



**WORKING PAPER 99.23**

**THE IMPACT OF THE ECONOMIC CRISIS ON  
INDONESIA'S FISHERY SECTOR**

**Gellwyn Jusuf and Rokhmin Dahuri**

**March 1999**

**A joint research project on**

**Linkages Between Indonesia's Agricultural Production, Trade and the Environment  
funded by the Australian Centre for International Agricultural Research,**

**between**

**CASER (Bogor) • CIES (Adelaide) • CSIS (Jakarta) • RSPAS (ANU, Canberra)**

**Lead institution: CIES • University of Adelaide • Adelaide • SA 5005 • Australia  
Telephone (61 8) 8303 4712 • Facsimile (61 8) 8223 1460 • email: [cies@economics.adelaide.edu.au](mailto:cies@economics.adelaide.edu.au)  
Homepage: <http://www.adelaide.edu.au/cies/>**

**CASER/CSIS/CIES/ANU  
joint research project on**



**Policy analysis of linkages  
between Indonesia's agricultural  
production, trade and  
environment**

Rapid economic growth in Indonesia has been accompanied by significant structural changes, including for its agricultural sector and its unique natural environment. Recently questions have been raised about the impact of Indonesia's agricultural, industrial, trade and environmental policies on sustainable rural development. The nature of interactions between the economic activities of different sectors and the environment are such that an intersectoral, system-wide perspective is essential for assessing them. An international perspective also is needed to assess the impact on Indonesia of major shocks abroad, such as the implementation of the Uruguay Round agreements, APEC initiatives, or reforms in former centrally planned economies. There is increasing pressure on supporters of liberal trade to demonstrate that trade reforms at home or abroad affecting countries such as Indonesia will not add to global environmental problems (e.g., deforestation, reduced biodiversity). Again, this requires system-wide quantitative models of the economy and ecology, because typically there are both positive and negative effects at work, so the sign of the net effects ultimately has to be determined empirically.

To begin to address these issues, the Australian Centre for International Agricultural Research (ACIAR) has generously provided funds for a collaborative 3-year project (to mid-1999) involving the University of Adelaide's Centre for International Economic Studies (CIES) as the lead institution, Bogor's Centre for Agro-Socioeconomic Research (CASER) which is affiliated with the Ministry of Agriculture, Jakarta's independent Centre for Strategic and International Studies (CSIS), and the Economics Division of the Research School of Pacific and Asian Studies (RSPAS) at the Australian National University in Canberra. Being based on Indonesia with its rich diversity of environmental resources (and on which there are relatively good data) and its rapid economic growth, the project could also serve as a prototype for similar studies of other developing countries in Southeast Asia and elsewhere.

The key objective of the project is to assess the production, consumption, trade, income distributional, regional, environmental, and welfare effects of structural and policy changes at home and abroad particularly as they will or could affect Indonesia's agricultural sector over the next 5-10 years. Among other things, the analysis will focus both on the effects of economic changes on the environment, and on the impacts on Indonesia's agricultural production and trade of resource and environmental policy changes. The implications of regional and multilateral trade liberalization initiatives and Indonesia's ongoing unilateral trade reforms will be analysed, along with other potential domestic policy changes and significant external shocks such as the entry of China and Taiwan into the World Trade Organization. The analysis will draw on and adapt computable general equilibrium (CGE) models such as the national INDOGEM Model (built as part of an earlier ACIAR project) and the global GTAP Model.

The project is being undertaken in close collaboration with the Indonesian Ministry of Agriculture and ministries involved in trade, planning, and the environment. A Research Advisory Committee has been established to encourage close collaboration of representatives from those and other ministries.

ACIAR INDONESIA RESEARCH PROJECT

WORKING PAPER 99.23

**THE IMPACT OF THE ECONOMIC CRISIS ON  
INDONESIA'S FISHERY SECTOR**

**Gellwyn Jusuf and Rokhmin Dahuri**

Chief  
Bureau for Agriculture and Forestry  
National Development Planning Board  
Jakarta, Indonesia

Lecturer, Faculty of Fishery and  
Director, Center for Coastal and Marine resource Studies  
Bogor Agricultural University  
Bogor, Indonesia

March 1999

## **Background**

Monetary and economic crisis has induced every aspect of development in Indonesia. Visually, the impacts created by the crisis such as declining economic activities and decreasing communities' buying-power, have raised some social problems throughout the country. Mixture between economic crisis and social problems then triggers a new crisis, which is political crisis. This crisis itself gives additional burden into the more-than-enough difficult social and economic condition of people in Indonesia.

The extend and severity of the crisis is so vigorous which affected almost all of status and level of communities in Indonesia. Only small group of people seems unaffected by the crisis. This occurrence could happen because economic grouping in Indonesia is structured like a standing pyramid, where the top of it was board by only a few people who have high income, whereas the bottom was extensively contained by almost all of the groups that has much lower income. That is why the lower their position within the pyramid, the impact would feel more devastating

On the sectoral basis almost, all development sectors have been affected by the crisis. However, the effect and intensity are different from one sector to another. As we all know, economic crisis was triggered by continuously decreasing value of our currency against US dollar. As consequence, the price of input goods/materials especially the imported one, in production process has increased dramatically. On the other hand, the weakening of Rupiah has opened opportunity because our export commodities are relatively cheaper, thus more competitive in the international market. However, this opportunity could only applicable to commodities which have high content of local production input factors or low imported-good content. Those kind of commodities originally come from resources base industries, such as agriculture and fisheries. Shrimp and tuna or skipjack have for long been the prima donna (in fisheries sub sector) for non oil and gas export commodities of Indonesia. Now, they become more important commodities than ever.

In the globalization era as today, global market has becoming more integrated and free. Flow of commodities from one country to another or one region to other will be driven by demand and supported by efficiency in production process and economic system within a country. Therefore, it is our principal challenge to find the way to increases efficiency and to produce more competitive commodities for global, as well as domestic market.

Indonesia's Agricultural (including fishery) commodities have potential and opportunity to compete in the global market. Evidently,

Gross National Product (GNP) between 1997-1998 shown that agriculture is the only sector that still shown positive development, although the value is only 0.22 percent (Kompas, January 1998). Therefore, given its deserved attention and political will from the government, the fishery sub sector could become a locomotive for economic development in Indonesia during the economic crisis as well as in the future. This statement is based on four major reasons.

First, fisheries resources potential in Indonesia, either from ocean waters fishing or fresh water/marine aquaculture were still believed under sustainable exploitation level. It means that this sector could still be developed to raise its contribution for national development. Second, its contribution to agriculture sector has been showing increasing trend from time to time. During REPELITA VI, statistical data shown that fishery sector has grown approximately 5.2 % per year (Directorate General of Fishery, 1998). Whereas for the next five years development plan (1999-2003), this sector was projected to grow at 6 % per year. Third, world fish increasing demand was depend on supply from capture fisheries, that has a tendency to decline over time. Coupling with climatological and suitable location constraints to develop extensive culture fisheries within developed countries, Indonesia has a real chance to cater those demands. Fourth, fisheries resources have been known as a healthy food. With the increasing health awareness around the world, demand for fish commodities will be over increasing.

Based on those above arguments and faced with the economic crisis in progress, this paper provide an impact analysis of economic crisis for fishery sub sector, both in macro and micro framework. This analysis was based on structural and behaviour changes within fishery commodities market both in domestic and global market. It then suggests strategies for economically sustainable fisheries development of Indonesia.

### **The market of fishery products**

Conventionally, market for fishery products can be distinguished into domestic market and export oriented market. Domestic market is aimed at absorb is fisheries products by in-country demands and consumers, whereas export market was intended to cater abroad consumers. One important contribution from fishery sub sector to the in-country consumers was providing inexpensive high quality animal protein sources. Domestic market is a potential market because unlike other agriculture products, which have inelastic demands condition, fishery

products have high elasticity value toward demands ( $E=1.4$ ) (Directorate General of Fishery, 1998).

Total domestic fish consumption during 1992-1997 has increased 4.48% per annum, meanwhile consumption per capita increased 2.8% per year. In 1997 it was reported that total fish consumption was reaching 3,932,341 kilograms, and consumption per capita was 19.57 kg. Projection for 1999-2003 stated that total fish consumption could grow 4.32% per year and per capita consumption increase 2.84% (Table 1.).

If domestic fish consumption is to increased to a level like Japan, which is 100 kg per capita per year, the domestic market for fishery products is high, therefore a big incentive to be developed.

Fisheries export products could be categorised into food commodities, which grew at 7.78% per year during 1992-1997, and non-food commodities, at 24.78% per year. However, in a closer look, export volume for food commodities is more dominant. In 1997, food commodities contributed 89.63% from total export volume of fisheries products. Data shown that export value during those period has increased 10.27% per year, 10.52% per year for food commodities value and 6.67% per year for non-food commodities value. The growth of export value for food commodities is higher than its volume growth. It means that value (price) per unit commodities has raised, vice versa with the non-food commodities. Based on 1997 data, export volume of food commodities consisted of shrimp (15.29%), tuna/skipjack (16.55%), other fishes (50.93%) and non-fish. However, in terms of export value, shrimp contributes 52.7%, tuna/skipjack 13.2% and other fishes 23.9%. This confirmed that shrimp and tuna/skipjack were still a significant products/commodities for obtaining much needed hard currency by the government. Other facts also shown that although export volume of shrimp was decreased by 0.6% per year during 1992-1997, but its value was increased 7.32% per year. Those all above indicates that shrimp and tuna/skipjack will still be an important export commodities from Indonesia.

### **The impacts of crisis on the economy**

Market demands are dominant factor to encourage business people to undertake economic activities. The tumbling of Rupiah exchange rate toward US Dollar has increased import commodities prices. In effect, production cost for products with high import-contained-material has also raised significantly. This misfortune happened to fishery sub-sector too.

For fishing industries (commercial fisheries), most of components and spare parts for its boats, even the fishing vessel itself, still relies heavily on imported goods. Whereas, fishes captured in Indonesia waters are multiple species in nature. Each species has its own specialised market demand and therefore its prices. Consequently, different type of fishing has received different impact from the crisis.

For the big pelagic fishing industries that aimed to catch tuna/skipjack as export oriented product, increased of production cost (spare parts, maintenance, fuel, etc) was well balanced by their highly increased earning value. In facts, these industries was experiencing high profit within short period of time. These industries then become very attractive for investment. As illustration, one export-oriented company in East Indonesia dares to guaranty fisherman in their area to receive at least Rp 500.000,- per month, as long as they promised to sale their catch (tuna/skipjack) to that company. Such a high profit condition was not enjoyed by other fishing activities that has not aimed to catch/produce export-oriented goods. However, almost all marine fisheries commodities sold for domestic market, such as Saridine, white pomfret, Indian Mackerel (*Rastriliger* sp.), and squids, have also gained price. For example, the authors found out that alone the North Coast of West Java (from Cirebon to Jakarta), the price of some marine fishes including Sardine, Indian Mackerel (*Rastriliger* sp.), white pomfret, Pony Fishes (Peperek), squid, and Rajungan, has increased in the range of two hundred to five hundred percent during the crisis. Increased price for these commodities were triggered more by substitution demand for other animal protein such as meat, eggs and chicken which have been increased more steeply. Moreover, some species have potential to become export oriented products, such as hairtail fishes (layur). Usually hairtail fishes was only consumed by local market, but in mid 1998, some exporters began to buy this species for export market. Its price was increased from Rp 2.000,-/kg to Rp 6.000,-/kg for export quality products.

Dualism impact affecting fishery sectors also happened to fish-culture activities. Shrimp prices as an export commodities rise very high. It was reached Rp 100.000,- to Rp 120.000,-/kg for size of 30 at one time. Even though production cost for shrimp culture was also rise (medicine and food) but the selling price was rise even more than enough to give attractive profit. This situation was not accompanied by fresh water culture activities. Production cost increased, especially for food-pellet, was not followed by appropriate price increased. Many fish farmers in Cianjur, Sukabumi and Bogor went bankrupt. This is happened to carp (gold fish) culture as well as catfish culture. Recently, when exchange rate between Rupiah and US Dollar reach stability (momentarily) level of Rp 8.000-Rp 8.500, some fish farmers start to

begin their activity again. Their problems now is how to get the increased capital needed to start.

Statistic figures on investment in Indonesia per 30 November 1998 has shown continuous declined during 1994 to 1998 (Table 2.)

From the table above, decreased value in domestic investment was higher than foreign investment. This condition will not support internal recapitalization for fishery sub sector to be able to catch business opportunities which are still high.

Presidential Decree No. 96/1998 on List of Prohibition Activities for Foreign Investment, put fresh water culture on the list. While in Presidential Decree No. 99/1998 on List of Activities for Small Scale Investment, categorised fishery sub sector as activities for small scale investment and for middle-big scale investment it has to cooperate with the small scale investor. Fishing effort for Indian Mackerel (kembung), Flying fishes (ikan layang), trevalies (selar), shrimp, groupers, squids, sea cucumber, jelly fishes, ornamental fishes (fresh water and sea water) has been reserved for small scale investor. To develop those activities and remediate capital scarcity, government launched some credit schemes with low interest rate. Those credit schemes are credit for primary cooperative members (KKPA) with maximum value of 50 million and interest rate of 16%/annum; credit for cooperative with maximum value of 350 million and interest rate of 16%; and credit for small and micro entrepreneur (KPKM) (Mulyati, 1998).

As a business incentive, market and profit were significant factor, but social condition and technology also play important part in it. Cases of shrimp ponds being ravaged by mobs were discouragement for potential investor as well as on-going activities. To mitigate and remediate this situation, we have to find some mechanisms to be able to distribute part of the profit earned by the investor to the surrounding communities. Technological factor is also important to notice because some fishery activities classified as a capital intensive activities. Capital intensive activity means high opportunity cost and raise the business risk. Meanwhile, export-oriented products either originated from catch or culture activities have to incline to international codes, such as environmentally sound production and code of conduct for responsible fishing. In sum, Indonesia has to seriously considered all of those aspect if we want to increase fishery products competitiveness in the global market.

In the aquaculture sector, especially for brackish water, technology development will eventually extend potential area for aquaculture which come from unproductive marginal land, wasteland and used pond without the necessity to convert mangrove forests or other productive land. For instance, biocret technology makes shrimp culture in sandy area feasible. With such technologies, mangrove

conversion rates could be slowed down which will be a good news for sustaining the development itself.

As mentioned earlier, impact of economic crisis for fishery sub sector has dualism in nature. One side shown positive impacts while the other side shown negative impacts.

From macro economic point of view, export earning target was well achieved. The 1997 data even shown that although export volume target was only achieve 86.20% (738,300 ton) but the value has already reach 104.06%. (US\$ 1,970 million). Hence form this side, the crisis has have a positive impact. However, we still have to remember that those earning still originated from conventional products such as shrimp, tuna and skipjack. Whereas products from crustacean, mollusc, coelenterate, echinodermata and algae (seaweed) have not been developed optimally. In the future, demands for products originated from those kinds of fishery such as marine biotechnological products (food supplement, medicine, cosmetics and bioremediation) will surely be increased. These potentials need to receive serious attention and support from the government for its development. Seaweed farmers from Gili Air, West Lombok and Gerupuk Beach, East Lombok and Nusa Penida Island, Bali have enjoyed a price hike for their products. Dried seaweed price was increased fourfold from Rp 900/kg to Rp 3,500-Rp 4,000.- in 1998. But that happened because of our currency weaknesses against US Dollar, not because we succeed in added the value of the commodity.

Information from the Directorate General of Fishery (1998) states that export markets for our products were Europe (33%), Japan (30%) and United States (17%). It means that if Japan has economic contraction for example, then perhaps they will reduce their consumption on our products. That is why we need to anticipate by diversifying our market abroad.

For the export-oriented-products entrepreneurs, both in catch and culture fisheries, the crisis has really gift fortune for their well being. However we have to aware about how those fortune be distributed within fishery sub sector as a whole. It is important to notice that most fishers still work in artisanal fisheries with their outboard motor and limited fishing areas, which can not catch prime commodities such as tuna and skipjack. Also most shrimp-farmers were micro scale investor that can not provide enough capital to buy some production factors (food, etc). Coupled with increasing price for food, their economic condition was worsen.

The analysis has shown that even in the economic crisis, fishery sub sector is still giving positive contribution for hard currency earning. It means that, country wise fishery sub sector gives significant contribution but most people who works in fishery sub sector were also

getting worse economically. That is why we need to find the way to increased sectoral contribution but at the same time also lift up the well being of all people involved. It is important to remember that even before the crisis swept Indonesia, the poorest community in Indonesia were those who work in fisheries.

### **The impact of crisis on the sustainability of fisheries resources**

The nature of operational unit within fishery sub sector is exploiting the resources. Therefore the crisis could triggered much bigger and intensive exploitation efforts. This is true for both export oriented fishing and artisanal fishing. Although the reason could be different. Export oriented fishing is triggered by attractive price, while artisanal and traditional is triggered more by daily necessity to live. This in turn will increased pressures on fisheries resources and aquatic environment.

In aquaculture, high shrimp price is suspected to trigger much higher mangrove conversion rates. This action eventually leads to environmental disaster as well as threaten the sustainability of the fisheries activity itself. Failure of shrimp ponds throughout the North Java coastal areas and diminishing mangrove forest in Nusa Kambangan Island were small examples that need not to be repeated. Technology development in aquaculture has to focused not only for increasing product and lowering cost, but also for increasing potential areas and environmental friendly procedures. With that, aquaculture does not have to always convert mangrove forest or other productive land but can use abandoned/old pond, wasteland or other marginal and unproductive area. The technology also has to deal with various diseases inflicting fish and shrimp culture. Elevated numbers and intensity of diseases is suspected as the negative excess from environmental changes and manipulative food technology. Institutionally, profit incentive that triggered shrimp pond development will in time triggered inappropriate land use allocation. As we understand, land use is a very sensitive issues because of its closeness with many social problems.

In capture fisheries, Indonesia has to follow certain civil codes from international regimes that indicated the needs to employ responsible fishing and not using destructive fishing technology. In anticipation, it is suggested to create a commission for fishery scientific stock assessment which is be coordinated with the Board of National Planning and Development (BAPPENAS) to support the code of conduct for responsible fisheries in Indonesia. For example, even though trawler is the most effective fishing method to catch shrimp, but its free operation could creates unfortunate social problems. Therefore,

it needs precise fishing ground mapping to continuously reviewed the appropriateness of its employment area and the economic scale of effort.

### **The policies and strategies for economically sustainable fisheries development**

Fishery sub sector has proved its important role in economic development in Indonesia during the crisis. It also realised that much involved people in this sector were not received benefit for their well being, if not getting worse because of the crisis. Therefore, it is fair if there will be some efforts launched to help those unfortunate. Those efforts have to focus on empowerment programs that able to raise internal potential within the sector and not just superficial in nature. It has to be admitted that high profit enjoyed in this sector was resulted more from fluctuation in the exchange rates rather than successful effort in lowering production cost or increasing value added. Therefore we need to have comprehensive policy, which can increase the efficiency and competitiveness of the sub sector.

This concept recommends integrated development for every sectors involved in fishery to reach its efficiency; input sector, on-farm sector and output sector. This concept suggests linkages both backward linkage between on-farm sector with input sector, as well as forward linkages with output sector. Weakness or unprepared happened in a sector affects other sectors too. Failures in some culture fisheries were not caused by production failures nor technological inefficiency, but more because high increase of supplemental food price. If we analyse deeper, price increase in food was caused by highly dependent of food industries on imported commodities (fish flour). This proved that input sector could not support on-farm sector within fishery sub sector. The same situation also happened to output sector. To be able to earn more hard currency, output sector/industries have to give high value added to fisheries products. We can not just satisfy with selling raw materials but has to process it into more valuable end products for export market.

In financial sector, government needs to encourage utilisation of low interest rates credit and other soft loan policies for fishery sub sector in order to support recapitalization process in this sector.

To support environmental friendly process of production, research on fish disease and environmental degradation need to be done, not only for increase production but also for sustainability of the production itself. Whereas in capture fishery, balanced development of structural and infrastructure facilities between regions will help reduce social distress.

Since fisheries (both capture and aquaculture) is a highly resource dependent industry, then to achieve economically sustainable fisheries

development, the level (intensity) of harvest should not exceed the sustainable potential (MSY) of fisheries resources. By employing a simple mathematical model, the authors have made an estimation for the optimal number of fishermen for each Indonesia's coastal/marine area (Table 7.) which could sustain capture fisheries activities in the area. Furthermore, brackish water shrimp/fish pond and mariculture development should be arranged in such a way so as not surpass the carrying capacity of the coastal area.

## **Conclusion**

From analysis above, it concludes that impact of economic crisis to fishery sub sector has dualism in nature. Export oriented fishery received very high positive impacts because its products become more competitive, but domestic oriented fishery received moderate positive impacts. However, freshwater aquaculture, industry particularly those which use high input of supplemental food (pellet) like "common carp" aquaculture, received negative impacts, because increased of cost production was not followed by substantial selling price.

On the other hand, with the increase of other animal protein sources such as eggs, meat, or chicken, fish products have potential to substitute their position.

Even though export oriented entrepreneurs enjoyed significant improvement in their well being, other players in this sector were economically getting worse. Therefore, this sector needs to launch programs that able to empower those group of unfortunate.

From environmental point of view, this crisis could trigger over exploitation and increase pressures for both coastal and marine resources and land use, with different reasoning. It therefore needs to be anticipated early on the difficulty to plan and execute an appropriate land use if this situation is still happening.

An economically sustainable fisheries development requires the management which enforces that the level of fisheries development should not exceed the carrying capacity of a given coastal/marine area.

## **References**

Cabinet Secretariat of Republic Indonesia, Salinan sesuai aslinya  
KEPPRES No. 96 dan No. 99 tahun 1998, Jakarta.

Directorate General of Fishery, 1998. Evaluasi Pembangunan Perikanan  
dalam Repelita VI., Jakarta.

Investment Coordination Board (BKPM), 1998. Statistik Investasi  
Indonesia sampai dengan 30 November 1998, Jakarta.

**Table 1.** Projection for Total and Per Capita Consumption of Fishery Products, 1999-2003

No.	Description	Year					Increase/ year (%)
		1999	2000	2001	2002	2003	
1.	Total Consumption (1000 ton)	4.047,52	4.206,23	4.364,35	4.548,33	4.793,87	4,32
2.	Population (1.000.000 people)	207,44	210,43	213,48	216,57	219,70	1,45
3.	Consumption Per Capita	19,51	19,99	20,44	21,00	21,82	2,84

Source: Directorate General of Fishery, 1998.

**Table 2.** Investment Agreement Development

No.	SECTOR	INVESTMENT				
		1994	1995	1996	1997	1998 <sup>1</sup>
<b>A. APPROVED DOMESTIC INVESTMENT (PMDN)<sup>2</sup></b>						
<b>I</b>	<b>PRIMARY SECTOR</b>	<b>7.513,4</b>	<b>10.302,1</b>	<b>16.531,5</b>	<b>14.934,0</b>	<b>4.701,0</b>
1.	Farm Food Crops	788,3	334,5	932,4	308,2	1.064,5
2.	Non Food Crops	3.537,8	6271,3	13.865,7	13.274,7	3.345,6
3.	Livestock	218,7	522,4	485,6	154,6	159,4
4.	<i>Fishery</i>	<i>2.594,7</i>	<i>1.492,7</i>	<i>742,1</i>	<i>904,7</i>	<i>14,3</i>
5.	Forestry	261,5	1.476,4	45,6	165,5	0,9
6.	Mining	112,4	205,1	460,1	126,3	116,3
<b>II</b>	<b>SECONDARY SECTOR/ INDUSTRY</b>	<b>31.921,7</b>	<b>43.341,8</b>	<b>59.217,7</b>	<b>79.334,3</b>	<b>43.968,7</b>
<b>III</b>	<b>TERTIARY SECTOR/ SERVICE</b>	<b>13.854,0</b>	<b>16.209,1</b>	<b>24.966,0</b>	<b>25.604,6</b>	<b>10.241,8</b>
	<b>TOTAL</b>	<b>53.289,1</b>	<b>69.853,0</b>	<b>100.715,2</b>	<b>119.872,9</b>	<b>58.911,5</b>
<b>B. APPROVED FOREIGN INVESTMENT (PMA)<sup>2</sup></b>						
<b>I</b>	<b>PRIMARY SECTOR</b>	<b>729,9</b>	<b>1.384,2</b>	<b>3.218,3</b>	<b>465,3</b>	<b>965,5</b>
1.	Farm Food Crops	35,	414,9	52,2	234,	224,1
2.	Non Food Crops	633,7	689,1	1.168,1	200,4	698,6
3.	Livestock	21,4	49,0	86,0	1,8	14,1
4.	<i>Fishery</i>	<i>39,5</i>	<i>231,</i>	<i>79,8</i>	<i>27,1</i>	<i>28,4</i>
5.	Forestry	0,0	0,0	135,5	0,0	0,0
6.	Mining	0,0	0,0	1.696,7	1,6	0,3
<b>II</b>	<b>SECONDARY SECTOR/ INDUSTRY</b>	<b>22.367,8</b>	<b>26.892,1</b>	<b>16.072,1</b>	<b>23.017,9</b>	<b>8.306,4</b>
<b>III</b>	<b>TERTIARY SECTOR/ SERVICE</b>	<b>4.255,6</b>	<b>11.668,4</b>	<b>10.638,1</b>	<b>10.349,9</b>	<b>3.891,6</b>
	<b>TOTAL</b>	<b>27.353,3</b>	<b>39.944,7</b>	<b>29.928,5</b>	<b>33.832,5</b>	<b>13.163,5</b>

Source : Statistic of Investment, November 30, 1998, BKPM, 1998.

Note : 1) Data up to November 1998; 2) Investment Value of PMDM in Rupiahs and PMA in US \$ Million

**Table 3.** Growth Rate of Gross Domestic Product by Industrial Type, 1998 (percent)

<b>ID</b>	<b>Industrial Origin</b>	<b>1997</b>	<b>1998</b>	<b>Growth</b>
1.	<i>Agriculture, Livestock, Forestry and Fishery</i>	<i>16,01</i>	<i>18,82</i>	<i>0,22</i>
2.	Mining and Quarrying	8,71	12,86	-4,16
3.	Manufacturing Industry	25,54	26,23	-12,88
4.	Electricity, Gas and Water Supply	1,27	1,17	3,70
5.	<i>Construction</i>	<i>7,38</i>	<i>5,44</i>	<i>-39,74</i>
6.	Trade, Hotels and Restaurants	16,59	14,90	-18,95
7.	Transport and Communication	6,75	5,42	-12,80
8.	Financial, Ownership and Business	9,38	8,23	-26,74
9.	Services	8,36	6,91	-4,71
10.	<i>Gross Domestic Product</i>	<i>100,00</i>	<i>100,00</i>	<i>-13,68</i>
11.	Gross Domestic Product, Non Oil and Gas	92,10	88,44	-14,78

Source : Kompas News Paper - Jakarta, January 1998.

**Table 4.** Development of Imported Fishery Products, 1992-1997

No.	Description	PELITA V		PELITA VI				Increase	
		1992	1993	1994	1995*	1996**	1997** *	92-97	94-97
<b>A.</b>	<b>VOLUME</b>								
1.	Food commodity	15.101	12.187	.	14.487	15.050	15.580	1,30	3,59
	Fish Fresh	3.523	9.703	10.552	10.454	10.800	11.170	38,00	1,94
	Canning	382	935	562	371	400	450	18,24	(4,56)
	Agar-agar	342	272	285	496	530	570	14,55	29,48
	Others	10.854	1.277	2.617	3.166	3.320	3.390	8,93	9,32
2.	Non Food	67.981	165.013	262.813	148.753	194.260	225.930	8,37	1,17
	<i>Fish Oil and Fats</i>	148	4.984	4.944	8.454	11.000	13.310	677,78	40,70
	<i>Fish Flours</i>	47.676	122.620	227.213	128.957	168.370	194.900	49,11	1,03
	Crustaceans Powder	14.466	32.348	20.628	7.725	10.410	12.340	15,63	(3,08)
	Fish Food	397	759	749	2.712	3.100	3.5200	75,96	96,65
	Others	5.294	4.302	9.279	905	1.380	1.860	18,79	(0,99)
	<b>TOTAL</b>	<b>83.082</b>	<b>177.200</b>	<b>276.829</b>	<b>163.240</b>	<b>209.310</b>	<b>241.510</b>	<b>34,42</b>	<b>0,86</b>
<b>B.</b>	<b>Value</b>								
1.	Food commodity	18.179	17.518	18.032	21.041	25.000	28.760	9.62	16,85
	Fish Fresh	3.297	9.369	1.659	9.146	12.140	14.070	120,36	166,64
	Canning	2.981	2.296	1.369	805	900	1.050	(15,22)	(4,19)
	Agar-agar	1.476	2.818	2.890	4.711	5.040	5.900	36,11	29,02
	Others	10.750	3.035	12.118	6.379	6.920	7.740	40,09	(9,01)
2.	Non Food	46.179	91.679	118.681	94.876	123.030	150.400	420	10,62
	<i>Fish Oil and Fats</i>	253	2.740	2.436	5.222	7.060	10.650	234,46	66,80
	<i>Fish Flours</i>	31.761	67.141	92.490	72.959	94.390	112.110	35,24	9,01
	Crustaceans Powder	6.993	14.595	10.182	4.922	7.090	10.020	22,44	11,24
	Fish Food	363	818	579	2.783	3.270	4.350	105,46	143,73
	Others	6.089	6.385	12.994	8.990	11.210	13.270	21,91	4,09
	<b>Total</b>	<b>64.689</b>	<b>109.197</b>	<b>136.713</b>	<b>115.917</b>	<b>148.020</b>	<b>179.160</b>	<b>25,50</b>	<b>11,17</b>

Source : DGF, 1998

Note: \* corrected; \*\* Not fix; \*\*\* estimated

**Table 5.** Development of Volume Export Fishery Products, 1992-1997

No.	Description	1992	1993	PELITA VI				Increase / TH (%)	
				1994	1995*	1996**	1997***	'92-97	'94-97
<b>1.</b>	<b>Food commodity</b>	398.011	494.121	492.979	510.262	537.520	570.410	7,78	4,99
	<i>Shrimp</i>	100.455	98.569	99.523	94.551	95.120	97.280	(0,61)	(0,71)
	Tuna	73.439	92.764	79.729	86.470	95.430	105.300	8,28	9,72
	Other Fish	183.513	262.093	268.214	292.162	307.600	324.100	12,95	6,53
	Frog	5.630	4.912	3.858	5.068	5.260	5.560	1,33	13,62
	Jelly Fishes	2.610	3.834	4.038	4.816	5.310	5.580	18,38	13,23
	Mud Crabs	4.693	6.081	6.884	6.490	7.010	7.570	10,61	3,43
	Other s	27.671	25.868	30.733	20.705	21.790	24.750	(0,30)	(4,60)
<b>2.</b>	<b>Food commodity</b>	23.356	35.092	52.392	52.803	58.680	65.970	24,78	6,11
	Ornament Fish	2.593	3.161	3.232	3.254	3.660	4.120	9,98	8,58
	Pearls	79	18	103	68	80	100	80,73	2,89
	Sea Weed	12.047	16.562	18.689	24.958	28.460	32.560	22,46	20,66
	Coral and Mother of Pearl	2.474	1.214	1.132	1.171	1.130	1.090	(12,26)	(1,20)
	Other s	6.163	14.137	29.236	23.352	25.350	28.100	47,09	(0,24)
	<b>Total</b>	421.367	529.213	545.371	563.065	596.200	636.380	8,90	5,29

Source : DGF, 1998.

Note: \*) Corrected      \*\*) Not Fix      \*\*\*) Estimated

Table. 6. **Development of Neraca Trading Fishery Commodity, 1992-1997.**

No.	Description	1992	1993	PELITA VI				Increase/ Year (%)	
				1994	1995*	1996**	1997***	92-97	94-97
1.	Export	1.263,54	1.503,75	1.687,72	1.763,2	1.892,57	2.050,06	10,27	6,90
2.	Import	64,69	109,20	136,71	115,92	148,02	179,16	25,50	11,17
3.	Trade Neraca	1.198,85	1.394,55	1.551,01	1.648,07	1.744,55	1.879,90	9,38	6,45

Source : DGF, 1998.

Note: \* corrected \*\* Not Fix \*\*\* estimated