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PROSPECTS FOR INDONESIA'S EXPORTS OF AGRO-INDUSTRIAL PRODUCTS DURING REPELITA VI

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PROSPECTS FOR INDONESIA'S EXPORTS OF AGRO-INDUSTRIAL PRODUCTS DURING REPELITA VI

Executive Summary

Over the past five years, Indonesia's exports of agroindustrial industries products expanded by 12 percent per annum and performed reasonably well. In 1994, exports amounted to about \$2.9 billion, or about half of total agricultural exports.

Exports of the agroindustrial sector consist of a large number of different products. These products are differentiated by type of raw material and by type, or degree, of processing. Even though total exports are significant, exports of each individual item are quite small. Indonesia's only agroindustrial product with sizeable exports is crumb rubber (\$867 million). There is no other product with exports above \$200 million, and exports of most products are under \$100 million.

The target for agroindustrial exports at the end of Repelita VI is \$5.8 billion. In order to achieve this target, exports would have to double from their current value. The main difficulty with achieving the target is that Indonesia's agrobased exports are concentrated in estate crops (\$1.6 billion). Most of these commodities (rubber, palm oil, etc) are tropical products for which world trade has expanded little over the past decade. World exports of rubber have increased by only 0.4 percent per annum; world exports of vegetable oils have increased by 4.8 percent per annum. An increase in Indonesia's exports by the amount envisioned by Repelita VI would likely cause a fall in world prices, mitigating the increase in export volumes. Thus, it is unlikely that the Repelita VI export target can be met.

World markets for high-valued products such as fresh and processed fruits and vegetables, livestock and fish products have far greater growth potential, particularly in Asia. With rising incomes, consumers prefer higher valued products and convenience foods that require a greater degree of processing. Thus, these products have high income elasticities of demand. Although South East Asian countries have not traditionally exported these products, Thailand has recently become a successful exporter of many of them. Indonesia has the potential to move into these products as well.

Markets for food products are some of the most competitive in the world and margins for many products are extremely thin. For the industries surveyed for this study, there are four major factors which influence a company's profitability:²

Raw materials Unlike other industries that have used Indonesia as a platform for labor-intensive manufacturing, agroprocessing depends on a regular supply of high quality raw materials. This involves building a strong relationship between processors and farmers. In Indonesia, there are reports of a large number of failing agroprocessing plants. The ostensible reason is an inadequate supply of raw materials.

Packaging Costs For highly processed products, the cost of packaging can be as important as the cost of raw materials. In the case of canned foods, for example, the cost of the can may represent 40 percent of total costs. Prices for cans in Indonesia are 13 to 20 percent above those in competing countries.

Market Intelligence Indonesian food processors are relatively new to world markets and often lack information for informed decisions on prices and investment.

Transportation costs Some companies report that international transportation costs are one-third higher than from Thailand. In addition, the high cost of inter-island shipping raises the cost of raw materials (both imported and domestic).

² Interest rates and labor costs are also major elements of costs, but are beyond the control of processors. The high cost of capital in Indonesia places agroprocessors at a disadvantage relative to processors in other countries.

Recommendations

Failing Agribusinesses and Raw Material Supplies. The underlying causes for failed agribusiness in Indonesia vary considerably. There are reports of new investments in processing plants with capacities that exceed raw material supplies and that use inappropriate technologies. Also, some processors are unable to earn a profit at existing market prices for raw materials. In other words, there appear to have been many poor investment decisions; for these investments, direct government assistance would now be of little value.

The Government may be able to help investors avoid bad decisions in the future by providing information on the critical factors leading to successful and failed businesses in the past.

- The Government should upgrade its capability to provide information that is needed by entrepreneurs to assess the risks of proposed agribusiness projects. This involves developing delivery mechanisms for supplying information to business and upgrading the skills of Government staff involved with agribusiness.
- The Government should conduct a survey of agribusinesses in order to pin-point the true causes of failure. The survey should identify the types of raw material, appropriateness of the processing technology, mechanisms for obtaining raw material supplies, types of contracts with farmers, information on domestic and international prices, and other factors related to the success or failure of the business. The information would be used to help evaluate future projects in agribusiness.

Deregulation. Interviews with processors in selected industries identified certain policies that contribute to the high cost of raw materials. The recommendations below are limited to problems associated with the canned pineapple, tuna, and poultry industries, where we conducted interviews. A broader review of agrobased industries would result in a longer list of measures for deregulation.

- Reduce import tariffs on cans and the raw materials used in can manufacturing -- carbon and tin plate.
- Consider eliminating restrictions on imports of used fishing boats. One possibility would be to allow imports of used boats of less than 60 tons and to impose strict licensing controls to prevent competition with small local fishermen.
- Reduce the gap between Indonesian sugar prices and those in competing countries. This could be done gradually by reducing Government-controlled distribution margins.
- Reduce feed costs for intensively fed animals by eliminating the tariff on corn and by eliminating the local content rule on soymeal. After the local content rule is eliminated, Indonesia's soybean crushing plant should be allowed to import soybeans and sell soymeal on its own account, rather than through Bulog.
- Eliminate restrictive import licenses for breeding fowl.

Market Intelligence. The Government should identify information that should be made available to business as a public service or on fee-for-service basis, and should develop mechanisms for delivering this information to businesses on a timely basis. Examples are strategic information on international markets and prices, tariff rates and tariff commitments resulting from the Uruguay Round and AFTA, and processing standards in major export markets.

Infrastructure. The Government should conduct a comprehensive review of planned investment in ports and other infrastructure, with a view towards expanding investment considerably. *Improved infrastructure could be the single most important factor leading to improved exports of agroindustrial products.*

PROSPECTS FOR INDONESIAN AGRO-INDUSTRIAL EXPORTS DURING REPELITA VI

The agroindustrial sector consists of a wide range of heterogeneous products. This heterogeneity is due to the many types of raw material inputs that are used in agroprocessing and the many different types of processing methods. Agroindustrial products include products derived from grains, root crops, fruits, vegetables, tropical products (rubber, coffee, tea, palm, cocoa, etc.), livestock, and fish. Processing methods include labor-intensive cutting and packaging, mechanical extraction and milling, cooking and freezing, and capital-intensive chemical processing.

I. FACTORS DETERMINING THE COMPETITIVENESS OF AGRO-BASED INDUSTRIES

There is a fundamental difference between agro-based industries and the other manufacturing industries which have contributed to Indonesia's export expansion. Whereas other manufacturing exports depended heavily on Indonesia's low wage rates and favorable business climate for success, agroindustrial exports depend on raw material supplies and a complex web of interrelated economic and technological factors that link the processor back to the farmers. There are only a few agroprocessing activities where low wages alone are critical to success (e.g. labor-intensive meat and fish processing). For the most part, agroindustrial exports depend on competitiveness in several of the processing stages that lead up to the final processed product.

Agricultural products may enter international trade at one or more stages of processing. The discussion below provides a very brief overview of some of the factors that influence competitiveness at various stages of processing and examples of when a product may enter export markets.

Fresh Products -- Competitiveness in raw materials for agroprocessing depends on resource availability and a wide-variety of climatic and technological factors.

- Off-Java, there is extensive land available for growing plantation crops -- including tropical tree crops and crops for which large scale mechanized growing techniques are most economical.
- Even where land is scarce, Indonesia has an advantage in high density vegetable crops such mushrooms, beans, and other vegetables. These crops are labor intensive, economize on land, and can be grown by small-holders.
- Indonesia also has abundant marine resources, providing it a potential advantage in industries based on fish processing. However, high port and other infrastructure costs in the Eastern Islands offset this advantage. Furthermore, Indonesia lacks the fishing fleet needed to fully exploit this resource.
- Indonesia has less of an advantage in intensively-fed livestock commodities because of high feed costs. Indonesia lacks certain types of high-protein meals; and feed grain production in Indonesia is interspersed throughout the country, leading to high transport costs.

First Stage Processing -- Most agricultural products are bulky and many deteriorate quickly after harvesting. Although there are exceptions, many products require some type of processing before entering trade.³ Consequently, it is most economical to locate first-stage processing plants in the proximity of the raw material supplies. Below are a few examples:

³ Fresh fruits and vegetables can be shipped directly because of the strong consumer preference for fresh products. The premium for fresh products must be high enough to cover the extra transport costs due to refrigerated containers and the bulkiness of the product.

- Sugar cane and cassava must be processed within two days of harvesting. In addition, the timing of harvest is critical to ensuring that the processing plant operates at full capacity during the harvest. Thus, cassava is usually processed into starch or flour immediately after harvesting. Sugar cane is milled immediately into raw sugar.
- Because of the bulkiness of the fruit, palm and coconuts are normally processed into crude vegetable oil before entering trade.
- Although pineapples may enter into trade in fresh form, they are usually processed immediately when used for canning. This maximizes the sucrose yield of the pineapple. Thus, it is more economical to process canned pineapples near the source of raw materials.
- Tuna fish enter world markets at various stages of processing -- fresh after freezing, filets after cutting, or as processed products. Recently, developed countries have begun importing tuna filets for their canning industries. One reason for this is the high cost of cans in developing countries. Also, developed countries maintain higher tariffs on canned products than on fresh products.
- Grains can enter into trade after drying in either milled or unmilled form. Thus, there is much more flexibility on the location of milling plants. Often, the most profitable location of the mill depends on where markets for milling by-products are the strongest.

Final Stage Processing -- The factors influencing the location of final stage processing vary tremendously by type of product. Nevertheless, there are general factors which influence all processing plants.

First, final stage processing tends to be capital intensive. Thus, high interest rates place Indonesian agroindustries at a disadvantage relative to competitors. However, high capital costs can be partially offset by close to year-round operation of the processing plant. Thus, Indonesia's extended growing season provides it an advantage in some products, provided that a continuous flow of high quality raw materials can be supplied to the processing plants.

Second, many types of processed foods require other agricultural inputs and packaging before entering trade. Thus, the competitiveness of the product depends on the costs of a wide range of other raw materials (including their transport to the plant). Also, the types of raw materials used depends on taste preferences in the final export market.

- Apparently, there are many agroprocessing plants in Indonesia that are idle or very underutilized. Reportedly, the reason is an inadequate supply of raw materials.
- Both Malaysia and Indonesia are net importers of sugar. Price distortions in both countries influence the decision where to establish sugar refining factories. Malaysia imports raw sugar and sometimes exports highly refined sugar. Indonesia has little processing capacity for highly refined sugar, and therefore imports refined sugar.
- Tuna can be canned using either water or vegetable oil as a medium. In the case of canned tuna using vegetable oil, consumers prefer soyoil. This places canned tuna manufacturers in Indonesia at a slight disadvantage since soyoil must be imported due to the poor quality of domestically produced oil.
- Soluble coffee usually requires the blending of several different types of coffees to meet different taste preferences in final export markets. Since coffee producing nations generally produce a narrow range of coffee types, it is usually more economical to locate soluble coffee plants in consuming countries rather than producing countries.

Specialty Products -- Although Indonesia now exports certain types of specialty foods (e.g. biscuits and noodles), the export potential for these products is relatively small. Unlike other commodities which involve standard product definitions and are traded through international brokers, specialty products are non-standardized and involve direct marketing. This requires the establishment of brand recognition and large outlays for advertising. To be cost effective, advertising expenditures must be spread over a wide range of products for which domestic markets are

quite small. This makes it more difficult for producers of specialty products to achieve economies of scale before entering export markets.

II. WORLD MARKETS FOR AGRICULTURAL PRODUCTS

It is difficult to provide an overview of world markets for agroindustrial products. Aggregate data on world markets are generally classified by the type of raw material, rather than by the degree or type of processing. Furthermore, agricultural strategies in most countries focus on expanding exports of high-valued agricultural products, whether fresh or processed. An example is horticultural commodities, for which export development of fresh and processed exports evolves simultaneously. Exporters of fresh products require the high quality products and the efficient marketing channels that are also required by processed food exporters. A good example of a successful exporter of fresh and processed horticultural products is Thailand.

Nevertheless, several lessons can be drawn from trends in world markets for agricultural products shown in Table 2.

Table 2: World Markets for Agricultural Commodities

Commodity	Market Description	Growth Rate (percent per annum)
Traditional		
Tropical Products*	Negligible Growth	1.7
of which rubber	Negligible Growth	0.4
Cereals	Negative Growth	-0.5
Sugar	Negative Growth	-1.5
Vegetable Oils*	Moderate Growth	4.8
Non-Traditional		
Fruits and Vegetables*	Rapid Growth	10.1
Meats	Moderate Growth	6.6
Fish Products*	Rapid Growth	10.8
Beverages, Tobacco, and Processed Foods*	Rapid Growth	11.5

Source: FAO. With the exception of the items with asterisk, all growth rates are compounded over the years 1983 to 1993. For items with asterisk, growth rates are compounded over the years 1983 to 1991.

- World markets for the traditional exports of Indonesia and other South East Asian countries have been particularly weak. World exports of tropical products grew by only 1.7 percent per annum over the past decade. The growth rate for vegetable oils has been somewhat higher at 4.8 percent per annum.
- World trade in higher valued products, such as meats, fruits and vegetables, fish products, and other processed products, has been far more dynamic. Growth rates for many products have exceeded 10 percent per annum over the past decade. This reflects the high growth rates of many emerging markets and high income elasticities of demand for higher valued products, including processed foods.
- Although South East Asian countries have not traditionally exported high valued food commodities, Thailand has become a successful exporter processed fruits, vegetables, and fish products. It also exports poultry products.

Agricultural exports generally grow more slowly than manufacturing exports. In the fast-growing economies of East Asia, there has been a dramatic decline in the share of agricultural exports in total exports (See Appendix II-2).

III. INDONESIA'S EXPORTS OF AGROINDUSTRIAL PRODUCTS

Indonesia's agroindustrial sector is still relatively underdeveloped. As noted above, the sector is very heterogeneous with many niche products. Individually, exports of most products are quite small. In total, however, agroindustrial exports can add up to a sizable amount. In 1993, for example, Indonesia's agroindustrial exports were \$2,351 million, or nearly half of Indonesia's total agricultural exports.

The largest agro-based export items are: crumb rubber, canned foods, livestock feeds, cigarettes, vegetable oils, and cassava products (Table 1 and also Appendix I). Within agro-based industries, the only product with sizable exports is crumb rubber (\$867 million). There are no other products with exports above \$200 million and exports of most agro-based products are well under \$100 million. With the exception of processed rubber, the most important processing activities are probably canning (canned fruits, vegetables and fish) and vegetable oil processing.

Table 1: Indonesian Exports of the Top Three Products within each Agro-based Industrial Category (1993)

Food Industry (\$188 m)	Livestock/ Fishery (\$315 m)	Beverages/ Tobacco (\$148 m)	Plantation (\$1434 m)	Small Scale (\$266 m)
Canned Fruit (\$50 million)	Livestock Feed (\$169 million)	Blond Cigarettes (\$68 million)	Crumb Rubber (\$867 million)	Cassava Products (\$73 million)
Canned Vegetables (\$22 million)	Canned Fish (\$71 million)	Kretek Cigarettes (\$36 million)	Olein (\$123 million)	Rattan Wicker (\$48 million)
Cashew Nuts (\$23 million)	Fresh Fish Meat (\$30 million)	Candy (\$17 million)	Coconut Oil (\$85 million)	Dried and Salted Fish (\$48 million)

Source: Ministry of Industry

IV. REPELITA VI EXPORT TARGETS

Indonesia's exports of agroindustrial products grew by 12 percent per annum over the past five years and have performed reasonably well. However, a significant part of this increase was due to a \$500 million dollar surge in the export of estate crops in 1994. Nearly all of this was due to severe upward pressure on prices for rubber and tropical oils. International prices for many estate crops have already begun to soften.

Indonesia's export target for agroindustrial products at the end of Repelita VI is \$5.8 billion (Table 3). In order to reach these targets, exports would have to grow by \$3 billion, or 19 percent per annum. This is a rate substantially above that achieved over the previous five years.

Table 3: Agro-based Industrial Growth Targets for Repelita VI

	1989	1990	1991	1992	1993	1994*	Growth Rate %	Repelita Target \$ US Million	Implied Growth Rate %
	----- \$ US Million -----								
Food Industry	70	84	133	147	188	232	27	574	25
Livestock and Fishery Products	216	270	323	312	315	352	10	750	21
Beverages and Tobacco	78	89	118	162	148	121	9	240	19
Estate	1126	1642	1748	1392	1434	1957	12	3637	17
Small Scale	166	201	214	217	266	213	5	600	30
Total Agro-based Industries	1656	2286	2536	2230	2351	2875	12	5801	19
Total Agriculture	3730	3781	4308	4580	4798	NA			

Source: Ministry of Industry

*1994 figures are extrapolated on the basis of January to November data

Estate-based products are Indonesia's most significant agroindustrial export and will have to grow significantly to meet the Repelita VI export target. Because of sizable investments in new plantings for several commodities (e.g. palm and cocoa trees), domestic supplies of raw materials are likely to be adequate for a significant increase in exports of these products. In the case of rubber, export growth will depend on a significant increase in rubber yields from small-holders.⁴ However, world markets pose a significant constraint for all of Indonesia's estate commodities. An export increase of the magnitude envisioned in Repelita VI will likely lead to a significant fall in world prices and thereby dampen export growth.

Thus, the greatest potential for expanding exports may be in other agroindustries, such as the food, livestock and fishery industries. As noted earlier, Thailand has become a successful exporter of many products produced by these industries. For example, Thailand's exports of canned pineapples and tuna alone amounted to \$876 million in 1993. In contrast, Indonesia's exports amounted to only \$97 million. Indonesia compares well with Thailand in terms of labor costs, climate, and natural resource base; thus, there is considerable room for expansion of these non-estate agroindustries.

⁴ Another way to increase the value of exports is to increase the quality of the exported commodity. This has been an issue in Indonesia for a long time. However, Government attempts to raise quality through administrative fiat (by regulating export quality) have been unsuccessful.

V. SCOPE AND ORGANIZATION OF THE REMAINDER OF REPORT

The remainder of this report focuses on: (1) three major constraints affecting most agroindustrial exports; and (2) four case studies of selected commodities. The three major constraints are: raw material supplies, packaging, and market intelligence. A regular, year-round supply of high quality raw materials is critical to the success of agroprocessors. After raw materials, packaging is often the most important cost of production for processed foods.⁵ Indonesia is relatively new to world markets for many types of agro-based products. Thus, market intelligence is an issue for many companies.

The case studies cover four products: canned pineapples, canned tuna, poultry and cassava chips and pellets. All four items are major export items of Thailand. However, exports of each face constraints in Indonesia. Indonesia has had some success in exporting canned foods, but many processors face costs for one or more items that are higher than in competing countries. The world market for poultry is huge, but Indonesia is at a disadvantage because of high feed costs.⁶ Finally, Thailand and Indonesia are the world's largest exporters of cassava chips and pellets, but world markets for these products are severely limited.

Transport Costs

An evaluation of Indonesia port facilities and other types of infrastructure is beyond the scope of this study. However, some companies report transportation costs that were as much as one-third higher from Indonesia than from Thailand. In a few cases, this may be the most important factor influencing a company's competitiveness vis-a-vis Thailand. The high cost of shipping also affects the cost of raw materials and packaging (corn in the case of poultry, cans in the case of processed foods.) Thus, the Government should conduct a comprehensive review of planned investment in ports and infrastructure, with a view of expanding investment considerably. **Improved infrastructure could be the single most important factor leading to improved exports of agroindustrial products.**

⁵ This study focuses only on cans. However, other packaging materials, such as glass, plastic, and tetrapack may take on added importance in the future. Furthermore, Indonesia could move to higher-value added exports by packaging in glass-- particularly vegetables. Because of the many types of packaging and their great importance in costs of production, a separate study is needed on the packaging industry.

⁶ Poultry is apparently not classified as an agroindustrial product in Indonesia. In other countries, however, poultry is considered to be a major industrial item.

VI. RAW MATERIAL SUPPLIES

One of the most critical problems facing agroprocessors is a secure supply of raw materials. Unlike many other export manufacturers that use Indonesia as a platform for labor-intensive processing, agroprocessing often depends on a domestic supply of raw materials. Success requires regular supplies of raw materials throughout the year (or for as much of the year as possible), a price that allows the finished product to compete internationally, and a higher and more standardized quality than is generally available on the domestic market.

There are reports of many idle or under-utilized agroprocessing plants Indonesia. Many, if not most, of these processors claim that their principal problem is inadequate supplies of raw materials -- or more likely, the inability to purchase domestic supplies at a price that will allow the processor to compete internationally.

There are a wide variety of mechanisms for obtaining agricultural raw materials, including purchases from the spot market, full vertical integration, and contract farming. There are also wide variations within each of these options, particularly on land arrangements and types of contracts. One common arrangement is the plasma system. Under this system, the processor owns a proportion of the land. This land (the plasma or nucleus) provides part of the processor's raw material supplies and seeds, and serves as a focal point for demonstration and training contract farmers. The remainder of the processor's needs are secured through contracts with farmers outside the estate. Contracts also vary widely and may include: purchase guarantees, minimum prices, dates of harvest, delivery mechanisms, provisions for credit or credit guarantees, etc.

Criteria for Successful Agribusiness-Farmer Relationships

Determining the best type of mechanism for obtaining raw materials has been a major issue in all developing countries. Unfortunately, there is no single, unequivocal answer to this question. Because of the diversity of agricultural commodities, production systems, and markets, several types of processor-farmer relationships may work in some instances, but not in others. Nevertheless, there are some generalities which usually apply:

- Failure is more likely when the processor relies on spot market purchases of raw materials. Markets in Indonesia are very underdeveloped. Consequently, raw material supplies are too unreliable for the constant flow of inputs needed by processors and quality varies too much for the standards required in export markets.
- Success in contract farming is usually more likely if the processor controls at least a portion of raw material production, e.g. up to the break-even point for the processing plant. In Indonesia, there have been several successful agroprocessors with fully integrated production systems (100 percent control of raw material supplies). However, full integration is neither a prerequisite nor always the most cost-efficient method of arranging raw material supplies.⁷
- Success in contract farming is more likely when the processor deals directly with farmers -- coordination of production decisions, recommending technologies, etc. Failure is more likely when other intermediaries, such as government agencies, are involved.
- Success is more likely when the processor provides direct assistance to farmers. This includes financial assistance or bank guarantees for the purchase of inputs (planting material, fertilizer, pesticides/herbicides, etc.) and technical assistance on growing technologies and post-harvest handling. Without such assistance, farmers are unlikely to adopt the new and more expensive technologies that are required to meet the needs of agroprocessors.
- Success is more likely when the agroprocessor shows a strong commitment for a lengthy period of time. Farmers are generally willing to accept lower prices in return for income stability, but only with a strong commitment by the processor. This is a problem in Indonesia since investors desire a relatively short period

⁷ One reason for this is that it is difficult to buy contiguous plots of land in Indonesia. As a result, there are no returns to highly mechanized farming techniques. Rather than centralized management of a large number of plots of land, it is more cost efficient for processors to contract with the farmers.

to recover their investment because of the high cost of capital. Longer payback periods should be built into the financial appraisals of agroindustrial projects.

- Success is more likely when the processing facility is financially viable at the landed price of imports. In times of domestic shortages, imports can serve as an alternative source of raw material supplies.
- Success is more likely when the processor has a thorough understanding, not only of final product markets and processing technologies, but also the markets and technologies for raw materials.

Recommended Policy Actions

The Government needs to upgrade its capacity to provide businessmen better information for assessing the risks of proposed agroprocessing projects. To this end, the Government should develop an information database on successful and failed agro-businesses. Included would be information on the type of crop; its appropriateness to the processing technology; mechanisms for obtaining raw material supplies; types of contracts with farmers; mechanisms for financing the farmer's inputs; methods to upgrade technology; time-series data on domestic and international prices for financial appraisal; and other factors related to the success or failure of the business.

VII. MARKET INTELLIGENCE

Agribusinesses often lack information on which to base sound investment and pricing decisions. The Government should identify appropriate information that should be made available to businesses either as a public service or on a fee-for-service basis. Some examples are:

- Some agroprocessors lack **strategic information on international market conditions and prices**. This makes it more difficult for them to negotiate favorable prices with international brokers (See section on canned pineapples). Data banks on overseas prices for some commodities are now available through international reporting services. The Government should review these data banks and determine whether it would be worthwhile to make this information available to agribusiness on a fee-for-service basis.
- Few, if any, agribusinesses seem to know the **implications of the Uruguay Round** for their commodities. Yet, the Uruguay Round could have a major impact on future market trends, and a list of all Uruguay Round country commitments is now available. Government officials need to learn how to interpret these commitments. The information should then be summarized and disseminated to the public.
- The Government needs to review current mechanism for relaying information on **product standards** to processors. Agroprocessors generally rely on their buyers or joint venture partners for information on the processing techniques needed to meet standards in export markets. However, this information is generally not available for alternative markets, and changes in standards are sometimes relayed to processors after production runs are already in progress. This can lead to large losses.
- **Tariff schedules** for most of Indonesia's export markets are apparently available on CD-rom. The Government could review this information and examine the feasibility of making this data available to the public on a fee-for-service basis.
- According to processors, many **non-tariff barriers** (NTBs) remain on commodities of export interest to Indonesia (e.g. canned pineapples in Japan, canned tuna and mushrooms in the European Union). A full list of these barriers should be compiled and made available to senior Government officials. All NTBs should be reviewed for their legality under the GATT. When found to be of questionable legality, the Government should vigorously pursue GATT mechanisms to have them removed.
- Many agroprocessing investments have apparently failed because of unrealistic expectations about the ability of **domestic markets to provide raw materials** for processing. The Government could provide an information data bank on successful and unsuccessful agroprocessor-farmer relationships (See preceding section on raw material supplies).

VIII. CAN MANUFACTURING

For processed canned foods, the can itself represents a major proportion of the finished goods price. According to processors, the cost of cans ranges 20 to 40 percent of the total price, depending on the size of the can and value of other raw materials.

Indonesian Can Prices Exceed World Prices

Prices for cans in Indonesia are from 13 to 20 percent above those in competitor countries. Several factors appear to contribute to high prices. First, the basic raw material (carbon plate) used in tin plate production is imported. PT Latinusa, the only tin plate producer in Indonesia, imports carbon plate (5 percent tariff) since the quality needed for canned foods is not available domestically.⁸ In 1993, Latinusa operated at full capacity, producing 130,000 tons of tin plate and supplying approximately 70 percent of the domestic market. The remainder of the market for tin plate was supplied by imports.

A second problem is the high tariff on tin plate. Many canned food exporters rely heavily on cans made from imported tin plate. Although the quality is similar to domestic plate, processors prefer imported plate since prices are lower, even with 20 percent duties.⁹ Also, imports can sometimes be arranged on a more timely basis than can domestic supplies. This is critical to processors, who must process and can food immediately upon harvest.

A third problem is that nearly all imported tin plate is transshipped from Jakarta to can manufacturing plants throughout Indonesia. Domestically produced tin plate must also be shipped from Jakarta. This raises prices because of the high cost of inter-island shipping.

A fourth factor may be inefficiencies in can manufacturing. This is more difficult to assess. However, the scale of production in Indonesia may be inefficient because of the small domestic market. Consequently, there are no international can manufacturing companies operating in Indonesia. These companies do operate in many of the countries that compete with Indonesia. Also, the tariff on cans is 30 percent.¹⁰

Benefits of Lower Can Prices for Indonesia's Competitiveness

Reducing can prices to world levels would be a major boost to the competitiveness of canned food processors in Indonesia. Most processors sell through international brokers on small margins. Markets are extremely competitive and processors find it difficult to meet even small changes in prices from competitors. In the case of mushrooms, for example, the typical Indonesian price might be \$8.00 per case (See table below). Competitor prices can vary plus/minus \$0.20 from this price. At the international price for cans, the Indonesian mushroom processor could easily meet the lower international price of \$7.80. The same is true for other commodities.

⁸ Tin plate represent 65 to 70 percent of the cost of a can.

⁹ Some can manufacturers and food processors have formed innovative relationships to obtain indirect duty drawbacks on the tin plate. When the food processing company has white list status, the processing company imports tin plate and contracts out the can manufacturing on consignment. When the processed food company does not have white list status, the can manufacturer imports the tin plate and applies for rebates after the canned foods are exported.

¹⁰ High transport costs (because of the high volume of air in the can) form a natural barrier to trade in cans. Thus, a high tariff on cans is not necessary.

Table 1: Implications of Can Prices for Indonesia's Competitiveness

Commodity	Price		Cost of Cans		Price from Indonesia
	Indonesia	Competitor	Indonesia	Competitor	Assuming International Price for Cans
	----- U.S. Dollars per Case -----				
Mushrooms	8.00	7.80	2.00	1.80	7.80
Pineapple	11.00	10.80	2.00	1.80	10.80
Tuna	22.00	21.00	7.70	6.45	20.75

Source: Based on information provided by processors. The number and size of cans in each case can vary by commodity.

Recommended Policy Actions

Substantially reduce tariffs on cans and the raw materials used in can manufacturing. Since the carbon plate used in tin plate manufacturing is not produced domestically, there is no point to retaining this tariff. Indonesia's domestic producer of tin plate has been in operation for eight years, and should now be competitive with imports at little or no tariff. There are natural barriers to trade in cans themselves. Thus, the tariff on cans should be set at a rate which is no higher than that for tin plate.

Table 2: Recommended Tariff Structure for Cans

	Carbon Plate	Tin Plate	Cans
Current Tariff	5%	20%	30%
Recommended Tariff	0%	5%	5%

IX. CANNED PINEAPPLES

World Market (\$601 Million): Moderate Growth

World exports have grown by 6.6 percent per annum over the past decade, or by \$284 million. Much of this growth has occurred during the past four years because of declining production in the United States.

Principal Exporters (1993):	Thailand	\$287 million
	Philippines	\$94 million
	Indonesia	\$50 million
	Kenya	\$35 million
	Malaysia	\$26 million
	Singapore	\$25 million
	South Africa	\$17 million

Market Potential

Domestic consumption in Europe and the United States has been fairly flat during the past couple of years. Unless there are additional production cutbacks in the developed countries, much of the growth potential is in Asia. There is little potential to displace Thailand as the world's largest exporter, but Indonesia is well-placed to take advantage of future growth in Asia and to penetrate Japanese and Korean markets.

Indonesia's Advantages

Indonesia's major advantages are an even **climate** and **low land costs off-Java**. According to industry sources, there is suitable land off-Java for growing pineapples. At least 2,500 hectares are likely to be needed for an efficient processing plant.

- Pineapples are best grown in a plantation system on contiguous tracts of land. This permits mechanization and allows processors to control the planting material, pesticide use, the timing of the harvest, and delivery to the processing plant. Such controls are necessary to keep costs low and to meet quality standards in developed country markets.

Indonesia's Disadvantages

High interest rates, long lead times for project start-up, and high up-front costs (e.g. for permits) lead to **high investment costs** in Indonesia. As noted above, relatively large tracts of land are needed to achieve an efficient scale of production in pineapple processing. Thus, investment in land acquisition and preparation is also needed. There is little potential for developing a competitive export crop using contract farming with existing small-scale pineapple growers.

World markets for canned pineapple are extremely competitive with thin margins. In Indonesia, various factors raise costs above those in Thailand. Lowering costs by \$0.25 per carton (from a base price of \$11.50) would be a major boost to competitiveness.

Port and other **infrastructure bottlenecks** are one of the most significant factors raising costs. For smaller processors, shipping charges out of Lampung are perhaps \$0.47 per carton higher than from Thailand. One reason for higher costs is the back-hauling of empty containers. Another factor that contributes to higher costs is that imported tinplate for cans is transshipped through Jakarta back to Lampung.

- Shipping charges vary by size. Large exporters report that their shipping charges are now less than from Thailand because of recent port and other infrastructure improvements in Lampung.

Indonesian **sugar prices** are well above those in Thailand and Malaysia.¹¹ Depending on the pineapple variety, high prices in Indonesia place canned pineapple producers at a competitive disadvantage of about \$0.20 per carton.¹²

High quality, refined sugar (SH1) is not produced domestically and must be imported. Since processors use relatively small amounts of refined sugar (less than 800 tons per month for the largest processor), it is difficult to arrange timely import shipments. On occasion, therefore, processors must pay even higher prices for imported sugar on the retail market.

Recommended Policy Actions

1. The Government could continue to **promote the development of pineapple plantations off-Java**, particularly in transmigration areas. However, new plantations should not precede the development of adequate infrastructure.

2. Although beyond the scope of this study, intensified efforts to **improve port facilities** in Lampung, as well as in other parts of the country, would provide a major boost to exports of processed agricultural products.

- There are reports that Indonesia is considering a new port in Batam to replace Singapore as a transshipment point. The Government should not introduce regulations that would require exporters to use this port.

3. **Lowering Indonesian sugar prices** would provide a major boost to competitiveness. Assuming that the Government is unable to deregulate sugar or lower prices in the near term, every effort should be made to keep the nominal retail price of sugar unchanged for the next couple of years. In addition, the premium on SH1 sugar should be raised to reflect premiums on world markets.

- Margins for the distribution of sugar appear excessive because of Government licensing controls. By lowering distribution margins, the Government could keep retail prices unchanged in spite of increases in the farm price.

4. The Government could assist exporters through **trade promotion fairs and by providing market information** on prices in developed countries and in competing exporting countries.

- Direct sales to private brands and institutional buyers in the developed countries, rather than through brokers, would save on brokerage fees (perhaps 2-3 percent off the finished good price). The development of buyer-seller relationships of this type evolve over a long period of time. In the mean time, Indonesian producers are at a disadvantage in dealing with brokers because of inadequate information on prices in world markets.

¹¹ The sugar markets in both Thailand and Malaysia are highly regulated. However, Government controlled retail prices are much lower than in Indonesia.

¹² Sugar represent up to 10 percent of the total cost of production for canned pineapples. As a result of high prices, one producer of canned pineapples is conducting research on processing sugar from pineapple waste.

X. CANNED TUNA

World Market (\$1 Billion): High Growth

World exports have grown by 9.0 percent per annum over the 5 years, or by \$360 million. In addition, world production of canned tuna has shifted from the developed countries to developing countries in South East Asia and elsewhere.

Principal Exporters (1993):	Thailand	\$590 million
	Philippines	\$122 million
	Indonesia	\$47 million
	Spain	\$46 million
	Ecuador	\$32 million
	Italy	\$25 million
	Mauritius	\$24 million

Market Potential

Of the various non-traditional agricultural products, Indonesia's greatest potential may lie in the tuna and tuna canning industries. World demand for canned products has expanded continuously, in spite of fluctuations in overall economic growth, and new markets in Asia and Eastern Europe could rapidly open up.

Developed countries, such as Japan, France, and the United States, now produce only for their home markets and are no longer significant exporters of canned tuna. One recent development is that developed countries have recently begun to import tuna filets for canning. The labor-intensive cutting of the fish is performed in developing countries, while the more capital-intensive canning is done in developed countries. Favoring this trend are higher tariffs on canned products than on tuna filets in developed countries.

Indonesia's Advantages

In addition to low labor costs, Indonesia has a number of advantages which should allow it to capture a significant share of the growth in world demand for canned tuna, and also to displace other major exporters.

- Indonesia has tremendous tuna resources within its own territorial waters. Only a small portion of Indonesia's exclusive economic zone is being exploited, and the Government estimates that the current tuna catch is well below Indonesia's maximum sustainable yield (MSY).
- Tuna fishing is seasonal and canneries in both Thailand and the Philippines rely on tuna imports for a substantial portion of their supplies. Indonesia is closer than Thailand to the Western Pacific fishing areas. This provides Indonesian canneries a transport advantage over canneries in Thailand. At present, Thailand is able to offset its transport disadvantage through large bulk purchases. However, this will change as the Indonesian canning industry expands.

Indonesia's Disadvantages

Margins in the international tuna canning industry are very thin and competition is fierce. The industry also suffers from periodic swings in over capacity world-wide. The Indonesian industry suffers from high costs in a number of areas. These disadvantages must be overcome if Indonesia is to remain competitive with other countries, particularly Thailand, the Philippines, and the Pacific Islands.

- Indonesia lacks **fishing boats** for expanding the catch in its own territorial waters. High interest rates make it costly to invest in new capacity. Also contributing to the high cost of investment is the ban on imports of

second-hand fishing boats. This ban prevents imports of second-hand mother ships that could be used to service smaller pole and line fishermen. Instead, the boats must be bought new in Indonesia and then refitted with processing facilities.

- The most competitive part of canning industry is located on Java, where there is adequate **infrastructure**. The canning industry off-Java suffers from high costs, partly due to inadequate port, transport, and communication facilities. Can prices are also higher off-Java because of the extra shipping costs for cans.
- Our understanding is that a large number of tuna canneries in Bitung are now idle or are operating at well under full capacity. The reason given is inadequate supplies of raw materials. However, these plants are apparently unable to pay international prices for tuna because of their **high costs**.

Recommended Policy Actions

1. A comprehensive **review of existing regulations** on fishing licenses, the chartering of foreign vessels, and second-hand boat imports seems warranted with a goal of increasing supplies.

- Expanding the number of foreign chartered vessels will not necessarily benefit the Indonesian canning industry. Our understanding is that some chartered vessels deliver their catch to foreign canneries. The only benefit to Indonesia is the licensing fees paid by the foreign owners of the vessels.
- The Government might consider allowing imports of used fishing boats of less than 60 tons. These boats could be licensed to fish only in selected areas in order to prevent conflict with local, small-scale fishermen.

2. Although there has been a significant investment in new port facilities in the Eastern Islands, inadequate port facilities and the high cost of shipping continue to be a problem. The Government might consider a more **intensive effort to improve port facilities**.

- As noted earlier, tuna is seasonal and canneries must depend on imports during part of the year. This requires high grade port facilities in order to attract international seine vessels to Indonesian ports.
- Port facilities in Bitung apparently need additional improvements. According to industry sources, existing cranes are unable to handle fully loaded containers. Thus, half-loaded containers are first shipped to Surabaya, where they are repacked for international shipment.
- More might be done to expand fishing ports and wharf's handling small-scale fishing vessels.

XI. POULTRY

World Market (\$5.3 Billion): Fast Growing

The world market for poultry meat is huge and exports have grown by 10 percent per annum over the past decade, or by \$3.5 billion. However, trade within the European Union and other developed countries accounts for much of the exports.

Principal Exporters (1993):	France	\$1,136 million
	U.S.	\$953 million
	Netherlands	\$753 million
	Brazil	\$597 million
	Thailand	\$369 million
	China	\$210 million
	Belgium	\$182 million
	Hong Kong	\$143 million

Market Potential

There is little potential to export poultry to European and U.S. markets, but markets in Asia have been growing rapidly in recent years because of rapidly rising incomes. These markets will probably offer considerable potential in the future.

Indonesia's Advantages

Indonesia has an advantage in poultry processing and packaging because of low labor costs. Thus, there is some international interest in establishing poultry processing platforms (similar to other foot-loose industries) in Indonesia. Whole birds would be imported and then processed for export.

In addition, one multinational company reports that in field trials, Indonesian flocks were the most productive in the world under open housing (without climate control).

Indonesia's Disadvantages

The most important constraint to Indonesian exports of poultry is the **high cost of feed**. In a modern poultry operation, feed costs represent 70 percent of total production costs. Two of the main feed ingredients for poultry are soybean meal and corn. In Indonesia, prices for both of these commodities are above those in neighboring countries, including Malaysia which imports both commodities.

- The average price of Indonesian soybean meal is inflated by government policies which require feed mills to purchase 30 percent of their soymeal locally. Under Indonesian policies, the price of local meal is about 25 percent above world prices. Local soymeal is also of poor quality because of over toasting and the lack of dehulling equipment at Indonesia's crushing plant.
- Over the past three years, Indonesia corn imports have risen dramatically and may reach 1.5 million tons in 1995. As a consequence, domestic corn prices in Indonesia are at import parity. The import parity price is even higher because of a 5 percent tariff on imported corn and poor port facilities which add 5 to 10 percent more to the price of imported corn.

Comparison of Poultry Feed Costs in Asia*

	Thailand	Malaysia	Indonesia	Share of Ration
Price of Corn (\$/ton)	135	155	170	80%
Price of Soybean Meal (\$/ton)	335	250	275	20%
Total Cost of Ration (\$/ton)	175	174	191	

* Commodity prices vary considerably from year-to-year. The prices in this table are indicative of a typical year and may not represent the actual price at any point in time. Indonesian prices for soybean meal and corn are higher than in Malaysia because of Indonesia's local content rule and because of higher port costs.

Indonesian corn yields are among the lowest in Asia. One reason for this is that less than 5 percent of Indonesian corn is produced from hybrid seeds. Although hybrid seeds are more expensive and must be purchased every year, the profits from corn produced from hybrids are likely to be much higher than from local varieties. This is because the yields from hybrids are two-to-three times higher than from local varieties.

Indonesia's per capita meat consumption is one of the lowest in Asia. Poultry is a relatively low-priced meat and consumption should expand extremely rapidly during the current Repelita. Thus, production may have difficulty keeping up with consumption, let alone export.

Indonesian poultry processors have limited capacity and substandard equipment that would need to be upgraded in order to meet export quality standards. Poor flock management and inadequate vaccination programs also lead to widespread disease.

Recommended Policy Actions

1. Indonesia must lower feed costs if it is ever to develop as a poultry exporter.
 - Deregulate soybean meal by eliminating the local content rule and the administered price system. Crushing plants should be allowed to import soybeans (at zero duty) and sell soybean meal on their own account, rather than going through Bulog.
 - There is considerable optimism among agronomists that Indonesian corn production could be increased tremendously using off-the-shelf technologies, especially hybrid corn. However, these technologies must be tested for growing conditions in different parts of the country. The Government should also conduct an intensive promotional campaign to expand the use of new technologies.
 - Reduce the tariff on corn from 5 percent to zero.
 - Eliminate IP licenses on breeding fowl and change to the IU category. Restrictive import licenses on agricultural commodities are now illegal under GATT.
 - Eliminate those regulations that prevent PMA companies from importing and distributing commodities, except for their own use. This might help upgrade Indonesian port facilities by attracting foreign investment in grain terminals at Indonesian ports.

Recent Port Improvements at Cigading

Demurrage charges of up to \$200,000 per ship are reported for ships delivering grain to Indonesia. In addition, the only deep water ports capable of handling large Panamax ships are at Cigading (Krakatao Steel) and Bogasari Flour Mills. Shipping costs for Panamax ships are as much as \$10 per ton less than those for current smaller vessels.

In order to reduce shipping costs, the GOI formed a joint venture with several Indonesian feed mills to upgrade the port facilities at Cigading. Three grain evacuators and bagging units were purchased. However, the bagging units are not consistent with the evacuators and so grain continues to be bagged by hand at about one-third the maximum discharge rate.

XII. CASSAVA PELLETS AND CHIPS

World Market: No Potential

The world market for cassava pellets and chips has grown little over the past decade. The market is essentially a creation of the European Union's Common Agricultural Policy (CAP). Under the CAP, European grain prices are kept well above world prices. This has led feed compounders to substitute cassava and other non-grain feeds in livestock rations, particularly swine.

In the early 1980s, the European Union negotiated quotas for both Thailand and Indonesia, which are the only significant exporters in the world. There is some minor trade of imported cassava pellets and chips among European countries and in Africa, where cassava is a food item.

Principal Exporters (1993):	Thailand	\$858 million
	Indonesia	\$92 million

Market Potential

There is little to no potential for growth in the world market for cassava chips and pellets, or the growth in Indonesian exports. Although the Uruguay Round should lead to some expansion in import quotas for Thailand and Indonesia, the European Union has decided unilaterally to reform its Common Agricultural Policy and reduce grain prices. As a result, European markets for cassava feeds will be substantially reduced and may eventually be eliminated.

Thailand and Indonesia have also developed some markets in other countries. However, this is due to the fact that the quota allocation systems in both countries are partly based on sales to non-quota markets. Over the longer term, there is probably little prospect for strong growth in international markets for cassava feeds.

Advantages

Cassava is an ideal crop in upland and transmigration areas. Costs of production are low and Indonesia appear to be competitive with Thailand.

Disadvantages

Indonesia's exports of cassava chips and pellets are strictly limited by **quotas** in the European Union. Also, fresh cassava prices at the pelletizing factories can be no more than 50 rp per kilogram for competitiveness on export markets. Because of high transportation costs from transmigration areas, this implies extremely low returns to farmers.

Recommended Policy Actions

1. Focus on alternative uses for cassava in Indonesia.
2. Provide, adequate transportation (vehicles and roads) in transmigration areas to ensure steady supplies to processors and higher returns for farmers .

APPENDIX A

INDONESIA'S AGROINDUSTRIAL EXPORTS

Appendix TableA-1: Indonesia's Major Agroindustrial Exports (1989-1993)

	1989	1990	1991	1992	1993	1994*
	----- \$ US Million -----					
Food Industry	70	84	133	147	188	232
Canned Fruits	23	25	46	47	50	48
Canned Vegetables	20	31	38	40	22	33
Cashew Nuts	4	8	25	25	23	33
Rice	13	0	0	8	58	28
Livestock and Fisheries	216	270	323	312	315	352
Livestock Feed	129	162	166	183	169	189
Canned Fish	50	55	87	58	71	76
Fresh Fish Meat	2	5	12	17	30	44
Frozen Frog Legs	16	13	21	24	18	15
Beverages and Tobacco	78	89	118	162	148	121
Blond Cigarettes	45	43	48	84	68	59
Kretek Cigarettes	16	23	40	39	36	16
Candy	5	7	17	18	17	25
Mineral Water	1	4	4	6	9	6
Estate	1126	1642	1748	1392	1434	1957
Crumb Rubber	813	707	798	894	867	1113
Olein	41	75	77	80	123	212
Coconut Oil	90	63	69	161	85	191
Monosodium Glutamate	23	30	35	57	82	87
Palm Oil	44	39	27	24	59	134
Processed Chocolate	16	29	33	31	45	68
Small Scale	166	201	214	217	266	213
Cassava Products	54	75	58	48	73	37
Rattan Products	45	37	52	53	48	NA
Dried and Salted Fish	15	22	28	40	48	76
Spices	25	24	23	18	31	31
Agro-based Industries	1656	2286	2536	2230	2351	2875

*1994 figures are extrapolated on the basis of January to November data.

APPENDIX B

INDONESIA'S AGRICULTURAL EXPORTS AND CONTRASTS WITH THAILAND

Indonesia's Agricultural Exports Have Lagged Behind Manufacturing Exports

During the past decade, Indonesia's agricultural exports grew by 7.7 percent per annum, compared with 18.4 percent per annum for manufacturing exports (Appendix Table B-1). Traditionally, Indonesia has relied on tropical products for the bulk of its agricultural exports. These products include rubber, coffee, cocoa, tea and spices. However, exports of these products have grown little and their share in total agricultural exports declined to less than 40 percent in 1993. Of Indonesia's traditional export products, only vegetable oils have shown much growth. This is due to a sharp expansion in new palm oil area in Indonesia.

Indonesia has had little success in the export of non-traditional products. The one exception is fish products, which grew by 17 percent per annum over the past decade and now represent almost 25 percent of total agricultural exports. Indonesia has also had some success in exporting a few specific items, such as cassava chips and canned pineapple, but the value of these exports is still quite small.

Table 1: Agricultural Exports from Indonesia
1983, 1988, and 1993

Category	1983		1988	1993		Growth Rate 1983 to 1993
	Million US \$	Share of Tot. Ag.	Million US \$	Million US \$	Share of Tot. Ag.	
Traditional						
Tropical Products	1536	67.0%	2227	1837	38.3%	2%
Sugar	23	1.0%	30	53	1.1%	9%
Grains and Feeds	95	4.1%	107	226	4.7%	9%
Vegetable Oils	148	6.5%	537	845	17.6%	19%
Sub-total	1802	78.6%	2901	2961	61.7%	5%
Non-Traditional						
Fruits and Vegetables	7	0.3%	62	204	4.3%	40%
Cassava Products	34	1.5%	142	92	1.9%	10%
Livestock and Dairy	28	1.2%	32	43	0.9%	4%
Misc. Food, Bev. & Tob.	50	2.2%	74	217	4.5%	16%
Other Ag. Products	136	5.9%	129	101	2.1%	-3%
Fishery Products	235	10.3%	664	1179	24.6%	17%
Sub-total	490	21.4%	1103	1836	38.3%	15%
Total Ag & Fisheries	2292		4004	4797		7.7%
Total Exports (Non oil/gas)	5005		11536	27077		18.4%

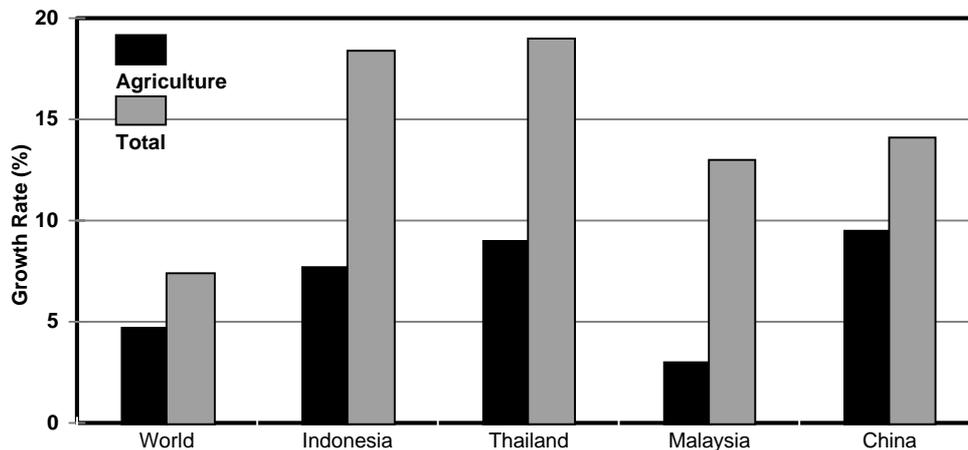
Source: FAO

Slow Growth in Agricultural Exports is a World-Wide Phenomena

Agricultural exports have grown more slowly than manufacturing exports in most countries (Appendix B, Figure 1A). World-wide, agricultural trade grew by 4.4 percent per annum over the past decade, compared with 7.4 percent per annum for manufacturing trade.

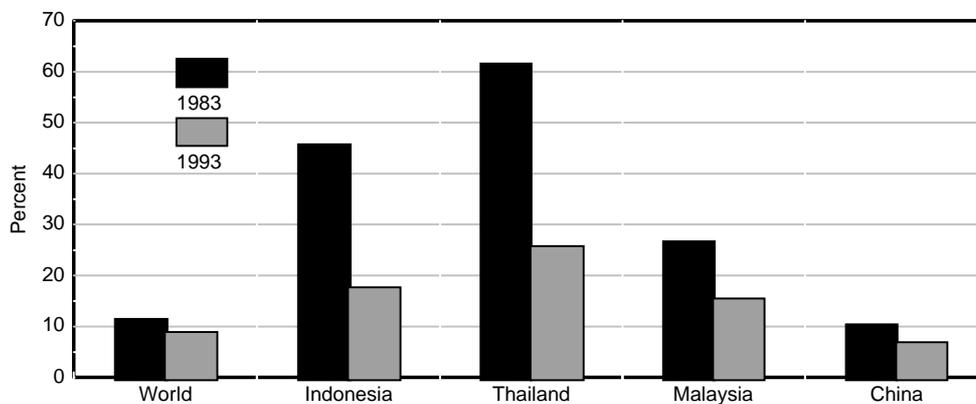
Agricultural exports have also lagged behind manufacturing exports in the other emerging markets of East Asia. In Malaysia, agricultural trade has grown little. Thailand and China have become successful agricultural exporters, but have depended far more on manufacturing for export growth. One consequence of slower growth in agriculture is that the share of agriculture in total exports has declined in all of these countries (Appendix B, Figure 1B).

Figure 1A: Growth of Agricultural and Total Exports
1983 and 1993



Source: FAO

Figure 1B: Agricultural Share in Total Exports
1983 vs. 1993



Source: FAO

Contrasts With Thailand

Thailand is recognized world-wide as a successful agricultural export. Whereas Indonesia's exports increased by \$2.5 billion over the past decade, Thailand's increased by \$5.5 billion (Appendix B, Table 2). There are significant differences between the trade performance of Thailand and Indonesia. Whereas Indonesia's traditional exports have consisted primarily of tropical products, Thailand has a long history of exporting low-value, bulk commodities such as rice, corn, and sugar. Second, Thailand has successfully diversified its agricultural sector and now exports a wide range of non-traditional products. Overall, exports of non-traditional products increase by \$4 billion over the past decade and accounted for 75 percent of Thailand's agricultural export growth.

Thailand's Success in Sugar

In contrast to Indonesia, which imports about 400,000 tons of sugar annually, Thailand is a major exporter of sugar. Thai production costs are among the lowest in the world and are perhaps one-third lower than in Indonesia.

This is apparently due to more efficient privately owned mills in Thailand, efficient linkages between cane growers and processors, and the low opportunity costs of land. In contrast, most Indonesian sugar is milled by state-owned companies on Java, where the opportunity cost of land is high.

Table 2: Agricultural Exports from Thailand
1983, 1988 and 1993

Category	1983		1988	1993		Growth Rate 1983 to 1993
	Million US \$	Share of Tot. Ag.	Million US \$	Million US \$	Share of Tot. Ag.	
Traditional						
Tropical Products	542	13.8%	1134	1225	13.0%	8%
Sugar	303	7.7%	411	530	5.6%	6%
Grains and Feeds	1339	34.2%	1701	1679	17.9%	2%
Vegetable Oils	15	0.4%	8	8	0.1%	-6%
Sub-total	2199	56.1%	3254	3442	36.6%	5%
Non-Traditional						
Fruits and Vegetables	238	6.1%	384	750	8.0%	12%
Cassava Products	669	17.1%	953	858	9.1%	3%
Livestock and Dairy	60	1.5%	230	470	5.0%	23%
Misc. Food, Bev. & Tob.	108	2.8%	109	329	3.5%	12%
Other Ag. Products	104	2.7%	115	141	1.5%	3%
Fishery Products	545	13.9%	1631	3404	36.2%	20%
Sub-total	1724	44.0%	3422	5952	63.4%	13%
Total Ag & Fisheries	3922		6676	9394		9%
Total Exports	6368		15956	36415		19%

Source: FAO

There are several factors which have favored agricultural export diversification in Thailand over Indonesia. First, per-capita incomes in Thailand are higher than in Indonesia. This gives rise to a larger domestic market for processed foods and for higher quality domestically produced raw materials.

Second, Thailand's marketing system is built around a single, large urban market -- Bangkok. This allowed efficient market channels to develop with less expense for infrastructure development. In contrast, Indonesian markets are widely dispersed and inadequate infrastructure is a major problem for the agroprocessing industry.

Third, agricultural land availability in Thailand appears to be much higher than in Indonesia (Appendix B, Table 3). This makes it easier to organize farmers into commercial production systems. Greater land availability also allows more extensive production techniques with lower costs of production. As a result, Thailand has a comparative advantage in many basic food products. Several of these products (e.g. corn and sugar) are used as inputs into the non-traditional foods that Thailand now exports.

Table 3: Land Abundance In Indonesia and Thailand (1990)

	Indonesia	Thailand
	----- Millions -----	
Total Land Area (ha)	181.2	51.1
Forested, Pasture, Tree Crops and Marginal Lands (ha)	165.2	33.9
Net Arable Land Area (ha)	16.0	17.2
Population	179.3	56.1
Net Arable Land (hectares per person)	.09	.31

Source: FAO