Industry Note[1]

SME Benchmark Report
Agro-Processing Sector: Fish Processing Industry

Micro, Small- and Medium-Scale Enterprises (MSMEs) in Indonesia

In accordance with Law No. 20 Year 2008 on Micro, Small, and Medium Enterprises (MSMEs), enterprises in Indonesia are classified in three categories[2], namely:

1. Micro enterprise is a productive enterprise owned by individuals and of /or private entities that meet the criteria as set forth in this law.

2. Small-scale enterprise is an economically productive business, carried out by an individual or business entity that is not a subsidiary or the branch of the company, controlled, or a part, either directly or indirectly from the medium or large businesses.

3. Medium Enterprise is an economically productive stand-alone business, which is done by individual or business entity that is not a subsidiary or branch of the company, owned, controlled, or a part, either directly or indirectly with Small or large business to the amount of net worth or annual sales as set forth in this Law.

MSMEs in Indonesia are known as UMKM (Usaha *Mikro, Kecil dan Menengah*). SMEs are called UKM (*Usaha Kecil dan Menengah*). The criteria for each type of enterprise according to the Law are shown below:

Type of Enterprise	Criteria	
	Asset (IDR)	Amount of Sales (IDR)
Micro	Maximum of 50 Million	Maximum of 300 Million
Small	> 50 Million to 500 Million	> 300 Million to 2.5 Billion
Medium	> 500 Million to 10 Billion	> 2.5 Billion to 50 Billion

MSMEs are the backbone of Indonesia's economy. These enterprises accounted for 60 percent of GDP and holds 97% of the labor force. The number of MSMEs until 2011 reached around 52 million but their access to finance is limited. About 25 percent or 13 million of the total number of MSMEs had access to financial institutions. The Indonesian Government through the Ministry of Cooperatives and SMEs encourages the establishment of MSEs in each province or district / city.

[1] Maria Rochelle Divinagracia with the assistance of Lasman Parulian Purba, wrote the industry note as a class discussion material for the case study. The author does not intend to illustrate either effective or ineffective handling of managerial decision or business processes.
[2] Ministry of Cooperatives and SMEs, Indonesia.

During the Asian financial crisis, SMEs performed well because of three reasons[3], namely:

1. SMEs were not as dependent as large enterprises on financial and banking sectors, and therefore, able to survive and adapt to the sudden economic shock more quickly and flexibly.
2. SMEs were generally less exposed and not involved in the global market.
   In 2010, SMEs contributed less than 20 percent to Indonesia's manufacturing exports.
3. Majority of the SMEs produced basic goods, and demand for these goods remained relatively high.

Efforts to develop SMEs are in line with coping and adapting to the global economic crisis. SMEs use more local materials than large-scale enterprises. Their finished products are marketed more domestically rather than in the international markets. The Ministry of Industry projected the number of SMEs to increase by 3.24% for the periods 2010-2014 (Exhibit 1).

Exhibit 1
Growth Projections of SMEs in Indonesia, 2010-2014

Description	Years					Growth (%)
	2010	2011	2012	2013	2014	
SMEs (units)	3,806,566	3,909,343	4,026,624	4,159,502	4,324,190	3.24
Manpower	8,755,102	9,147,863	9,462,565	9,816,425	10,378,056	4.34
Investment (Trillion IDR)	229	244	261	284	313	8.14
Production (Trillion IDR)	521	561	609	671	753	9.63
Raw Materials (Trillion IDR)	156	163	174	188	207	7.27
Value (Trillion IDR)	265	398	435	483	546	10.60
Exports (Million US$)	13,503	15,022	16,541	18,060	19,579	9.73

Source: Facts & Figures 2012, Ministry of Industry, Indonesia.

Indonesian Law No. 9/ 1995 encourages the partnership between SMEs and large-scale enterprises. The goals of the partnership are the following:

a. to create good relationship between the large-scale enterprises and the SMEs; and
b. to foster technology transfer, distribution, ownership, and avoid social conflicts by strengthening national defense through economic defense.

There are five forms of partnership, namely:

a. Plasma-core – partnership between the SME and a large-scale enterprise wherein the SME is the core and the large-scale company is the plasma. The partnership includes provision of production infrastructure, technical supervision, and marketing program.

[3] Facts & Figures 2012, Ministry of Industry, Indonesia.

b. Sub-contract – partnership wherein the SME produces the specific raw materials and components needed by the large-scale company to run its production.
c. General Trade – partnership wherein the large-scale company acts as the marketer of the SME's products.
d. Franchise – partnership wherein the large-scale company gives the license, brand, distribution channel, and management supervision to the SME
e. Agency – partnership wherein the SME provides special rights to the large-scale company to market its products.

Indonesia adopted a clustering strategy since the early 1970s, particularly in technological development. This strategy was implemented since most SMEs are scattered throughout the Indonesian Archipelago, and similarities in their input, output, technology and machinery, among other factors have been observed.[4] To implement this strategy, the government has formulated six main programs, so-called Action Plans, in promoting SMEs. These Action Plans are as follows:

a. Action plan for creating a business-conducive environment: The government takes part in formulating regulations required by SMEs.
b. Action plan for market access: The government works to facilitate market access and opportunity.
c. Action plan for financial access: The government provides a special scheme for SMEs.
d. Action plan for information access: This action plan involves business networking through information technology.
e. Action plan for technology and technology sharing: The government assists SMEs to apply proper technology to enhance its competitiveness.
f. Action plan for human resources development: The SMEs need to improve human resource capabilities.

SMEs Basic Laws

In line with Presidential Decree No. 7 of 2005 on the Medium Term Development Plan for 2005-2009,[5] the empowerment of SMEs and Cooperatives is done through:

a. strengthening cooperation and revitalizing the role of the position of SMEs in the national economic systems;
b. revitalizing cooperatives and strengthening MSMEs by improving access to capital technology, information, and markets;
c. improving the business climate; and
d. developing the local resource potential.

For these purposes, the Ministry of Cooperatives and SMEs along with relevant Provincial and Local Government offices/bureau and the Local Government / Municipality, have implemented programs of SMEs and cooperatives empowerment which are focused on:

[4] For details, visit www.bicg.org.
[5] Ministry of Cooperatives and SMEs, Indonesia.

a. Empowering the SME as an institution
   i. Simplification of licensing and development system for business registration;
   ii. Structuring of regulations;
   iii. Arrangement and improvement of legislation related to the development of SMEs;
   iv. Development of cooperative quality; and
   v. Cooperative revitalization
b. Improving the access of SMEs to funding sources
   i. Development of rural credit scheme;
   ii. Financing program of productive cooperatives and micro-enterprises;
   iii. Financing program for independent business women;
   iv. Skimming program to commodities through warehouse;
   v. Loans to small-and micro-businesses sourced from Government bonds No. 005 (SUP-005);
   vi. Development of micro-credit institutions both banks and non-banks;
   vii. Empowerment of micro- and small-enterprises through land certification program; and
   viii. Help reinforcement selectively in certain business sectors as a stimulant.
c. Empowering the production with the help of selected business sector as a stimulant
   i. Food procurement cooperative development program with a grain bank system;
   ii. Development of SMEs engaged in production of cacao seeds, cashew nut, and Jarak (Jatropha Curcas);
   iii. Development program in Fishing business sector;
   iv. Development Program of fishery support facilities;
   v. Livestock farming development program;
   vi. Strengthening assistance programs such as stone crushing equipment;
   vii. Strengthening the aid program for hyacinth processing and loom machines;
   viii. Development program of LPG and bio-energy to support the production activities of SMEs;
   ix. SMEs empowerment program through the Solar Power development; and
   x. SMEs empowerment through the Seaweed processing and cultivation.
d. Development of Marketing Network
   i. Promotion of SMEs project;
   ii. Modernization retail cooperatives;
   iii. Development of SME marketing tool;
   iv. Trading Development Board and the Data Center; and
   v. Exhibits inside and outside the country.
e. Empowerment of Resources of SMEs
   i. Encouraging a new entrepreneurial spirit;
   ii. Improving the technical and managerial skills of SMEs;
   iii. Developing SMEs service quality;
   iv. Education and training for productive SMEs; and
   v. Developing infrastructure and education and training;

f. Assessment, Research, and Development Resources of SMEs :
   i. Assessment, research and development constraints and problems of cooperatives and SMEs;
   ii. Discussion on strategic issues in the process of SMEs empowerment;
   iii. Publication of research results in books, journals, and magazines; and
   iv. Monitoring and training the cadre and personnel performance of SMEs

Development of SMEs from 1960s until 2000s

Micro-financing has long been the backbone of Indonesian enterprises. Cooperatives have also been established since the 1950s as sources of personal and business funds. In the 1960s, the subversive actions of the communist party in Indonesia initiated the need for food self-sufficiency. In the 1970s and the 1980s, the small-scale entrepreneurs relied more on microfinance institution rather than cooperatives. The reform era of 1998, and democracy years in the early 2000s were the era of debt collectors and private moneylenders. The current decade exhibited a shift from microfinance institutions to government and commercial banks as sources of funds. However, SMEs access for business funds in banks remained a challenge because of high interest rate, and the bureaucratic procedure and documentation. SMEs were often described as enterprises with low capital. SMEs access to formal financial institutions is minimal. Only 12 percent of SMEs[6] accessed bank loans because of the following reasons:

1. Mis-match of needs and conditions of SMEs with the features of bank products
2. Magnitude of credit risk of SMEs
3. Relatively high loan transaction cost
4. Lack of access to equity financing
5. Inefficient monitoring and collection of SME loans
6. Ineffective technical assistance provided to SMEs
7. Non-familiarity of banks with financing to SMEs

The policy of SME Development[7] is aimed at strengthening the existing SMEs industries, the growth of new enterprises that create new business opportunities and manpower absorption, the improvement of partnership between SMEs and large industries as well as other economic sectors in tackling business problems. This policy is also aimed at making SMEs the main activator of the national economy. It is expected that by 2025, SMEs can contribute 54 percent to Industrial GDP with an average growth per year of 12.2 percent. These targets have been stipulated in the 2005-2009 Strategic Plan of SMEs.

A specific development program for SMEs is the One Village One Product (or OVOP). This program for one village envisioned to create one global class product that is unique and specific for the village with the use of local resources. This one village means Region, District/ City according to its business and economic potentials. OVOP is the implementation of Presidential Instruction No. 6 Year 2007 about Fast Growth of Micro-Business, Small- and Medium-Scale

[6] For details, visit www.smecda.com
[7] Facts & Figures 2012, Ministry of Industry, Indonesia.

Enterprise Development, through Ministry of Industry Regulation No. 78/IND/PER/10/2007 about the increase of small and medium industries.

The application of OVOP in Indonesia is completed through five main strategies,

1. Collaboration between central government, regional government, private sector, and local community.
2. Use of knowledge, labor and other local resources unique to the area.
3. Improvement of the quality and appearance of the product.
4. Promotion and marketing in national and global level.
5. Priority will be given to SMEs which produce best product quality and national/international market access.

The products are classified either as agricultural- and plantation-based food processing product; agriculture and plantation drinking product; product specific to the local community; household products including decorative or interior product; arts and crafts product including souvenir products; herbal and atsiri oil. The Government's task in developing the SMEs is to connect the supply and demand side. From the government's perspective, supply means policy, program, and assistance. Demand means the requirements of SMEs which include improving product quality, the warranty of raw material, product standards, among others.

Agro-Processing Sector in Indonesia

The Food and Agriculture Organization (FAO)[8] defines the agro-processing industry as a sub-sector of manufacturing that processes raw materials and intermediate products derived from the agricultural sector. Agro-processing means transforming products originating from agriculture, forestry and fisheries.

A significant part of agricultural production undergoes some degree of transformation between harvesting and final use. The industries that use the agricultural, fishery and forest products as raw materials comprise a very varied group. They range from simple preservation (such as sun-drying), and operations closely related to harvesting and production either by the use of modern or capital-intensive methods.

The agro-processing industry can either be classified according to the following:

1. Food industries and non-food industries
   Enterprises in the food industry are much more homogeneous, and are easier to classify than those in the non-food industries because most of their products have similar same end uses. Non-food industries, in contrast to the food industries, have a wide variety of end uses. Almost all non-food agricultural products require a high degree of processing. These industries have a defined sequence of operations, leading through various intermediate products before reaching the final product. This complicated condition is caused by the

[8] For details, visit www.fao.org/docrep.

proportion of the total cost represented by the raw materials, which diminish steadily, and the usage of synthetics and other artificial substitutes (especially fibers) in combination with natural raw materials.

2. Upstream and downstream industries
   Upstream industries are engaged in the initial processing of agricultural commodities. Downstream industries undertake further manufacturing operations on intermediate products made from agricultural materials.

3. Nature of the production process
   The nature of the production process can range from craft to industrial organization. In such cases, it can be misleading to define agro-processing sector only on the basis of the goods produced because production of industrial organizations has industrial characteristics.

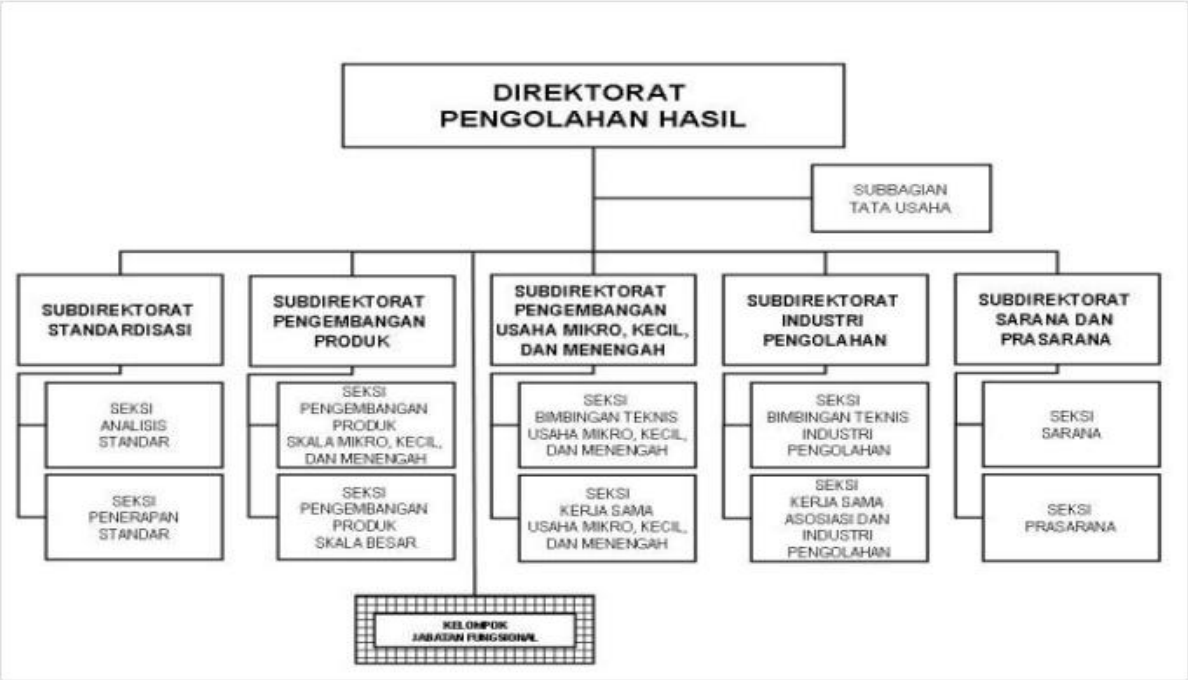
The growing complexity of inputs increased the range of transformation processes, characterized by physical and chemical alteration, and aimed at improving the marketability of raw materials according to the final end use. This increasing complexity of inputs, the impact of innovation processes and new technologies, the sophistication and the growing range of the transformation processes create a difficulty in drawing a clear distinction between what should be considered strictly industry and what can be classified as agro-industry.

According to the United Nations International Standard of Industrial Classification of All Economic Activities (ISIC), agro-industrial production is present in many manufacturing sectors such as Food and Beverages; Tobacco; Textile, Wearing Apparel and Leather; Wood and Wood Products, including Furniture; Paper and Paper products; Printing and Publishing; and Rubber products.

Government Regulatory Body for the Agro-Processing Sector in Indonesia

The General Secretariat of the Ministry of Industry coordinates the implementation of policies, fosters, and supports all administrative units within the Ministry. One of its units is the Office of the Directorate General of Agro-based Industry. This office formulates and executes the technical policies and standardization in the sector of agro-based industry. Exhibit 2 presents its sub-directorates for standardization (subdirektorat standardisasi), product development (subdirektorat pengembangan produk), SMEs development (subdirektorat pengembangan usaha, mikro, kecil dan menengah), manufacturing industry (subdirektorat industry pengolahan), and infrastructure (subdirektorat sarana dan prasarana).

Exhibit 2
Structure of the Directorate General of Agro-Based Industry



The government's overall development strategies for the fishery industry are as follows:

1. To increase employment opportunities, income, and welfare of fisherman and aqua-farmers;
2. To increase foreign exchange earnings by increasing quality and quantity of landings and aquaculture products; and
3. To improve the nutritional standard of the people, especially those in the low-income strata.

These strategies resulted to the establishment of a regulatory framework supported by an institutional structure. The basic law governing fisheries is Law No. 31 of 2004 on Fisheries, which replaced Law No. 9 of 1985. The new law underscores the importance of sustainable use of aquatic resources in the development of fisheries.

Responsibility for the local marine fishery management rests with the Provincial Marine and Fisheries Service (Dinas Kelautan dan Perikanan Propinsi), which has offices at the province, district, and sub-district levels. The adoption of Law no. 22/ 1999 has given this provincial office greater autonomy in carrying out their functions.

Specifically, the Ministry of Marine Affairs and Fisheries of Indonesia (MMAF) governs and facilitates the fishery and aquaculture production and processing. Its website is www.kkp.go.id.

The Ministry has 6 line offices that consist of an Agency for Marine Affairs and Fisheries, and five Directorate Generals for Aquaculture, Capture Fisheries, Coastal and Small Islands, Marine and Fisheries Resource Controls, and Capacity Building and Marketing.

The Production Department of the Ministry provides a set of well-developed brochures on different aquaculture topics. Guidelines available for Good Aquaculture Practices (GAP), GAP certification, technical guidance on fish farming for various fish species, fish feeding and feed production. It also provides direct consultancy and guidance to farmers during field visits.

Despite this institutional framework, the fishery industry remains with challenges. These challenges include:

a. Confusion over the jurisdiction of MMAF and other enforcement agencies;
b. Lack of adequate infrastructure and manpower to control vessels in high seas; and
c. Weak governance at the provincial level.

Enterprises engaged in the fishery business are required under the 2004 Fisheries Law to have Fisheries Business License (SIUP) for both fishing and aquaculture. However, micro- and small-scale enterprises are exempt from this requirement.

Contribution of the Agro-Processing Sector

Value-added and the manpower absorption in the agro-industry are shown in Exhibit 3.

Exhibit 3
Value Added and Labor Force in the Agro-Industry Sector, Indonesia, 2005-2010

Year	Value Added		Labor Force	
	Value (Million IDR)	Growth Rate (%)	Number of People	Growth Rate (%)
2005	396,437,988	n.a.	1,636,745	n.a.
2006	514,342,729	29.74	1,869,663	14.23
2007	598,399,645	16.34	1,838,835	-1.65
2008	264,842,230	-55.74	1,750,206	-4.82
2009*	323,619,699	22.19	2,017,856	15.29
2010**	162,496,793	-49.79	1,693,694	-16.06
Average	376,689,847	-7.45	1,801,167	1.40

Source: Ministry of Industry (Kementerian Perindustrian). Industry Outlook 2012: Strategies for the Acceleration and Expansion of the Agro-Industry Sector in Indonesia.

*) Preliminary Figures **) Provisional Figures

FAO recognized that Indonesia is one of the producers of food commodities and oil in the world. Indonesia has abundant food commodities and oil resources. At least 50 food commodities and plantation products of Indonesia are in the top 10 world rankings (Exhibit 4). Abundant natural resources have placed Indonesia as a country with adequate capital and opportunities to develop a strong and competitive agriculture-based industry. Agro-industry development is believed to have an impact on employment creation while creating equitable development to reduce unemployment and poverty rate in Indonesia.

Demand for agro-food products tend to increase because these products and other nutrients are needed for human consumption. Indicators of an increasing demand for these products are production value, and volume and value of exports and imports. Exhibit 5 showed the value of production in the agro-industry sector in Indonesia for the years 2005-2010. The average growth rate in production value was about 27 percent. The highest growth rate of 62.57 percent was recorded in 2010.

It is interesting to note that the average growth rate in the value of exports (7.51%) and imports (8.54%) of agro-industry sector in Indonesia are almost of equal value (Exhibit 6).

Aquaculture in Indonesia

Based on the data of the Food and Agriculture Organization,[9] aquaculture is an important component of Indonesian fisheries which contributes to national food security, income and employment generation, and foreign exchange earnings. Aquaculture also reduces the pressure on marine natural resources. Recently, aquaculture development in Indonesia has accelerated and is considered important in supporting rural economic development.

Indonesia is an archipelago with a coastline of about 81, 000 kilometers, and as such has a vast potential for aquaculture. The estimated potential area for aquaculture is 7,231,039 hectares consisting of:

- 3,775,539 hectares of marine culture (52.21 %)
- 1,225,000 hectares of brackish water aquaculture (16.94 %)
- 2,230,500 hectares of freshwater aquaculture (30.85 %)

The existing areas used for marine, brackish water, and freshwater aquaculture are only about 0.03 %, 39.25 % and 11.22 % of the potential area, respectively. Aquaculture and inland water capture fisheries contributed 26 percent to the country's total fish production[10]. Total aquaculture production increased by about 10 percent per year from 600,384 tons in 1993 to 1,137,153 tons in 2002 as a result of technological innovation, area expansion, and availability of suitable quality of fish seed. The significant growth of the aquaculture sector is the result of (a) the high

[9] For details, visit www.fao.org/fishery/countrysector/naso_indonesia/en.
[10] For details, visit www.kkp.go.id (Ministry of Marine Affairs and Fisheries, Indonesia).

Exhibit 4
Top 10 World Ranking on Food Commodities and Plantation Products, Indonesia

Rank	Commodity	Rank	Commodity
1	Cotton fiber	4	Avocado
1	Kayu manis (canella)	4	Mango, Rose apple, mangosteen,
1	Cotton seed with Shell	4	Sweet potato
1	*Palm kernels*	4	Green coffee
1	Coconut	4	Pineapple
1	Vanilla	5	Spinach
1	*Palm oil*	5	Nutmeg, mace and cardamoms
1	Daun bawang dan sejenisnya (Chives and the like)	5	Buah-buahan segar (Fresh fruits)
1	Cengkeh (clove)	5	Kacang pinang (Areca nut)
2	Lada (Pepper)	6	Pisang (Banana)
2	Kacang Hijau (Green beans)	6	Terong (Eggplant)
2	Kacang-kacangan (Nuts)	6	Kubis dan brassica lainnya (Cabbage & others)
2	Biji Kakao (Cocoa beans)	6	Kacang mete (cashew)
2	Karet Alam (Natural Rubber)	6	Tembakau, unmanufactured (Tobacco)
3	Jahe (Ginger)	7	Teh (Tea)
3	Pepaya (Papaya)	7	Daging ayam asli (Native Chicken)
3	Singkong (Cassava)	8	kacang tanah (Peanut)
3	Tanaman gula (Sugar crops)	8	Jagung hijau (Corn)
3	Beras, Padi	8	Telur ayam (Chicken eggs)
3	Akar dan umbi, nes	9	Daging kamibing asli (Goat meat)
3	Other bird eggs,in shell	10	Jeruk (Citrus/ Oranges)
4	Jagung	10	kedelai (Soybean)
4	Buah segar tropical	10	Tebu (Sugarcane)
4	Manila Fibre (Abaca)	10	Ketimun dan ketimun acar (Cucumber & gherkins)
4	Cabai dan paprika hijau	10	Serat lainnya (Other Fibers)

Exhibit 5
Production Value of the Agro-Industry Sector in Indonesia, 2005-2010

Year	Production (Million IDR)	Growth (%)
2005	411,019,038	
2006	485,402,825	18.10
2007	620,632,108	27.86
2008	787,789,274	26.93
2009*	822,730,123	4.44
2010**	1,337,482,511	62.57
Average	*744,175,980*	*27.98*

*) Temporary value **) Ultimately temporary value

Source : Ministry of Industry, Indonesia, 2011

Exhibit 6
Value of Export and Import of Agro-Industry Sector in Indonesia, 2007-2011

Year	Export		Import	
	Value (USD)	Growth (%)	Value (USD)	Growth (%)
2007	20,572,779,707		5,844,470,959	
2008	25,157,161,376	22.28	7,488,373,976	28.13
2009	18,293,004,619	-27.29	6,618,601,151	-11.61
2010	26,818,491,293	46.61	8,790,198,909	32.81
2011*	23,719,921,763	-11.55	7,456,489,961	-15.17
Average	*23,497,144,763*	*7.51*	*7,588,415,999*	*8.54*

*) Until August 2011
Source: Ministry of Industry, Indonesia, 2011

priority given to aquaculture development since the 1980s, (b) greater demand for food-fish, especially in the remote hinterlands, and the imposition of a ban on trawl fishing in 1980.

Aquaculture is practiced in fresh, brackish, and marine waters using a variety of production facilities and methods. Culture systems range from extensive to intensive depending on the stocking density of the aquatic organisms, the level of inputs, and the degree of management.

Freshwater aquaculture started with the stocking of common carp in backyard ponds in West Java during the Dutch occupation, in the middle of the nineteenth century, and subsequently spread to other parts of Java, Sumatra, and Sulawesi islands in the early twentieth century. However, it was only in the late 1970s that a remarkable increase in production from freshwater aquaculture was observed. This was a result of the introduction of new farming technologies

which contributed to the availability of hatchery-produced seed, and the development of compound feeds. The most common culture species are common carp, Nile tilapia, and giant gourami.

Common carp is the most dominant species, with production comprising about half of the total freshwater aquaculture output. Another species, Nile tilapia, which was first introduced in Indonesia in 1969 had a production growing from 31,217 tons in 1999 to 71,789 tons in 2003.

The culture of ornamental freshwater fish has also been expanding, triggered by huge export demand, strong government support, and the outbreak of KHV (Koi herpes virus) disease which was affecting carp farming.

Meanwhile, the culture of fish in brackish water ponds, mostly on Java Island, is an ancient tradition in Indonesia which has been practiced on a subsistence basis for more than 400 years. Milkfish and mullet were the traditional species reared. In terms of value, shrimps are the prime commodity, contributing 80 percent to total fisheries exports. However, due to outbreaks of white spot virus, which resulted in mass mortalities in ponds, tiger shrimp production virtually stagnated at around 90,000 tons from 1997 to 2001. To compensate for the drop, whiteleg shrimp and blue shrimp which are more resistant than the tiger shrimp, were introduced by the Government and are now successfully farmed in East Java, Lampung, and Bali.

The main marine culture species in Indonesia are various finfish, shellfish, seaweeds and other species, including sea cucumber. Finfish, such as seabass, groupers and snappers, with a production of 8,760 tons in 2002, are highly-valued and command good prices on the export market. Four species of seaweeds are farmed and sold fresh, or dried and processed for the pharmaceutical, food processing and cosmetic industries. At least 70 percent of seaweed production is exported as raw material (dried seaweed), while the remaining 30 percent is processed into carageenan, producing approximately 1,000-2,000 tons per year.

Approximately 90 percent of Indonesia's fishery industry can be classified as small-scale industry. Fishery activities in Indonesia are highly labor-intensive. The country ranks among those having the largest number of fishers and fish farmers, similar to other countries such as China, India, Philippines and Vietnam. More than 2.7 million of Indonesia's population is directly involved in capture fisheries, and another 2.5 million is directly employed in aquaculture activities. Fishery production is concentrated in Java (67 percent of total country area), followed by Sulawesi (10 percent) and Sumatra (9 percent).5 Small-scale fish farming in these areas is concentrated in freshwater ponds (54 percent), followed by paddy fields (24 percent), brackish water ponds (16 percent), marine culture (4 percent) and floating cage culture (2 percent) [11]. Because of the high participation rate of labor in all types of fishery activities, the Government of Indonesia has placed a high development priority on fishery sector in terms of its national goals for employment creation and poverty alleviation.

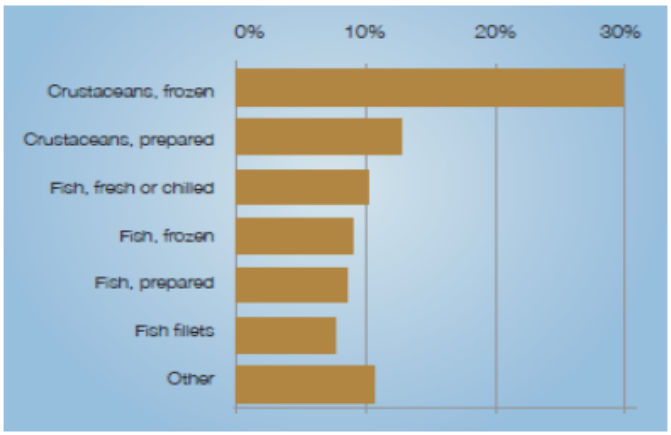
[11] For details, visit www.fao.org/fisheries/statistics and www.bps.go.id.

Fish is a staple food in the diet of Indonesian families, and about 90 percent of the country's total fish production is consumed domestically. The remainder is destined for export markets. The government even established a program called "gemarikan" (fish is a favorite food) to improve the local fishery industry.[12]

Although frozen forms of fish and crustaceans dominate exports, Indonesia is increasingly supplying processed products to overseas customers. Large-scale retailers are increasingly controlling international distribution channels.

Indonesia's largest category of seafood exports is frozen or prepared crustaceans, which mainly consists of shrimp, crabs, lobsters and prawns. These products account for 43 percent of the country's total exports of fishery products (Exhibit 7). Another 36 percent of Indonesia's seafood exports consists fish exports. The forms of these exports are divided fairly evenly into fresh or chilled, frozen, prepared and fillet fish. Among individual product exports, shrimps account for 31 percent of all fishery exports and other forms of crustaceans such as crabs, lobsters and prawns, contribute another 19 percent. Tuna accounts for 16 percent of all individual product exports. Other fresh, frozen and processed fish represent 22 percent of the total. Shrimp, both farmed and wild-caught, is the highest-value seafood export, accounting for 16 percent of worldwide exports of all fishery products.

Exhibit 7
Types of Fish Exports



Source: United Nations, COMTRADE Database

Exhibit 8 shows the historical data of Indonesian Aquaculture Exports from 1950 to 2010 based on the October 2012 FAO - Fisheries and Aquaculture Information and Statistics Service. The export value of fishery products in Indonesia until mid-2012 was USD 1.9 billion, an increase of 17.92 percent for the same period in 2011. Export volume in the mid-2012 increased by 14.5

[12] Laporan Akuntabilitas Kinerja KKP, 2011.

percent, from 521.6 thousand tons in 2011 to 597.2 thousand tons in 2012. The increase in exports was also followed by an increase of 26.32 percent in the balance of trade of fishery products, from USD 1.36 billion in 2011 to USD 1.72 billion in 2012.

Exhibit 8
Aquaculture Export of Indonesia, 1950-2010

Year	Export (tons)	Year	Export (tons)	Year	Export (tons)	Year	Export (tons)
1950	41,866	1961	86,172	1972	118,952	2001	1,076,749
1951	42,432	1962	89,263	1973	129,830	2002	1,137,151
1952	48,508	1963	88,224	1981	269,959	2003	1,228,559
1953	54,638	1964	93,148	1985	359,626	2004	1,468,612
1954	54,184	1965	93,898	1989	527,897	2005	2,124,093
1955	61,346	1966	104,339	1991	607,507	2006	2,479,247
1956	70,214	1967	112,101	1993	710,414	2007	3,137,376
1957	74,133	1968	104,175	1995	743,092	2008	3,854,944
1958	64,559	1969	105,690	1997	777,547	2009	4,712,847
1959	80,136	1970	108,706	1999	882,989	2010	6,277,924
1960	80,639	1971	114,121	2000	993,727		

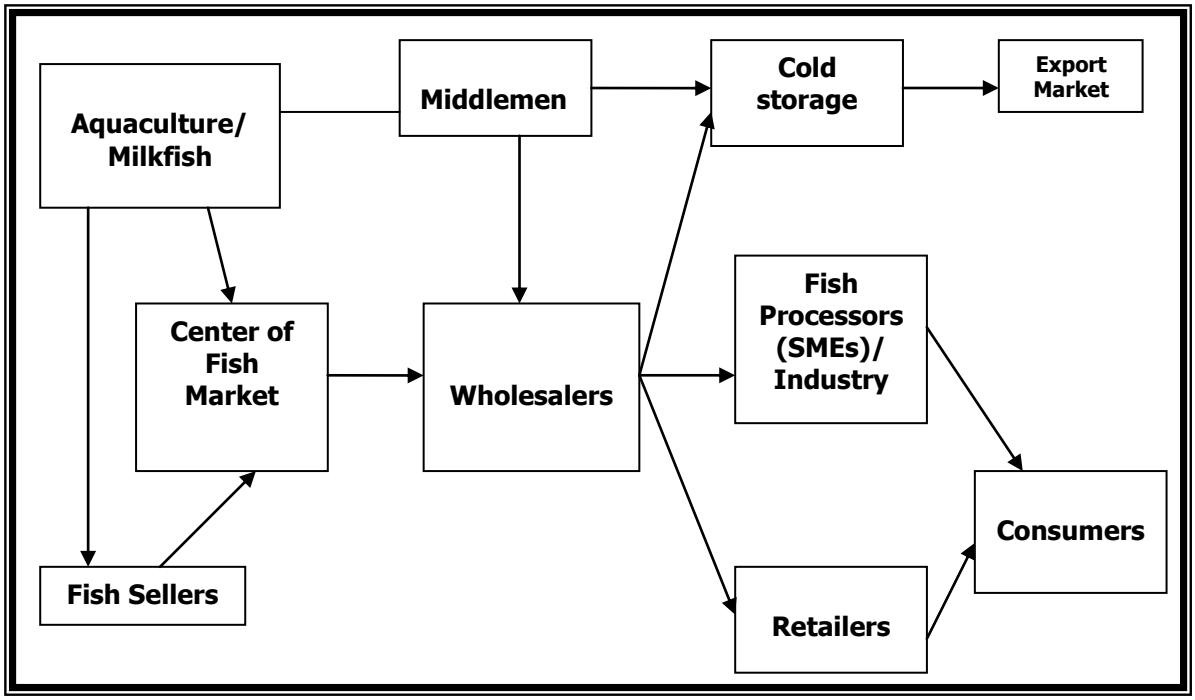
The Ministry of Marine Affairs and Fisheries of Indonesia (MMAF) target increase of fisheries exports was set at USD 4.2 billion for 2012. For 2013, MMAF puts the target on the development and implementation of 160 Indonesian National Standards (SNI) in the fish processing sector in order that about 483 fish products will get SNI. The export of Indonesia's fishery products to major export destinations in 2011 was realized at USD 3.5 billion, specifically the United States at USD 1.07 billion (30.4 %), Japan at USD 806 million (22.9 %), and Europe at USD 459.8 million (13.1 %).

Utilization of total fish production in Indonesia is largely consumed in fresh form (43.1%), frozen (30.4%), canning (13.7%), and in other processed forms (12.8%). These processed forms can either be salted fish, smoked fish, boiled fish products, or fermented fish products such as shrimp paste. Curing fish has not received enough attention from the fishing industry while en smoked fish products have good economic prospects.

In 2011, fish consumption per capita was 31.64 kilograms, an increase of 3.81% compared to the previous year. An average increase of 5.04 % in fish consumption per capita was observed for the years 2007-2011. The growth would not have succeeded without the serious action from government and related parties in improving the fishery industry in Indonesia. Specifically, the Minister of Marine Affairs and Fisheries gave assistance worth USD 6.129 billion to Gresik regency. This assistance included insulated vehicles for marketing purposes, processing and marketing of fishery products, fishing gear, information on business development for fishermen, among others.

In East Java, especially in Sidoarjo, smoked fish prepared from raw milkfish is one of the typical fish products of the region after shrimp crackers. Milkfish that has the form of elongated rather oval with a body length ranging from 30-50 cm, and color scales silver (silver) has its own appeal. Indonesia's milkfish can tolerate a broad range of salt levels in a relatively short time. The sharp fluctuations in common pond temperature can be tolerated by the milkfish. Since 1954, the culture of milkfish in freshwater ponds existed in East Java specifically in the areas of Surabaya and Lamongan.[13] Exhibit 9 presents the distribution channel of fish in these areas. The raw fresh fish (such as milkfish) is either distributed to the fish seller, central fish market, or middlemen. The fish processors commonly bought raw fresh fish from the wholesalers. These wholesalers sell raw fresh fish to the processors on a regular basis.

Exhibit 9
Distribution Channel of Fish in Selected Areas in East Java, Indonesia



Source: Winarsih, et.al., 2011

Sidoarjo, a town in East Java has good potentials to develop fishery products. Exhibit 10 identifies milkfish had the highest total production of 15,853,900 pounds in 2005.

Moreover, SMEs in Gresik in East Java have been producing smoked and cured *Bandeng* (or milkfish).

[13] For details, visit www. www.bi.go.id.

The increase in the buying power of consumers in East Java province resulted to a 10% increase in the performance of SMEs for September 2012.[14] The SMEs contributed 54% to the Gross Domestic Regional Income of East Java Province.

Exhibit 10
Fish Production in Sidoarjo, East Java, 2005

County	Fish Species (pounds)			
	Milkfish	Shrimp	Mixed Shrimp	Tawes
Sidoarjo	3,082,300	728,700	361,500	29,900
Buduran	1,767,500	409,400	204,000	17,200
Candi	1,093,600	230,900	130,800	10,800
Porong	560,100	120,700	64,600	5,700
Tanggulangin	567,100	121,300	67,100	6,100
Jabon	4,123,500	976,200	469,800	40,200
Waru	415,800	95,200	58,100	5,500
Sedati	4,244,000	959,400	494,100	39,600
Total	15,853,900	3,641,800	1,850,000	155,000

Aquaculture production in East Java in 2009 reached 326,296 tons, and is projected to increase to 944,188 tons in 2014, up by 23.88 percent. At the national level, aquaculture production in 2009 amounted to 4.78 million tons, and is projected to be 16,891,000 tons in 2014 which is an increase of 29.07 percent[15]. Revenues for aquaculture until August 2010 met only 32.67 percent of the targeted amount of 11.06 billion IDR or approximately 3.61 billion IDR. The national projection of aquaculture production by commodity is shown in Exhibit 11.

The Indonesian government has allotted about 173 trillion rupiah for the development of fishery infrastructure in the eastern area of Indonesia. On the 16th of January 2013, the Minister of MMAF stated that there is a gap between the fishermen and processing industry and emphasized the need for infrastructure such as roads, cold storage to enhance the National Fish Logistic System (Sistem Logistik Ikan Nasional/SLIN), and support the fishery sector.

Furthermore, the government placed five fishery ports in Nizam Zaman, Pelabuhan Ratu, Pelabuhan Bungus Padang, Pelabuhan Bintung, and Pelabuhan Ambon to facilitate the development and benchmarking of the fishery industry. The huge ships are also provided to

[14] For details, visit surabaya.tribunews.com.
[15] MMAF Strategic Plan, 2010-2014.

support the supply chain of the industry. Five packaging ports, 20 ice factories, 10 cold storage facilities, 3 mini-plants for tuna processing, 8 processing centers, and other facilities have been established to improve the quality of the fishery processing industry. However, the infrastructure for improving industry quality has not been satisfactorily supported by the ease of establishing a business in the fisheries sector.

Exhibit 11
Projection of Fishery Production of Main Commodity

Commodity	Production (Tons)						Growth/year (%)
	2009	2010	2011	2012	2013	2014	
Windu Shrimp	103,450	109,140	115,720	128,700	148,500	188,000	12.95
Vanamei Shrimp	244,650	291,160	344,280	400,300	459,500	511,000	15.90
Milkfish	291,300	349,600	419,000	503,400	604,000	700,000	19.18
Patin	132,600	225,000	383,000	651,000	1,107,000	1,883,000	70.00
Lele	200,000	270,600	366,000	495,000	670,000	900,000	35.10
Nile	378,300	491,800	639,300	850,000	1,105,000	1,242,900	27.09
Seaweed	2,574,000	2,672,800	3,504,200	5,100,000	7,500,000	10,000,000	32.18
Kerapu	5,300	7,000	9,000	11,000	15,000	20,000	30.51
Kakap	4,600	5,000	5,500	6,500	7,500	8,500	13.12
Gurame	38,500	40,300	42,300	44,400	46,600	48,900	4.90
Mas /Tombro	254,400	267,100	280,400	300,000	325,000	350,000	6.60

Exhibit 12 ranks some cities in Indonesia in terms of ease of doing business. Twenty Indonesian cities were studied in the 2012 Doing Business database. It was shown that starting a business in Indonesia takes, on the average, 9 procedures, 33 days and costs 22% of the national income per capita. It is 13 days faster and 8% cheaper than what was measured 2 years ago. Overall, Indonesia still lags behind the Asia-Pacific Economic Cooperation (APEC) average. Despite a shared national legislative framework that regulates business registration across the country, there are marked differences among the cities measured. The decentralization process initiated a decade ago provided regional governments with the authority to administer business licenses. As a result, local governments apply their own license practices and enforce national regulations differently. Time and cost to start a business in Indonesia was fastest in Gorontalo and Palangka

Raya; and cheapest in Pontianak (Exhibit 13). There is a need to simplify the regulation in establishing a business to encourage growth in every sector, including businesses in the fishery sector. As a result of the revision of Government Regulation No. 62/2008, the Minister of MMAF promised an income tax incentive for 12 fishery business sectors, including catching and processing. This incentive urged the fishery industry to process all fish products in the country.[16]

Exhibit 12
Rank of Indonesian Cities by Ease of Doing Business

RANK	City	RANK	City
1	Yogyakarta	11	Palembang
2	Palangka Raya	12	Bandung
3	Surakarta	13	Pontianak
4	Semarang	14	Surabaya
5	Banda Aceh	15	Batam
6	Gorontalo	16	Pekanbaru
7	Balikpapan	17	Makassar
8	Jakarta	18	Jambi
9	Denpasar	19	Medan
10	Mataram	20	Manado

Note: Rankings are based on the average city percentile rankings on the procedures, time, cost and paid-in minimum capital to start a business. See Data notes for details.

Source: Doing Business Database, 2012

Future Policy Directions

The Ministry of Industry gradually focuses on industrial competitiveness enhancement program according to groups of industry. For the periods 2010-2014, six industry groups that have good opportunities are developed, namely: (1) Labor-Intensive Industries, (2) Small- and Medium-Industries, (3) Capital Goods Industries, (4) Natural Resource-Based Industry, (5) High-Growth Industry, and (6) Special Priority Industries. Moreover, the government will also use 4 supporting instruments, namely: the state budget, fiscal incentives, provision of industrial estates infrastructure, administrative support, as well as inviting the private sector in the development through the Public-Private Partnership (PPP) scheme.

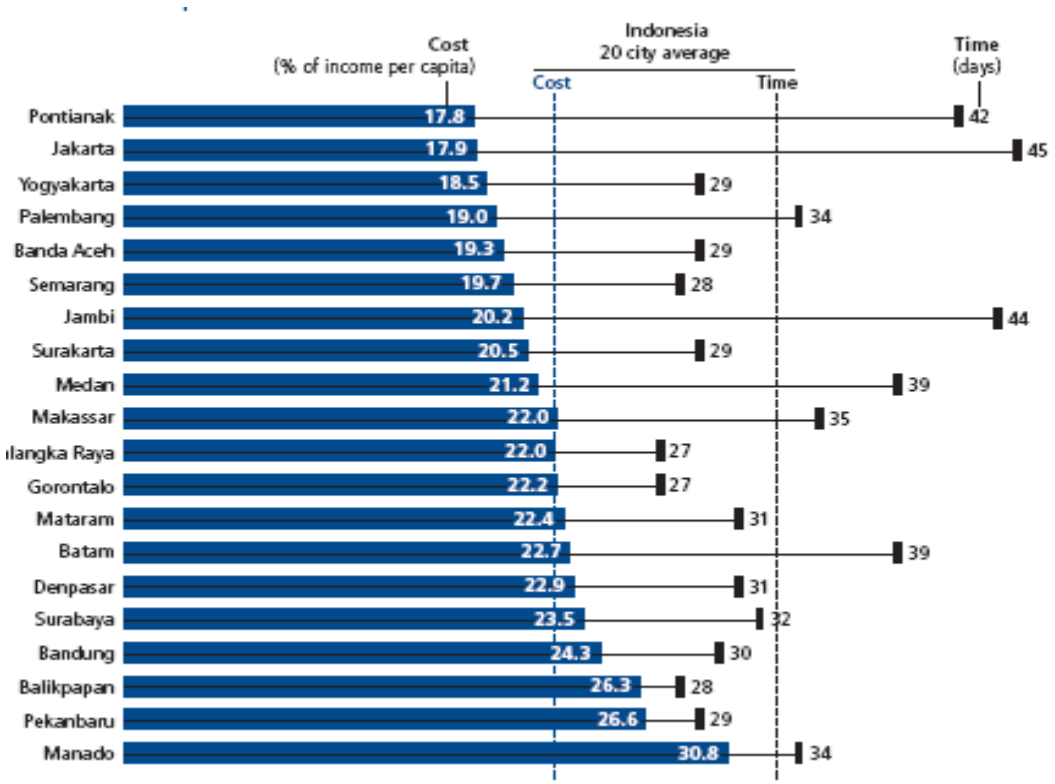
The policy of SMEs Development is aimed at the strengthening the development of existing industries; creating new business opportunities and manpower absorption; and improving the interconnection and partnership between SMEs and large industries, and also other economic sectors.

[16] For details, visit www.bisnis-jatim.com, March 23, 2011.

The SMEs Development is aimed at making SMEs become the main activator of the national economy. By 2025, it is expected that SMEs can contribute to the Industrial GDP amounting to 54% with an average growth per year of 12.2%. Quantitatively, the short-term and middle-term targets have been stipulated in the Strategic Plan of SMEs for the years 2005-2009.

The Ministry of Economic Affairs, likewise, created a masterplan on the "Acceleration and Expansion of Indonesia Economic Development." The goal of this masterplan is high, inclusive, and sustainable economic growth for Indonesia. To achieve the target goal, six economic corridors (Exhibit 14) have been prioritized as the centers of growth in the region that will develop the industrial resource-based cluster per commodity and / or sector. Specifically, the fisheries and fish processing industry have been identified in 3 economic corridors, namely:

Exhibit 13
Time and Cost to Start a Business in Selected Cities in Indonesia



Source: Doing Business Database, 2012

- **Sulawesi Economic Corridor** will be the center of production and processing of agricultural, horticultural, **fisheries**, oil and gas, mining. The fisheries industry will be developed in Makassar.
- **Bali-Nusa Tenggara Economic Corridor** will be the gateway of tourism and support the national food. The fisheries industry in Lombok (NTB) and Kupang (NTT) will be the priority areas.
- **Papua-Maluku Economic Corridor** will be a processing center for the abundant natural resources and a center for development of food, **fisheries**, energy and mining.

Exhibit 14
Six Economic Corridors in Indonesia

Source: Facts and Figures, 2011, Ministry of Industry, Indonesia.