aquaculture productions.**



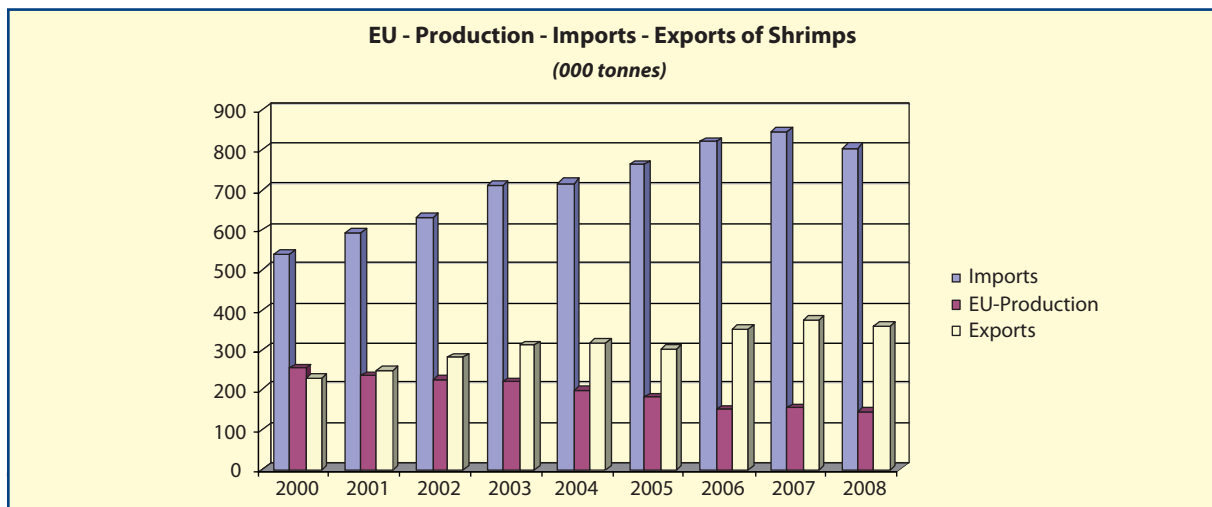
### A general overview of the shrimp industry in Europe and Italy

As far as Europe is concerned, over the period 2000-2008 the shrimps total production fell from 257.0 thousand tonnes in 2000 to 144.0 thousand tonnes in 2008. This figure represents a drop of about 35% in total (fishery and aquaculture). For the portion attributed to aquaculture, it must in part be considered a form of outsourcing of production and supply (cases of Spain, Russia, UK and Norway). Producing in developing countries is cheaper, mainly due to labour costs and an improvement in logistics, which makes possible international transport to more remote areas. The rising share of developing countries also reflects the significant increase in aquaculture, where the costs and prices have been reduced through economies of scale and improved technology.

While total production in Europe was decreasing from 2000 to 2008, import of Shrimps to the EU has gradually been growing as has the exports of the processed (mostly imported) shrimps. The small drop in 2008 was certainly due to the financial crisis and in 2009 we have already observed a slight upward trend. In table 2 the three main components of shrimps industry (production, imports and exports) in EU are reported, while in table 2 they are graphically represented to better assess their relationship.

**Table 2. Shrimps production, imports and exports in Europe. Weight in thousands tonnes.**

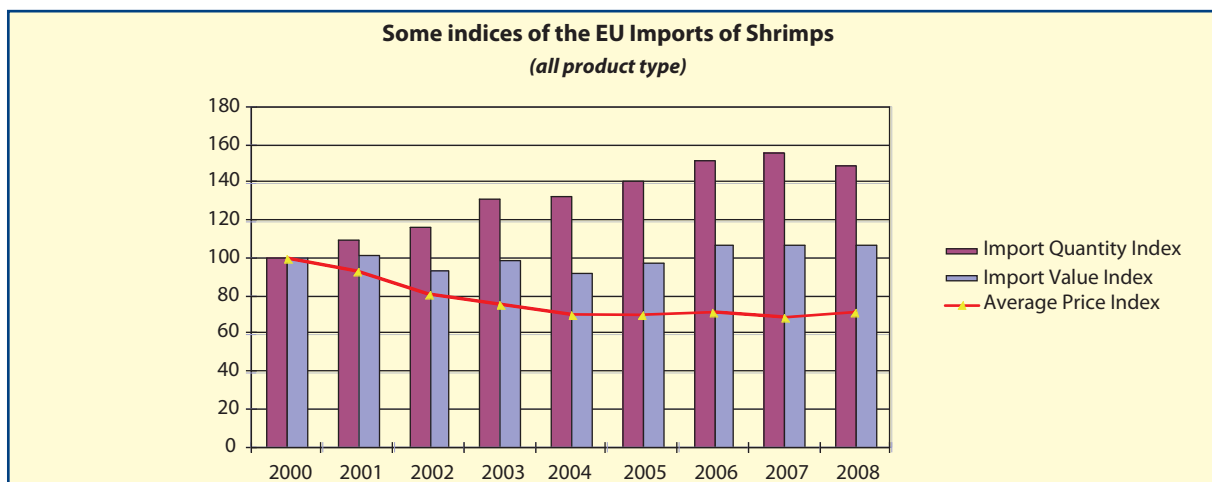
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Production</b>	257.0	237.8	226.5	220.1	198.1	183.2	152.6	155.0	144.0
<b>Imports</b>	541.7	593.7	631.7	713.4	718.7	765.0	820.0	846.8	806.8
<b>Exports</b>	229.9	249.1	280.6	313.2	317.3	304.1	353.2	374.7	361.0

**Figure 2. Shrimps production, imports and exports trends in Europe.**

Prices of wild catches and farmed shrimps followed different trends. The former increased in the 2002-2008 period whereas aquaculture prices are indeed lower today than they were 10 years ago. The reason is related to what was mentioned above, while capture fisheries are frequently energy and capital intensive (the costs are high), aquaculture has benefited from the technological improvements, increased yields in production and the improvement in logistics and distributions systems (also maintaining the cold chain), allowing more companies to compete in the market with lower costs. In table 3 the relationship between imports and prices in the EU is represented together with the average price index. The table shows, for the last decade, an imported quantity constantly growing at a much higher rate than its overall value, resulting in a declining trend for unit price. The calculated average price index is reported to clearly show the relative trend between the two variables over time (average price index = Value/Quantity ; base year 2000). In table 4 the same parameters are presented for EU exports. For a better visual assessment a series of graphs (figure 3 and figure 4 below) showing the trend indices of the imported and exported Quantities, Values and Average Prices are presented showing the trends over time of the three variables related to the year 2000.

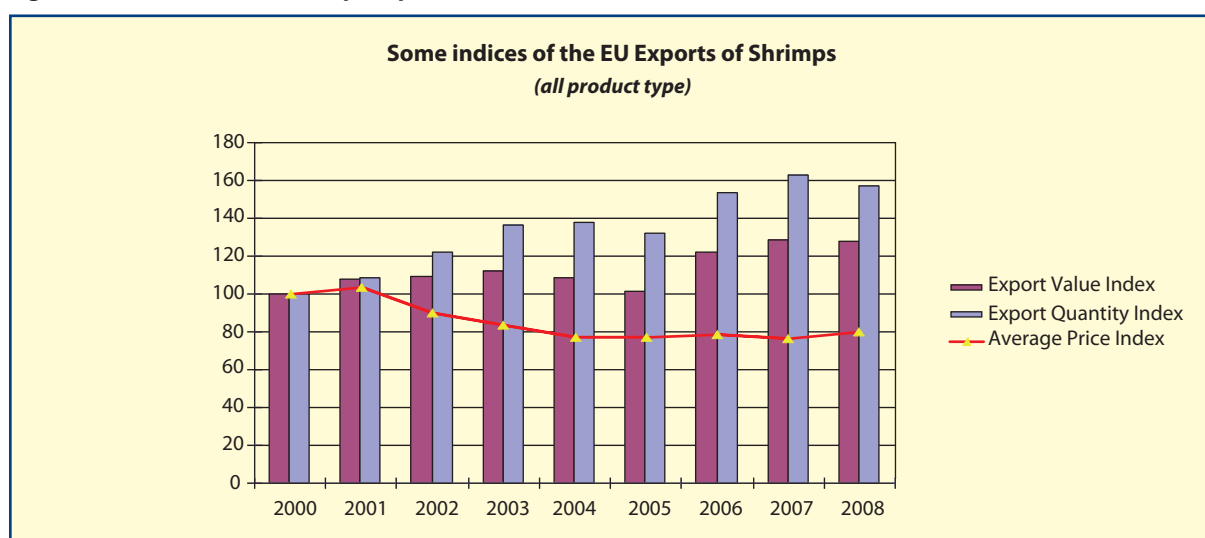
**Table 3. EU Import figures for Shrimps.**

EU Import of shrimps (all product type)									
	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Quantity (000 tonnes)</b>	542	594	632	713	719	765	820	847	807
<b>Value (million Euro)</b>	3798	3865	3584	3741	3504	3723	4066	4093	4055
<b>Average Price (Euro/Kg)</b>	7.0	6.5	5.7	5.2	4.9	4.9	5.0	4.8	5.0
<b>Average Price Index</b>	100.0	92.9	80.9	74.8	69.5	69.4	70.7	69.0	71.7

**Figure 3. Trend indices of imports of shrimps in the EU.**

**Table 4. EU Export figures for Shrimps.**

EU Shrimps Export – Quantity, Value, Average price									
	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Value (Million Euro)</b>	1448.2	1563.6	1582.8	1619.7	1572.6	1467.5	1765.7	1862.7	1850
<b>Quantity (000 tonnes)</b>	229.9	249.1	280.6	313.2	317.3	304	353.2	374.7	361
<b>Average Price (Euro/Kg)</b>	6.3	6.5	5.7	5.2	4.9	4.9	5.0	4.8	5.0
<b>Average Price Index</b>	100	103.35	90.08	83.24	77.40	77.27	78.71	76.74	79.79

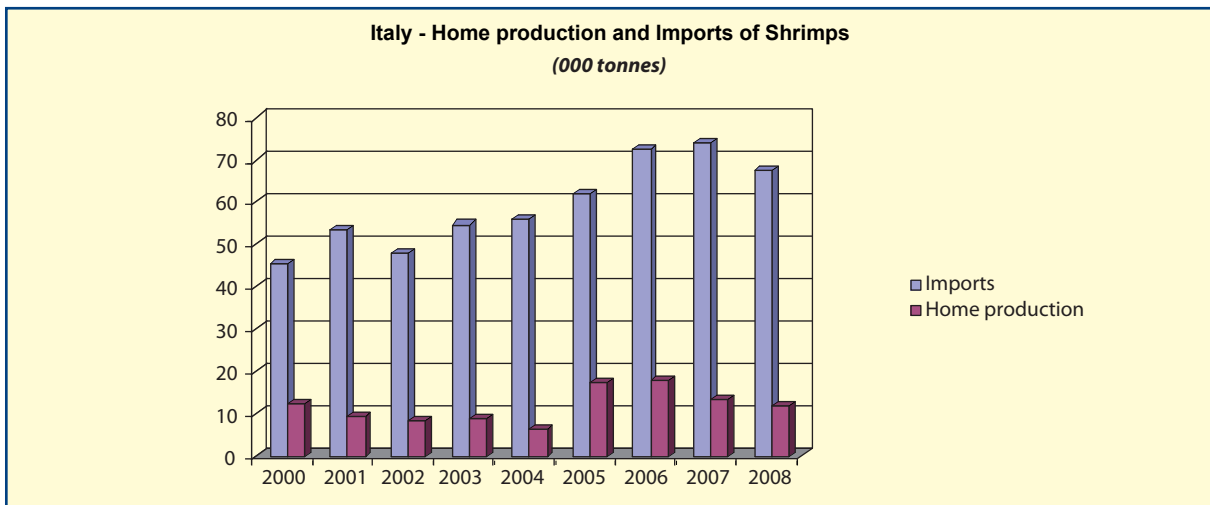
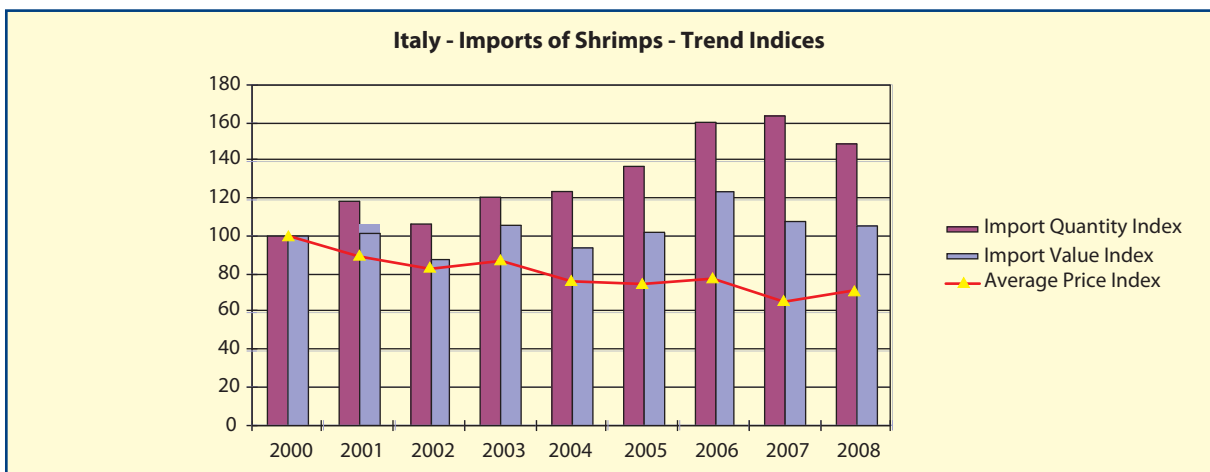
**Figure 4. Trend indices of Shrimps Exports in the EU.**

### Summary of the situation in Italy 2000-2008

In Italy, the situation is that the shrimps production is more or less stable around 12 000 tonnes with a growing import pattern very similar to the rest of the EU. Only in 2008 the total imports of Italy showed a drop, but this was probably caused by the economic crisis that affected the global economy. A recovery in the market is expected so the total imports will probably grow again when the economic situation becomes more stable. As far as the imports production picture is concerned, it reflects the situation in the EU; imports increased by about 50% in 2008 over the year 2000, while the imports value remained more or less stable around 5% increase in 2008 over the 2000 (see table 5 and the associated figure 5 below). The above brings the average price index in 2008 to 70.9, (year 2000 = 100). As per the EU presentation, figure 6 shows the trend indices of Italian imports for a better visual assessment of such time series.

**Table 5. – Italy production and imports of shrimps 2000-2008.**

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>Production</b>	12.4	9.5	8.6	9.3	6.7	17.7	18.2	13.5	12.0
<b>Imports Quantity</b>	45.5	53.8	48.2	54.9	56.2	62.2	72.7	74.4	67.8
<b>Imports vales</b>	347.9	369.9	304.9	368.2	325.3	454.4	429.5	373.1	367.7
<b>Import price index</b>	100	89.9	82.7	87.7	75.7	74.5	77.3	65.6	70.9

**Figure 5. Italy production and imports of shrimps 2000-2008.****Figure 6. Trend indices of Italian imports of shrimps 2000-2008.**

## Structure of the sector

As anticipated in the introduction, the aquaculture industry is organised in various ways, (i) some aquaculture companies dealing only with production and at a high level of investment and production, (ii) companies incorporate both industrial and artisanal forms of production in the same enterprise, (iii) aggregation of large-scale corporate producers using intensive methods and (iv) smaller-scale family or co-operative producers working world-wide.

It is acceptable to place the world producers of shrimps in groups (iii) and (iv) and shrimp production, distribution and consumption, and the way this product is marketed, preserved, presented, distributed and offered to consumers, are a realistic representation of globalization.

In fact, this "product" is not the result of massive production from one or more national or multinational companies operating worldwide with their own internal (in the house) management rules and procedures, policy options, controls, etc., and within national or international governance structures.

On the contrary, production and, therefore, availability, is globally distributed and carried out by myriads of small, medium and large enterprises, (aquaculture farms, artisanal and industrial fisheries, deep-sea fisheries, etc.). These countless ventures are operating under many different production and marketing regimes, working conditions, legislations, management rules, health and hygiene conditions, financial and fiscal regimes, etc. Not to mention their position vis-à-vis the environment, food security, sustainability and other sensitive issues.

It becomes evident that, with this scenario, information management cannot be unidirectional from the top down, but is dispersed among many and differentiated information channels that need to be accessed by the stakeholders themselves, whatever their position and level within the shrimp sector, or through their intermediaries (associations or corporations), or specialised networks.

One of the many effects that the globalization has introduced in modern life, which certainly includes this sector, is the fast concreteness of events to which stakeholders have to respond through prompt decision in planning actions and activities to achieve the objectives. The shrimp industry in all its dimensions has to deal with numerous variables which cover, according to the situation, production, trade, consumption, marketing, imports/exports, presentation, recipes, products, farming, fishing, legislation, regulations, etc. On the other hand, the Net provides users with all sorts of information that is not necessarily accurate, clean, or certified. It is clear then, that in order to efficiently respond to this demand, information that is restricted to a single aspect is no longer enough. The data acquisition process requires a continuous integration of information resulting from wider and comprehensive sources and had the sources of information are nationally and internationally certified.

Shrimp promoters dealing with a variety of interrelated themes and issues, when involved in decision making and follow-up activities must have easy and timely access to good quality statistics and information in the wide sense. As stakeholders living and working in any place, their involvement in such a process varies from case to case and from situation to situation. Therefore, they also need to be able to interact strongly with the information world outside their specific fields. Sometime this process is lengthy and facilitates more those individuals who live or work in developed countries with high level technological facilities.

The crucial issue is what kind of data are needed, and how to search, collect, store and manage the information produced since it was generated from different sources with different structures, natures and dimensions whose data were sometimes provided or published for other reasons.

### Options for modern information management

In modern days with very high competition not only in production but also in prices worldwide, Historical and Institutional data are fundamental to understanding and explaining today's phenomena and to evaluating evolutionary trends, the causes and effects, and their magnitudes as well as to constructing trends and reference points. To the above we have to take into consideration that not all the information is of a certain level and not all is unbiased. Therefore, the second most important issue to put foreword concerns the certainty that we have **good quality managerial and technological information** particularly geared to the sector essential to professionals working in institutions or private enterprises dealing with a variety of interrelated themes and issues, all contributing to decision making. The Net allows "any" provider to circulate all kind of data and information. Apart from the quality and reliability of the information, there is, often, the problem of the data format. It is recommended that, daily workers involved in any segment or level of fishery and aquaculture production at any level, should be a member of **specialised business networks** that offer prompt support and dialogue with the associates on both simple and complex issues.

### Information systems to support managements

The crucial issue is what kind of data are needed, when and where, and how to search, collect, store and manage the information which is not always available in an easy, direct and formatted way.

Fishery and Aquaculture entrepreneurs should be solicited to access international systems, national and regional sectorial systems and actively participate in systems close to their own world where they can find the answer and support to problems.

Finally, the following four concepts should be taken into account when developing an information system aiming at a correct use of information management:

- ❖ Consult Institutional and non-Institutional sources of information according to requirements, but also, taking into account the specialization and the mission of the information providers;
- ❖ Interact with professional association networks by actively participating not only as an information user but also as a "data" provider;

- ❖ Make full use of the “Lesson learned” and apply it accordingly;
- ❖ Monitor the development of activities to ensure it does not focus only on one aspect but conforms to the ecosystem principles.

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