THE PERUVIAN ANCHOVETA SECTOR: COSTS AND BENEFITS. AN ANALYSIS OF RECENT BEHAVIOR AND OF FUTURE CHALLENGES

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ABSTRACT

The paper analyzes the recent behavior of the Peruvian Anchoveta Sector, the largest single stock fishery in the world. It describes the different phases of boom and contraction that it has undergone since the 1960s, and how the lack of adequate regulation allowed –and even fostered– over-investment in the sector during the past 20 years. The unsurprising consequence of this policy regime is that the current size of both the fishing fleet and the processing plants is grossly oversized. Indeed, excess fleet capacity could be in the neighborhood of 60-70%, while the excess processing capacity of the plants is even more dramatic (between 65% and 80%). The economic costs entailed by this excess capacity are discussed in the paper. Estimates of resource rent loss using a modified version of the Excel program developed for such a purpose within the framework of the World Bank / FAO's "Rent Drain" project are presented. This version allows the estimation of rent loss accruing from the fleet's excess capacity (and ensuing large fixed costs). Using detailed cost structures for fleet and plants, the paper estimates that current aggregate foregone profits amount to US$400 million per year. The last section of the paper identifies and discusses a series of policy options and challenges for reform in the near future, including the adoption of ITQs and institutional change to deal with corruption.

Keywords: Anchoveta, Peru, resource rent loss, corruption, policy reform.

INTRODUCTION

The Peruvian anchoveta (***Engraulis ringens)*** fishery is the largest single stock fishery in the world, it accounts for approximately 10% of global marine catch [1]. The anchoveta landings are almost exclusively allocated to Indirect Human Consumption (IHC). Close to 150 processing plants transform the anchoveta landings into fishmeal and fishoil, most of which is exported (around 90% of domestic output goes to foreign markets). Despite of its extraordinarily rich marine resources, the sector has undergone through major crises and currently phases a series of problems that need to be successfully addressed in order to ensure its sustainability. Without doubt, the most dramatic problem is the huge overcapacity of both fleet and processing plants and the resource loss and environmental risks that it entails. The first section of the paper describes the recent behavior of the sector and the changes in its regulatory framework. The second section describes the sector at the end of 2007, and provides estimates on the magnitude of overcapacity of both fleet and plants. The economic costs entailed by this excess capacity are discussed in the third section paper, where estimates of rent loss using a modified version of the Excel program provided for the project are presented. The last section of the paper identifies and discusses a series of policy options and challenges for reform in the near future, including the adoption of ITQs and institutional change to deal with corruption. This paper summarizes the authors' findings reported in [2], where a detailed analysis of the issues discussed here can be found.

GROWTH AND RECENT BEHAVIOR OF THE ANCHOVETA INDUSTRY

The anchoveta industry is relatively new in Peru. It emerged during the Mid-20th Century and has been characterized by a series of expansion and contraction phases. Following the boom and expansion of the first twenty years, the sector faced its first crisis during the early seventies. This resulted from the exponential growth of the fleet, the lack of adequate regulations and the ensuing overfishing. This was

exacerbated by the effects of the El Niño Phenomenon of 1972/73 and the nationalization (expropriation) of the industry in 1973.

Following the stagnation of the fishing sector –and of the economy in general- during the seventies and the eighties, a substantial reform of the economic policy framework took place at the beginning of the nineties, reestablishing macroeconomic order and promoting a market economy. Against this background, a new General Fishing Law (1992) –which prohibited the expansion of the fleet and processing capacity- was passed, and the State-owned fishing vessels and fishmeal plants were privatized, giving way to the start of a new phase in the sector's expansion [3,4]. The privatization process generated a large investment effort by the private sector, both for the acquisition and modernization of the fleet and processing plants that were being privatized, and for the construction of new vessels and plants, despite the legal provisions that had been enacted. Given that this process rested on a high financial leverage, more than on capital contributions, the sector's privatization and modernization led to its over-indebtedness, which left the fishing sector in a weak and vulnerable financial position. It was not long before a new and severe El Niño Phenomenon occurrence, towards the end of 1997, put the anchoveta industry on the brink of collapse once again.

The crisis into which the sector plunged forced many companies to enter into insolvency proceedings (similar to Chapter 11 proceedings in the United States), caused banks to absorb significant losses and resulted in significant changes in the sector's ownership structure. In this crisis scenario, a first initiative aimed at reducing the oversized anchoveta fleet was launched in 1999. The private sector, in close coordination with the government, worked in the design of a program directed to financing the withdrawal and dismantling of vessels, known as "Fondo para la Protección de la Biomasa", FOPROBI (Biomass Protection Fund) [5]. Given the lack of a minimum consensus regarding the program (in its two versions), partially due to the lack of leadership within the public sector and the lack of commitment within the private sector, the program was not implemented, the companies reached agreements with their creditors and the fleet continued growing, thus worsening the problem of the sector's overcapacity.

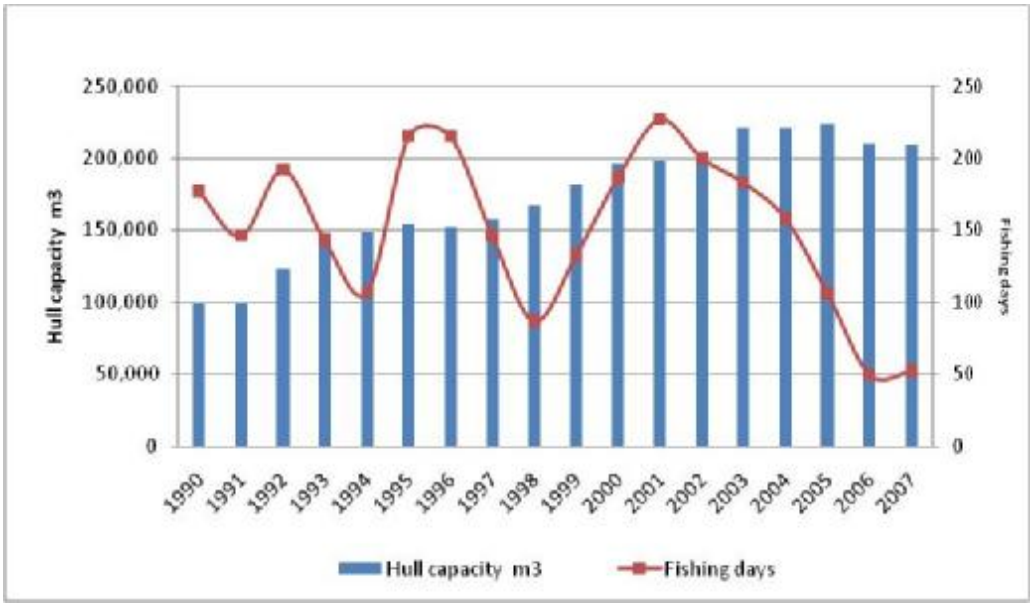
Following the reorganization of the sector during the first half of this decade and the increase of fishmeal and fishoil prices to all-time highs, an unprecedented wave of mergers and acquisitions took place in the sector (2006-2008). The process of mergers and acquisitions represented close to US$ 1,000 million in transactions, and led to a further concentration of the sector in which seven large companies account for 70% of the domestic fishmeal and fishoil production.

Changes in the Regulatory Framework

Regulatory and policy changes played a decisive role in the evolution of the anchoveta industry. The regulatory framework evolved from one aimed at industrial promotion and investment attraction, towards another one focused on protecting the biomass, controlling fleet and plant excess capacity (introduction of catch restrictions and prohibition of new licenses for vessels and plants), and protecting the marine ecosystem (environmental adaptation programs and maximum limits for industry effluents). However, the continuous breach of such regulations worsened the sector´s overcapacity problem. This reflects the fact that rampant corruption has characterized the relations among different players in the sector.

In the Peruvian case, the protection of the biomass included: (i) the implementation of a "Total Allowable Catch" (TAC) fishery management system; (ii) fishing ban seasons in the months when species reproduction occurs and when the presence of a high percentage of juveniles in the extraction is detected; (iii) establishment of prohibited or reserved fishing areas; as well as (iv) specifications for extraction methods. Even though such regulations tended to avoid the over-exploitation of anchoveta, the TAC system (as opposed to individual quotas) caused a fish race, commonly referred to as the "Olympic race", as it is an open market without the assignment of property rights, in which the vessels try to catch the

largest quantity of fish in the least possible time. This led to a situation where from a total 270 days during which the vessels went out fishing in 1986, this number dropped to less than 200 per year in the nineties and to only 50 days in 2007. See Figure No. 1.



Source: Based on data from IMARPE.

Figure No. 1. Fleet's hull capacity (in m3) and effective fishing days.

The regulation of anchoveta extraction has been adapted to the different characteristics of the Peruvian marine ecosystem, which includes two main zones: (i) the Northern/Central Zone, which stretches from the northern border with Ecuador down to parallel 16°S, where plenty schools of fish appear and the major part of the fishing activity is carried out; and (ii) the Southern Zone, which runs from parallel 16°S down to the southern border with Chile, where the marine shelf comes close to the coast and the presence of schools is smaller. These zones pertain to different sea currents and represent two different habitats and, therefore, are considered as two different stocks of anchoveta. It should be pointed out that the total allowable fishing quota only applies to the Northern/Central Zone. There is no fishing quota in the Southern Zone; fishing is allowed throughout the year, except for those periods where a large proportion of juveniles are present in landings and when short fishing bans are imposed. The absence of quotas in the Southern Zone is based on the argument that this kind of regulation would only achieve to protect fishing schools, that would then be captured in Chile.

THE PERUVIAN ANCHOVETA INDUSTRY IN 2007: AN OVERCAPACITY ESTIMATE

Towards the end of 2007, the Peruvian anchoveta industrial fleet was composed by 1,178 vessels, with a total storage capacity of approximately 210,000 cubic meters (m3), that supplied 145 fishmeal and fishoil plants along the coast, with a total processing capacity of 8,909 tons per hour (MT/hr). A major part of the fishing activity was carried by companies possessing both vessels and fishmeal and fishoil processing plants. These companies are denominated "integrated companies". Seven of these companies had coastwide coverage and accounted for, approximately, two thirds of the storage capacity of the steel vessels engaged in anchoveta fishing and for over 70% of the industry's processing capacity, which reflects the sector's progressive concentration.

As of December 2007, 84.7% of the total storage capacity of the anchoveta fleet pertained to steel hull vessels; the remaining 15.3% pertained to wooden hull vessels, denominated "vikings", with a maximum storage capacity of 110 m3 (that is, relatively small vessels). As of this date, 623 steel vessels and 555 wooden vessels were officially registered. The wooden vessels showed a dramatic growth from 1996 to 2003, a period during which their storage capacity increased almost nine-fold, despite the legal prohibitions in force. On the other hand, the seven largest companies owned vessels accounting for 55% of the fleet´s total storage capacity (including that of the viking vessels) and 84% of the Refrigerated Sea Water (RSW) system-equipped vessels. Moreover, 65% of the total hull capacity of the steel fleet pertained to vessels whose individual storage capacity exceeded 300 m3. This reflects the fleet's consolidation into larger and more efficient vessels.

The Peruvian fishing industry included 145 active fishmeal plants in late 2007, with a total processing capacity of 8,909 MT/hr. The plants were classified into three types: (i) conventional (FAQ), (ii) high protein content (HPC) and (iii) residual; which accounted for 58%, 40% and 2%, respectively, of the sector´s processing capacity. It should be mentioned that the seven largest companies accounted for over 70% of the industry's processing capacity and owned 80% of the HPC plants. Even though fishmeal plants were located along the coast, approximately 70% of them were located in regions with the largest fish landings: Ancash, Lima and Ica.

In order to put the previous figures in perspective and to appreciate the magnitude of the industry's overcapacity, it is worth noting that the total anchoveta landings in the country, under normal conditions (without the presence of the El Niño phenomenon), can fluctuate between 6 and 8 million MT per year. Moreover, for the base year of the study (2006), IMARPE estimated that the Maximum Sustainable Yield (MSY) of this fishery was 8 million MT and the government set the Total Allowable Catch (TAC) at 5.9 million MT. If the fishing efficiency coefficient (which corresponds to the portion of the vessel's hull capacity that is filled in each fishing trip) is set between 60% and 80%, one can conclude that the excess fleet capacity fluctuates between 60% and 78%; in other words, the current size of the fleet's hull capacity is between 2.5 and 4.6 times its optimal size. See Table I. Analogously, the excess processing capacity of the fishmeal plants fluctuates within a range of 65% to 80%; this implies that the current installed plant capacity represents 3 to 5 times its optimal level.

Table I: Estimates of Fleet and Plant Excess Capacity

Measured in reference to:	MSY		2006 TAC	
Fleet & Plant Efficiency:	60%	80%	60%	80%
Fleet's Excess Hull Capacity	60.5%	70.4%	70.9%	78.2%
2006 Fleet's Hull Capacity / Optimal Capacity	2.5	3.4	3.4	4.6
Plants' Excess Processing Capacity	65.3%	74.0%	74.4%	80.8%
2006 Plant Capacity / Optimal Capacity	2.9	3.8	3.9	5.2

THE COSTS OF OVERINVESTMENT: RESOURCE RENT LOSS

An oversized fishing sector, both in terms of fleet and of the processing capacity of the fishmeal plants, generates inefficiencies related to an idle capital stock during increasingly longer periods of time and entails a cost structure with a high fixed-cost component (representing 65% of the total cost in the study's base year: 2006). In the Peruvian case, the fishing fleet's oversize becomes the crucial variable that determines the resource rent loss or the resource rent which is being drained due to the overcosts entailed by this size of fleet. This study allows to quantify this rent loss as it calculates the difference between the economic rent actually generated and the potential one, that is, the foregone rent that results from

operating this fishery as it has been done so far. For such purpose, the bioeconomic model proposed in the framework of the Rent Drain Study sponsored by FAO and the World Bank was estimated with 2006 data.

Prior to presenting the results on rent drain, it should be mentioned that in 2006:

- anchoveta landings reached 5.9 million MT (a volume below the MSY, estimated at 8 million MT by IMARPE);
- the value of the anchoveta landings amounted to US$ 706 million, while the FOB value of fishmeal and fishoil produced by processing plants reached US$ 1,413 million;
- the aggregate fleet profit was estimated at US$ 109 million and the fishing cost at US$ 597 million (with an estimated 65% fixed-cost share);
- the aggregate profit of processing plants was estimated at US$ 280 million and the total cost at US$ 1,133 million (the main component of the cost is fish, 62%, while the fixed cost represented 18% of the total cost);
- even though the sector's estimated aggregate profits were close to US$400 million in 2006, this figure could have been far greater if the sector had faced lower fixed costs, as those corresponding to a sector not characterized by a large degree of overcapacity of its fleet and plants;
- in this context, it is not surprising that the fishing activity's contribution to the country's tax revenues was very low: according to official figures provided by the tax authority, such contribution only reached US$68 million in 2006, that is, 4.8% of the FOB value of the fishmeal and fishoil production for that year (if the excise tax levied on fuels paid by the sector's companies is considered, this figure rises to US$79 million, which is equivalent to only 5.6% of the production value).

The estimation of the bioeconomic model made use of the Excel program developed for such purpose within the framework of the FAO/World Bank study [6]. However, the program was designed based on the premise that the fishery under analysis has open or free access and that it is under a certain degree of over-exploitation. As it has been observed, this is not the case of the anchoveta fishery in Peru, where an annual quota is established by government authorities in order to avoid resource over-exploitation. Therefore, the Excel program was modified in coordination with Professor Ragnar Árnason of the University of Iceland, by including an additional parameter in the model denominated "necessary fishing effort", which allows to estimate the impact of the fishing fleet's overcapacity on the resource rent.

The estimation of the bioeconomic model required estimates for: the anchoveta fishery's MSY, the size of its virgin stock, the schooling parameter and the growth of the anchoveta stock in the base year. These parameters were obtained from and/or estimated by IMARPE. In addition, fieldwork was carried out to estimate the fleet's cost structure, the prices paid for anchoveta landings and the aggregate revenues and profits of the fleet. The model's results, using two alternative specifications for the growth of the biomass stock (logistic and that of Fox), are presented in Table II. As shown, foregone profits in year 2006 –the rent drain- exclusively attributable to the fleet's overcapacity were significantly large: between US$ 102 million and US$ 126 million, compared to what would have been generated by a fleet with half of the actual hull capacity (which would not have sufficed to eliminate excess fleet capacity). When comparing these figures with the previously reported profits estimated for the fleet, it is concluded that a 50% reduction of the fleet could lead to duplicate its profits. (It should be noted that the increase in the resource rent estimated by the model and reported in the last row of the table underestimates the actual gain. This is because the model calculates the rent as a sum of fixed costs and profits, and, therefore, the dramatic reduction in fixed costs, entailed by a 50% reduction of the fleet, is reflected in the model by a rent gain lower than what would actually occur from an economic point of view.)

Table No. II: Estimated Profit Gains due to a 50% Reduction in the Fleet's Hull Capacity (Base year: 2006, Fish landings: 5.9 million MT)

		Actual		Optimal		Difference	
	Units	**Logistic**	**Fox**	**Logistic**	**Fox**	**Logistic**	**Fox**
Biomass	m. MT	11.0	5.0	11.5	8.7	0.5	3.8
Harvest	m. MT	5.9	5.9	5.9	5.9	0.0	0.0
Effort	Index	100.0	100.0	81.8	70.0	-18.2	-30.0
Profits	m. US$	108.7	108.7	210.8	235.1	102.1	126.4
Rents	m. US$	496.7	496.7	533.2	557.5	36.5	60.8

The previous calculations consider only the effect of having an oversized fleet but not an oversized processing capacity (which, as previously seen, is more serious a problem than fleet oversize). In order to incorporate this factor, an alternative methodology was used. This methodology entailed using the cost structures of different types of vessels and plants in order to estimate the profits that would have been registered in 2006 in a hypothetical scenario of a 50% reduction in both fleet and plants. Assuming that the 50% reduction would have affected both the steel fleet and the wooden fleet (but that the withdrawn vessels for each category would have been the smallest ones, those with the highest semivariable costs), it is concluded that the anchoveta fleet profits would have been increased by US$ 176 million (a 160% increase with regard to the estimates based on the actual size of the fleet). This is shown by Table No. III.

Table No. III: Increase in Profits (million US$) due to a 50% Reduction in Fleet Capacity

Costs, Revenues & Profits	**Actual**	**Optimal**	**Difference**
	2006	**50% Reduction in Fleet Cap.**	
Fixed Costs	**387.3**	**192.5**	**-194.8**
Variable Costs	**129.5**	**129.5**	**0.0**
Semi variable Costs	**80.7**	**99.5**	**18.8**
Total Costs	**597.5**	**421.5**	**-176.0**
Revenues	**706.2**	**706.2**	**0.0**
Profits	**108.7**	**284.7**	**176.0**

On the other hand, Table No. IV shows that in the case of plants, a 50% reduction in the industry´s processing capacity --assuming that the plants that would have ceased operating would have been only those with direct drying (FAQ) and that production would have been redirectioned towards the HPC plants-- would have translated into a profit increase of US$ 229 million (an 82% increase with regard to the profit estimates made for plants operating during that year). In other words, **reducing the fleet's storage capacity and the plants' processing capacity by half would have increased profits in the neighborhood of US$400 million a year, that is, would have led to duplicate the sector's aggregate profits.** It should be mentioned that such figures do not take into consideration the economic gains accruing from the positive externalities that such a fleet reduction would cause on the environmental goods and services provided by the rest of the Peruvian marine ecosystem, but rather only the opportunity cost of maintaining an oversized anchoveta sector.

Table No. IV: Increase in Profits (million US$) due to a 50% Reduction in Plants

Costs, Revenues & Profits	Actual 2006		Optimal 50% Reduction in Processing Capacity		Difference		
	FAQ	HPC	FAQ	HPC	FAQ	HPC	TOTAL
Fixed Costs	**159.1**	**90.0**	**22.3**	**90.0**	**-136.8**	**0.0**	**-136.8**
Variable Costs	**572.4**	**312.2**	**190.4**	**704.7**	**-382.0**	**392.5**	**10.5**
Total Costs	**731.5**	**402.2**	**212.7**	**794.7**	**-518.8**	**392.5**	**-126.3**
Revenues	**868.7**	**544.1**	**287.7**	**1227.3**	**-581.0**	**638.2**	**57.2**
Profits	**137.2**	**141.9**	**75.0**	**432.6**	**-62.2**	**290.7**	**228.5**

SECTOR REFORM: A DISCUSSION OF POLICY CHALLENGES

Tacking the **oversize of the fleet and excess number of processing plants,** and ending the Olympic race and the inefficiencies that the current system entails is, perhaps, the utmost challenge that needs to be addressed by the modernization of the regulatory framework. There are two basic options in this field: (i) designing and implementing a structural adjustment program of the industry that contemplates the acquisition and dismantling of vessels and plants; and (ii) introducing a system of individual transferable quotas (ITQs), as opposed to the current TAC system. As regards the first option, insofar as it is a voluntary, market-based and transparent scheme, funded by the contributions of those who will continue operating in this fishery and thus will benefit from a new fishing regime, it represents an important policy option that has worked in other parts of the world. Without doubt, at an aggregate level, it would reduce the fleet's fixed costs and increase the activity's profitability. However, it must also be clear that such a mechanism would not eliminate the "Olympic race" and its ensuing inefficiencies; moreover, it is important to remember that the efforts previously made in this direction in Peru have failed.

The system involving individual fishing quotas, insofar as they are transferable, has a series of advantages: (i) the elimination of the Olympic race; (ii) the optimization of the companies' fishing vessels in order to use their annual quota, which must endogenously lead to fleet reduction; (iii) the increase of the number of days of the fishing season; and (iv) an improved quality of fish landings, which may facilitate the expansion of HPC fishmeal production. Nevertheless, the system also shows latent problems such as: the likely increase in the concentration of the fishing fleet and the displacement of workers whose vessels would no longer go out fishing (a problem which also arises under the first scheme). In this context, an efficient information campaign regarding the benefits of the policy regime change is required, it is crucial that the mechanism of individual quota assignment be perceived as fair and transparent, and that a program mitigating the social costs entailed by the change of regime should be implemented.

In principle, these two options may be conceptualized as complementary programs, where their sequence is important as there are potential moral risks involved. However, it should be noted that the individual fishing quota system does not solve the plant's excess capacity problem. Moreover, given that the reduction of the excess processing capacity must be a central component of the sector's restructuring strategy, which complements and reinforces the fleet reduction program, the solution to the sector's overcapacity problem would probably require the introduction of both types of programs.

Successfully tackling the sector's oversize problem depends on how the transition from the current system to the new one is designed and on how the participation of the different agents involved in this process is achieved. At this point, it is necessary to point out clearly **what should not be done:**

- Maintain the *status quo*, preserving the open fishing arrangement, with a TAC management system and the current fleet size, without a specific program aimed at significantly reducing the fleet's storage capacity and the plants' processing capacity.
- Try to correct the sector's oversizing "by decree", particularly with decrees which collide with market reality.
- Introduce a non-transferable individual quota system. Indeed, if these quotas are not transferable, the possibility of optimizing the use of the existing fleet is eliminated and the reduction in storage capacity and fixed costs would not be achieved. In spite of this, political economy considerations may lead to conclude that a second-best solution should be seriously considered: that is, to introduce the transferability of individual quotas on a gradual basis, by limiting, in a first stage, their transferability to vessels owned by the same shipowner group or by an association of shipowners specifically created for such purpose (given the large concentration of fleet ownership this would bring important economic benefits even in the very short run).

Even though the reduction of the sector's overcapacity will generate significant benefits, not only for those who will continue operating in this fishery, but also for society as a whole, there will also be "losers". Their well-being must be considered by the restructuring program; it is necessary to **mitigate the social costs** not only based on equity considerations, but also to allow the program to have actual possibilities of implementation, permanence and success. Taking care of this problem must not be excessively difficult, as the sector only employs around 26,500 direct workers, and a 50% fleet and plant reduction would entail that, in the worst case scenario, approximately thirteen thousand workers would lose this source of income (which, due to the reduction in the number of fishing days, is only one source of income of this group of workers). Any failure to address the problem represented by these thirteen thousand workers could jeopardize an increase in the sector's profits of approximately US$ 400 million a year. Clearly, part of the benefits to be generated by the sector restructuring must be allocated to mitigating transition costs entailed by the change in regime.

Although the core problem is to reduce the overcapacity of the fleet and plants, so as to diminish the inefficiencies and the rent drain in the IHC activity, policy-makers also face the challenge of **increasing fishing and production allocated to direct human consumption** (DHC). This objective is extremely relevant in a country affected by significant malnutrition indexes and in a context where there is a shortage of foodstuffs worldwide. Clearly, the redirectioning of anchoveta landings to DHC (frozen and canned) not only requires an increase in effective demand (both public and private, domestic and from abroad), but also an adaptation of the fleet to enable it to land fish suitable for this market. Anchoveta stored and crushed in the large holds of traditional vessels aimed at IHC does not represent a suitable supply for the development of the DHC market. An interesting question is whether this market constitutes a suitable alternative for the fleet that would be displaced from anchoveta fishing allocated to IHC. Would this fleet compete with the artisanal one? Which supervision problems would it bring along?

With regard to the institutional reform issue, one of the problems affecting the sector is that of **corruption**. It explains why the fleet expanded, violating express legal orders which prohibited the granting of new licenses, and leading to the extreme oversize situation which must be corrected at present. Corruption is a two-faced coin: a corrupt official is not likely to take bribes if there is no one ready to grant them. Corruption is a *modus operandi* that prevails in all kinds of activities in this sector and a practice in which several of the officials who still work at the Vice-Ministry of Fishing and many of the businessmen working in the sector have engaged in.

Based on the above, it is essential to separate the promotion-regulatory function from the supervisory-control function. At present, the Vice-Ministry of Fishing is responsible for both functions and this institution has serious problems to effectively exercise the second one. Following the institutional models introduced in other sectors, such as energy and telecommunications, the government should seriously consider creating an organization in charge of the supervisory-control function, such as a National Superintendence of Fishing and Aquiculture. This independent organization should be responsible for the supervision and regulation of the norms issued by the Vice-Ministry of Fishing, which would keep its promotion-regulatory function.

The granting of licenses and concessions, the supervision of the compliance with the body of regulations issued by the Vice-Ministry of Fishing, as well as the monitoring and imposition of fines or the suspension of rights would be under the responsibility of this Superintendence which, due to its nature, could be much more executive and be subject to less interference from the Judiciary, where corruption also leads to constantly handing-down judgments which undermine the spirit of the sector's body of regulations. On the other hand, IMARPE's research activities should be strengthened and perhaps its functional dependence should be transferred to the recently created Ministry of the Environment. In contrast, the Technological Fishing Institute should continue within the scope of the Vice-Ministry of Fishing and its role should be strengthened, in order to turn it into a more important promotion and development instrument of the sector.

It should be clear then that the institutional strengthening of the sector would very likely require a downsizing of the Vice-Ministry of Fishing. Just as Public Sector Reform aims at creating a stronger and more efficient, yet smaller, Public Sector apparatus, the institutional strengthening of the fishing sector depends on a reduction of the functions currently being carried out by the Vice-Ministry of Fishing, as well as the creation of a new independent Fishing Superintendence with new professionals, who do not drag along past practices, and who may carry out efficiently and transparently the regulatory and supervision functions required by the sector. Finally, it could be stated that the lack of a significant modernization and institutional strengthening of the sector will hinder any effort to successfully and equitably implement the fishing reform in Peru.

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