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The Philippines Food Processing Sector

Development Potential and Constraints

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PHILIPPINESFOOD PROCESSING SECTOR: DEVELOPMENT POTENTIAL AND CONSTRAINTS

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EXECUTIVE SUMMARY

Purpose of Survey

1. This survey reviews the prospects for expanding the output of selected food processing industries in order to help the balance of payments through increased exports or reduced imports. The study concentrated on secondary activities which produce food and beverage products other than rice, coconut or sugar products (the primary products) each of which is being studied independently in the context of the Bank-assisted Agricultural Sector/Inputs project. The report focuses principally on fruits and fruit juices, vegetables, marine products, livestock products and, in the context of feedgrains for the livestock industry, also on yellow corn and soybeans; greatest attention is given to fruits and fruit juices, which appear to have the best prospects.

2. It was originally expected that the review would identify bottlenecks to expanded production within the food processing industry on a much broader basis, reflecting capacity constraints that might be relieved by new investment. However, the review noted that the inadequacy and discontinuous supply of raw materials (agricultural products) of an acceptable quality was a continuing constraint with the result that some branches of food processing have an unutilized capacity. If this pervasive problem can be overcome, there would be a need for selective new investment in food processing in the near future. In the longer run, opportunities for expanded domestic and overseas sales look good, and a more assured supply of raw materials could well justify additional investment. In the meantime, recent (April 1985) measures by the Government to remove or modify a number of bothersome regulations and procedures has also improved the prospects for some expansion in the production and sale of high-quality products. Improvements in some of the government services that could assist in raising product quality and provide information about foreign market opportunities would provide a further impetus. A main contribution of the review is the identification of problem areas to which Government should give special attention.

Perspective on Food Processing Industries Covered

3. The food and beverage industries account for a large proportion of total industrial activity, about 40% of gross value added in manufacturing (1983). They also accounted for 28% of the country's total merchandise exports (US\$1.4 billion of a US\$5.0 billion total). However, two-thirds of food and beverage exports consisted of coconut and sugar products which, as noted, are excluded from this review. Total food and beverage exports (including sugar and coconuts) have recently been running about twice the volume of food imports (about US\$600 million in 1983, consisting of cereals of US\$250 million, dairy products of US\$130 million, and animal feedstuffs of about US\$80 million). These figures provide some useful benchmarks. For example, with more than US\$900 million in exports in 1983, sugar and coconuts provide over three times the export contribution from fresh and processed fruits and about nine times that earned from marine products. It is the large relative size of coconut, rice, and sugar that mark them as "primary" products

- and all other as "secondary" - in their balance of payments impact. Expansion of fruit and vegetable and marine product exports will help compensate for the well-known volatility of sugar and coconut prices, but the country's export performance in agricultural products will continue to be dominated by sugar and coconuts. On the import side, the largest opportunity for substitution has already been seized with the achievement of a high degree of self-sufficiency in rice production, a major accomplishment. The largest and most promising additional opportunity is likely to be for animal feedstuffs, where possibilities exist for expanded production of yellow corn and (less certainly) of soybeans. Import-substitution possibilities against cereal (mainly wheat) and dairy products look much less favorable, mainly because of climatic disadvantages in respect of the former, and the lack (as yet) of a strong domestic feedgrains base; however, backyard dairy and beef appear to have potential which needs to be exploited. Promising but relatively small import-substitution opportunities also exist for tomatoes and beans.

Market Outlook

4. Within the category of fruits, juices, vegetables, and marine products, the largest exports have come from fresh fruits (US\$127 million in 1983, of which US\$105 million was from bananas alone; the balance came from pineapples, mangoes, and papayas). Processed fruit exports have run about 85% of the fresh value. As with the banana-domination of fresh fruits, processed fruit exports have also been dominated by one fruit, pineapples, which account for about 80% of total processed fruit exports.

5. Prospects for continued growth of both fresh and processed fruit exports are good. In the judgment of leading exporters, export volume growth in processed fruits (other than pineapples) of about 18% p.a. is considered feasible based on the 1979-82 performance of 14.5% p.a. and the relatively strong showing in 1984 in the midst of a number of adverse circumstances. Demand for these fruit products (e.g. based on mangos, passion fruit, guavas, and papayas) is expected to show good growth rates, reflecting greater acceptance of these relatively less familiar products in developed-country markets. The largest share of non-pineapple products is sold not to final consumers but as flavoring inputs to the food and beverage industries.

6. Marine-product exports (mainly canned and frozen tuna and shrimps and prawns) have developed significant volumes only in the late 1970s. The 1983 export value of US\$132 million was about the same as bananas or total processed fruit exports. The export market outlook for shrimp and prawns appears particularly favorable. However, some of the other products have encountered protective barriers in the Philippines' main market (the United States); efforts should be made to broaden market outlets. As for processed vegetables, exports of US\$3 million in 1983 were so small as to be of little consequence; there is little prospect that exports of these products can expand much.

Problems Needing Special Attention

7. The food processing industries consist overwhelmingly of private firms, although there are two government entities (PHIL-BAI, and the Food Terminal Inc., loosely associated with the National Food Authority) which are the subject of comment in para. 8 below. The primary role for government is to help the private sector by:

- (a) simplifying export documentation requirements and procedures;
- (b) assisting exporters to learn more about export market opportunities and requirements;
- (c) assuring that normal government support services are available to foodprocessing export industries (such services would include credit for both growers and processors, agricultural extension, R&D support for potentially important crops and for processors, and studies that attack key problems - such as the important problem of tin-can quality); and
- (d) avoiding public ownership of activities that discriminate against private enterprise in production and/or trade, and hence discourage private investment.

8. There are perhaps seven areas to which Government should give increased attention if it wishes to strengthen the contribution of the secondary food processing industries to the balance of payments. These seven areas, with indications of the steps government might take, are indicated below in rough order of priority:

- (a) Simplification of Export Procedures: The Government has recognized the need to simplify procedures by appointing, in late 1982, a Commission on Export Procedures. The main needs were to: (i) further reduce the number of discretionary decisions by converting them to automatic tests of export qualification; and (ii) simplify the procedures by which exporters claim drawbacks of duties paid on imported inputs. On April 25, 1985 the implementing rules of Executive Order No. 1016 were put into effect which abolished all inspection and commodity clearances on exports (with certain exceptions). Any request from agencies to reinstate clearances will have to be approved by an interagency committee created under E.O. 1016. In the interest of limiting disincentives to exports it is intended that the committee will evaluate the potential impact very carefully before reinstating any of the abolished procedures.
- (b) Better Information on Export Markets: The present system of posting market-information staff in Philippine embassies is not considered effective by Philippine exporters. It would probably be more effective to reduce the number of such posts and concentrate on export-training for small and medium-sized exporters and on improving the cataloguing of documentation requirements for specific export markets. The conference "Business Investment Opportunities

with Emphasis on Exports" organized by MTI/BOI in June 1984 was useful; it would be valuable to bring the interested parties together on a more continuous basis. The regional Agribusiness Fora organized under the World Bank's Agricultural Support Services Project may be one of the vehicles to encourage exchange of market information between producers, processors and exporters. Another would be the various industry associations.

- (c) Packaging Study: A problem that affects all Philippine processors who use tin cans is the low quality of domestic cans which is not of sufficiently high quality for export purposes. The Government has recently obtained advice from an overseas consulting firm concerning possible improvements of tin plate manufacturing under the National Steel Corporation. It should be reviewed along with other packaging options which would be particularly appropriate for Philippine export products.
- (d) Measures to Strengthen R&D: Few food processing firms have the financial or staff resources to do much R&D work. Government activity therefore dominates this function. The chain of leadership, funding, and coordination extends from the National Science and Technology Authority (NSTA) through subsidiary organizations that reach down to the working-level institutions in the universities, research institutes, and extension-center laboratories. The working-level units appear reasonably well equipped; their main problem is a lack of operating funds to maintain their work-programs. Many facilities therefore experience long periods of idleness. A possible solution would be to encourage such facilities to seek out and accept tasks from private firms on a contract basis; alternatively, they might simply rent out their facilities to private firms if the latter preferred to do work with their own staff. Achievement of higher utilization of existing R&D facilities, and avoidance of duplication, might be aided by appointment of a Coordinator for the food industry within the NSTA.
- (e) Review Product Standards to Remove Bias Against Domestic Products: The Philippines has a Food and Drug Administration whose main mission is consumer protection through setting product standards. A large proportion of these standards have simply been taken over from those used in other countries (notably the United States). While this has been an efficient way of introducing standards, some standards may be inappropriate for Philippine conditions. Some processors believe this to be true for some food products, resulting in excessive reliance on imports and exclusion of domestic producers from the domestic market. A review of standards used for processed foodstuffs might identify justified changes that would permit local producers to compete with imports on more equal terms. Such a review has recently been initiated.
- (f) Elimination of Public/Private Competition: Some private processors view with concern the presence of a large government agency, Food Terminal Inc. (FTI) in processing and marketing. It is not so much

FTI's presence that causes resentment as the fact that FTI operates at a loss that is covered by its parent organization, the National Food Authority (NFA), which holds authority to license and to enforce regulations against certain segments of the food processing industry. If they are to compete against a government firm, private firms feel that fair competition would require the government firm to stand on its own feet and to be independent of government licensing and inspection authorities that could penalize private firms that competed too successfully against the government firm. A Presidential Executive Order issued on May 31, 1985 provides that FTI be separated from NFA and be restructured to allow joint ownership with private enterprise, without prejudice to its possible transfer wholly to the private sector.

- (g) Policy Measures in the Livestock Sector: Three specific reforms are suggested. To the extent that PHIL-PAI, a government corporation, continues to be involved in beef importations, private importers should be allowed to compete with it on an equal basis. Vaccine importation procedures can and should be simplified further and the ban on inter-provincial trade of carabaos should be lifted.

The above list focuses almost exclusively on steps the government might take at the processing and exporting levels; it says very little about possible government measures to overcome what the food processing industry regards as its principal constraint, i.e., its chronic shortage of quality agricultural inputs. It might be thought that government should try to take special steps to strengthen the extension services in order to help growers achieve higher levels of high-quality output. However, there are difficult across-the-board problems involved in improving the extension service, and it is not realistic to believe that improvement can be successfully focused on crops serving the export-oriented food processing industries. The processors themselves are well aware of the difficulties the government faces in addressing these problems, and many of them have developed contract growing arrangements with growers that include what amount to private technical assistance (principally extension services) offered by the processors. This is a welcome development, one found in several other countries, and one that does not appear to need any special support measures from Government. Similarly, the needs of both growers and processors for additional working capital do not appear to require any new measures beyond the expansion of agricultural credit which a new World Bank credit loan will help make possible. The expanded credit funds can best be distributed through the existing banking network.

9. Yellow Corn and Soybeans: These two crops are important for the animal-feed industry. The country already grows five or six times as much yellow corn as it imports, but 1983 imports of US\$71 million were still large. While the technology for expanded corn production (both the traditional and hybrid varieties) already exists, this is not yet true for soybeans, the market for which is 95% supplied by imports (US\$61 million in 1983). More credit for growers (such as under the expanded yellow corn program), and incentives for the construction of private dryers, shellers, and storage capacity should be sufficient to achieve self-sufficiency in yellow corn at reasonably competitive costs. (Whether additional tariff protection

would be desirable until the country becomes a net exporter should be considered in the context of the SAL tariff reforms.) It is much more doubtful that soybeans can be grown in the country at competitive prices. Research leadership is currently with two or three private firms whose activities need not be given infant-industry protection until it becomes clearer whether or not a promising infant industry, deserving of modest protection, will emerge from the present R&D work.

I. INTRODUCTION

A. Background

1.01 The economic situation of the Philippines has deteriorated seriously in the last four years. The global recession, with low commodity prices, high interest rates on external borrowing, and an unfavorable trading climate has checked economic growth, slowed down export growth and depressed domestic demand and private investment activity. Real GDP growth fell to 4% in 1981, 3% in 1982 and 1% in 1983. For 1984 the decline in GDP was 6% with serious implications for employment and income. Since 1981, the volume of merchandise exports has been virtually stagnant, reflecting, in addition to the stagnation in the world's economy, a drought in the Philippines in 1983. The combined impact of the various factors has been a growing balance of payments deficit and an increasingly difficult debt service burden. The current account deficit rose to US\$2.7 billion in 1983. In view of the current difficulties (some of which are transitory and external, some structural and internal), a re-evaluation of the country's growth strategy was in order.

B. The Role of Food Processing in the Government's Growth Strategy

1.02 The Government's revised Five-Year Plan for 1984-87 reflects a new emphasis on balanced growth of the agricultural and industrial sectors. The Government's growth strategy in the 1970s and early 1980s relied heavily on an industrialization policy based on import substitution that was developed behind high and varied import tariffs. However, the efficiency of investment was generally low and failed to generate the expected growth impetus. As a result of the current rethinking, the former emphasis on industrialization is being modified, and consequently both agriculture and foodprocessing are being assigned a higher priority in overall economic development. The objective is to move toward a structure of agriculture and industry which utilizes more effectively the country's comparative advantage with respect to labor and natural resource endowments. This new strategy has particular merit in the present economic circumstances of the Philippines. The foreign exchange crisis and the devaluations of the peso have made foreign goods more costly relative to domestic resources. Therefore, production activities based on imported inputs have been adversely affected by reduced availabilities and higher costs. On the other hand, agricultural production and foodprocessing, which use a high percentage of domestic resources, can benefit from and can contribute significantly to growth of exports, or in some sectors, such as corn production, to efficient substitution of imports.

C. Importance of Food Processing

1.03 Food processing includes all industries that use agricultural products as their primary raw materials. The share of value added in food-processing as compared to total manufacturing is a sizeable 50 percent and has remained roughly constant over time (Annex 3, Table 1). The most important component of foodprocessing are food processing industries. Their share in total manufacturing was 30 percent in 1970, dropped to 26 percent in 1975 and jumped back to 35 percent in 1979. Since then the share rose slightly and

remained within the 36 to 37 percent range. The increased importance of food processing implies that other foodprocessing subsectors have declined in relative importance between 1970 and 1983. Among them are the beverage and tobacco industry as well as wood and paper manufacturing. The share of rubber and leather processing has roughly remained constant.

1.04 Food and non-food agricultural exports increased from US\$726 million in 1970 to US\$2,227 million in 1980 and then fell to US\$1641 million in 1983 (Annex 3, Table 2). Their relative importance in terms of total merchandise exports during this time period fell from 64 percent in 1970 to 33 percent in 1983. The three major export categories in 1983 (relative to total food and non-food agricultural exports) still were, as since 1970, coconut products (36 percent), sugar (20 percent), wood products (14 percent), followed by marine products (8 percent), fresh fruits (8 percent), processed fruit (7 percent), and coffee and cocoa (5 percent). Exports of marine products, fresh fruits, and coffee and cocoa achieved very large growth rates throughout the 1970s, starting from a low base in 1970.

1.05 Imports of food and non-food agricultural commodities are sizable (Annex 3, Table 3). From US\$179 million in 1970 they increased to US\$914 million in 1982 before dropping off to US\$796 in 1983. In terms of relative importance, these imports amounted to 14 percent of total merchandise imports in 1970 and have since been on a slightly declining trend, falling to 10.5 percent in 1983.

D. Structure of the Industry

1.06 Data on the structure of the food industry are not available on a time series basis; detailed surveys were only conducted in 1979, 1980 and 1981. The results of the 1981 survey are shown in Annex 3, Table 4. According to this, 250,000 people were employed in food processing activities in 1981 which accounted for a value added amounting to P 7.7 billion. In terms of value added, the relative importance of the various industry groups was (ranked from most to least important): (a) manufacture of bakery products, cocoa, chocolate and sugar confectionary, desiccated coconut, coffee; (b) sugar milling and refining; (c) rice, corn and flour milling; (d) meat, fruits, and fish processing; (e) coconut and other oil processing; (f) dairy product processing; and (g) animal feed preparation.

E. Objectives of Study

1.07 The primary objective of this study is to review developments within the food processing subsector during the past decade, and to identify policy and investment interventions which would improve the growth of the subsector. Within this broad objective, and in line with current priorities, the main focus is on export development and efficient import substitution. The key question is what are the constraints to production, processing and marketing and how can these be overcome. Some of the recommendations are technical in nature while others are more policy oriented. They could constitute a basis for the policy dialogue with Government with the objective of making the economic environment more conducive to short- as well as long-term development in the agricultural and food processing sectors.

F. Coverage of Study

1.08 The main focus of the study is on the processing of fruits, vegetables, fish, livestock and dairy products. Chapter II deals with the processing industry's structure, conditions and needs. Production arrangements including contract farming are reviewed in Chapter III, and Chapter IV covers exports and export marketing with an emphasis on fruits and vegetables. Chapter V assesses the role of Government in food processing and marketing. Two annexes provide more details on export markets.

1.09 Three major products have been excluded from this study largely because they have been or are currently being examined elsewhere. Rice processing is assessed in an appraisal report (No. PHI-AP-58, November 1982) of a rice processing project financed by the Asian Development Bank, and related marketing issues and, in particular, the role of NFA has been the subject of a separate study. The two other main products, sugar and coconuts, have been the subject of recent studies by the Government's National Economic and Development Authority under the Bank-financed Agricultural Inputs Project (Loan 2469-PH). Another sector with good opportunities, shrimp farming, has not been covered since a recent report by the International Finance Corporation has assessed the opportunities and constraints in that sector (The Philippine Shrimp Farming Industry: Risks and Opportunities for Private Investors, IFC, July 1984).

1.10 Pricing policies for inputs and outputs are important and in certain sectors insufficient price incentives have constrained production and development. Pricing policy questions have been analyzed in a recent Bank report,^{6/} and some pricing policy reforms have recently been implemented by Government. Also, questions with regard to pricing of commodities appear to be less important in the subsectors covered in this report than in coconuts, sugar and rice. Therefore, they have not been dealt with extensively in this review.

^{6/} "Agriculture: Issues in Pricing Policy," Country Sector Report. No. 4845-PH, July 10, 1984.

II. INDUSTRY STRUCTURE, CONDITIONS AND NEEDS

A. Structure of the Industry

2.01 In the following sections more details about the industry structure are provided for the following industries: fruit and vegetable processing; beef, pork and chicken processing; dairy product processing; and fish processing.

1. Fruit and Vegetable Processing

2.02 Forty-two firms own processing plants with facilities for the canning, bottling, dehydration, freezing and pickling of fruits and vegetables (see Annex 3, Table 19). The Philippine Chamber of Food Industries estimates that 15% are large firms, i.e. with sales of P 100 million and more annually and accounting for 75% of domestic production and 80% of exports. Seventy percent are classified as medium scale, with sales of P 50-100 million per annum, and accounting for 20% of production and 20% of exports. The remaining 15% are small scale, with sales of P 1-50 million annually and accounting for 5% of production but no exports.

2.03 With the exception of the pineapple processing industry, for which supplies of fruit are available throughout the year, most other processors are subject to seasonal factors with regard to raw material supplies. Consequently, continuous plant and labor utilization throughout the year is rarely possible. Average capacity utilization for 1984 is estimated at between 25% and 50%.

2.04 The location of existing fruit and vegetable processors is a potentially serious constraint. Of the 42 firms, 35 are located in or around the Metro Manila area which is the largest domestic market and the main center of international communication. But this results in high transportation costs and product deterioration when tropical fruit and other raw materials need to be transported from other areas.

2. Beef, Pork and Chicken Processing

2.05 The Philippines has 19 major beef and pork processing facilities with a rated capacity of 59,400 m tons in 1983 (see Annex 3, Table 21). About three fourths of these are canning facilities operating on a relatively small scale while the others operate their own abattoirs and engage in integrated operations. Capacity utilization in the industry is low, reaching only 36% in 1983.

2.06 Of the 19 firms, 17 are located within the greater Manila area. Therefore, in general, animals for slaughter need to be transported over long distances. A large share of the finished products are shipped within the Manila area, although some are transported to various regions. Since the time when most of the plants were built, relative prices have changed such that plants built close to the centers of production now have a cost advantage of up to 20% compared to Manila-based operations. The cost advantages stem from three sources:

- (a) savings in freight costs;
- (b) savings on wages which are lower in the provinces, in some cases by as much as 50% to 55%; and
- (c) savings on fuel costs since indigenous fuel such as ipil-ipil, firewood, rice hull, coconut shell and other substitutes for bunker or liquified gas fuel can be used.

2.07 Most commercial processing of chicken is done in large dressing plants owned by 7 integrated firms (see Annex 3, Table 13 for their capacities). All of these are located in the Greater Manila area. Capacity utilization in 1983 was only 36%. In contrast to the meat processing operations, most of the chicken processing plants are rated higher in terms of criteria such as plant layout, plant equipment, quality control, sanitation standards, etc. Some of the reasons for this is that (a) these operations started more recently, at the end of the 1960s or early 1970s; (b) most entrepreneurs had some experience in meat processing; and (c) foreign expertise was used in the planning, construction and start-up of operations as well as in some training.

2.08 Average annual per capita meat consumption has increased from 11.4 kg during 1974-76 to 14.4 kg during 1982-83. This is the combined result of a strongly increasing poultry consumption, and a moderate increase in pork consumption, and was accomplished despite a drop in beef consumption. Poultry consumption is expected to continue to expand particularly because it is the cheapest meat product. Pork consumption is expected to be roughly stable on a per capita basis; additional growth could possibly come from an expansion in the processed segment of the market. Beef, the highest priced product, will probably continue to experience some declines. Most meat (81%) is sold fresh; only 19% is processed. Of the processed portion 60% is packed in polyethelene bags and 40% canned. Because of increasing relative container costs the share of canned products is decreasing.

3. Dairy Product Processing

2.09 The Philippine dairy processing industry ranges from small liquid milk processing plants and home-based enterprises to large, efficient and modern recombining plants (for liquid and powdered milk and infant dietetics) run by large domestic or multinational organizations. There are nine major dairy processing facilities, producing various milk products largely based on imported dry milk. The Philippines was one of the first countries in which a recombining process was developed using imported skimmed milk powder and locally produced vegetable oils such as coconut oil. This product was called "filled milk", both in the form of filled evaporated and filled condensed milk. Currently three major processing firms are involved in this processing activity.

2.10 Most of these facilities are in the Greater Manila Area. The reasons for this are: proximity to the main center of consumption and proximity to the key port where 90% of the industry's raw materials are unloaded. Although the processing facilities are old, ranging from 5 to 25 years, they are generally in good condition because of proper maintenance.

2.11 Prior to October 1983, all plants were operating at about 60% to 70% of their rated capacities. In 1984, with the supply constraints and reduced demand resulting from the economic crisis, the industry was operating at only 30% to 40% of the rated capacities.

4. Fish Processing

2.12 Forty-seven firms are involved in the processing of marine products, of which 11 process tuna, 16 process sardines, and 20 specialize in frozen marine products (see Annex 3, Table 20). Twenty-five firms are located in Metro Manila (Tagnig Region) and seven in Western Mindanao. Canned tuna accounts for nearly 40% of all (fresh and processed) exports of the industry.

2.13 Fish canning facilities are underutilized particularly during the low season of November to February. Various options exist by which capacity utilization could be increased. First, the tuna catch could be increased with refrigerated deep water vessels. Second, fish could be stored in refrigerated warehouses and processed during the off-season. The third possibility would be to produce canned fruits or fruit cocktails when fish supplies are low. A fourth option would be to permit Philippine vessels to fish outside territorial waters (such as in Micronesia) while not treating fish caught in those waters as "imported" (imports are prohibited). These options should be studied further.

B. Technical Staff Capabilities

2.14 In the industries surveyed, most plants have well trained technical staff involved in engineering, plant design and equipment layout and modification, product and process development and quality assurance. Some have university degrees in food science, engineering, etc. from national or foreign universities. In general, the plant technologists have a good grasp of the technology of the processes with which they are involved. This is not to say, necessarily, that their plants are using the best available technology but that in most cases the staff is at least aware of it.

2.15 Senior non-technical people such as retort operators and can-closing machine mechanics are trained in a number of ways which are apparently quite adequate from a technical standpoint. Some retort operators are given short courses in Taiwan while others seem to have been trained locally. Most training appears to have been based on the course "Canned Foods, Principles of Thermal Process Control, Acidification and Container Closure Evaluation" developed by the Food Processors Institute in the United States.^{7/} This material is generally being adapted worldwide as a standard for safe process control in canning of low acid foods such as vegetables, meat products and fish. Adoption of a single standard method of training and certification of operators could probably best be done through the Philippine Chamber of Food Manufacturers or through one or more universities with adequate pilot food

^{7/} The Food Processors' Institute, 1133 Twentieth Street, Washington, D.C. 20036.

processing facilities. These might include the University of the Philippines at Central Luzon, the Food Terminal, Inc. pilot plant in Metro Manila and possibly some processing plant or university in Cebu or Davao. A single standard method would help to make exports more easily acceptable.

C. Standards of Sanitation and Quality Control

2.16 Standards of sanitation and quality control are somewhat varied depending on the type of building and equipment used and whether the product is intended for the domestic or the export market. Some plants, particularly those in poor financial condition and/or those manufacturing solely for the domestic market, have cracked and chipped concrete floors, rusted metal sheeting on cool-room doors and shelves and generally outdated equipment, all of which are difficult to sanitize properly.

2.17 On the other hand, a number of plants have very high standards of sanitation with excellent buildings and equipment and well organized sanitation and maintenance programs. It is apparent that the knowledge and ability to run good sanitation programs do exist at all levels in the food processing industry. It is probable that, in some cases at least, a lack of funds for needed building maintenance and new equipment (resulting, in turn, from a small turn-over and a limited margin), purchase have made it difficult for the operating personnel to keep up adequate sanitation standards.

2.18 The most apparent quality problems relate to control and recording of thermal processes for low acid foods such as canned fish and canned meats. These problems were noted in plants processing for the domestic market and involved a lack of process control recorders. In these plants the retort processes are controlled manually by the operators. Although there may be no problems with all manual control, the safety of the process relies entirely upon the care of the operator. There is no way of knowing for certain that the required process has been followed. Installation of properly calibrated process recorders with suitable charts would allow both plant managers and government inspectors to check processing conditions on all products passing through the system. At present some degree of safety in canned low acid products is provided by incubation of all canned products before shipment to market. Normally this would show up any insufficient processing, but the system is not 100% fail-safe. This small risk, in case some food poisoning would happen, could lead to a loss of export markets. Improvements in quality control are, therefore, important.

2.19 Measurement of heat distribution in retorts, and determination of adequate venting should be done at the time of installation and at any time when there is a change in piping. Thus, there is an apparent need for a considerable amount of retort process evaluation work in the Philippines. It is suggested that either a private consulting company or a university or technology institute be encouraged to provide such a service for a fee.

2.20 Other major canning problems involve the quality of cans made from domestically produced tinsplate and/or manufactured domestically on semi-automatic can lines. These problems include: temper of the steelplate, quality of tin coating, lacquers, can body forming, and end-seam gasket

compounds. These points are discussed in more detail in the section on packaging issues (paras. 2.30-2.34).

2.21 The Food and Drug Administration (FDA) is the main government agency responsible for licensing and inspection of approximately 12,000 food plants throughout seven districts in Greater Manila and twelve other regions of the country. Each district has a Food and Drug inspection supervisor and a group of inspectors. Inspectors are appointed from applicants with degrees in food science and technology, nutrition and pharmacy. Basic pay is low, and the efficiency of the service is hampered by a lack of operating funds. As of June 1984, inspectors in Manila were only able to work in the field three days out of five because they did not have sufficient funds to travel more often. By careful planning, an inspector would be able to visit 400 plants in a year and with available staff this would mean that each plant would be visited on average once a year. This would normally be considered an inadequate level of inspection. It means that firms involved in exporting which try to maintain a high standard of quality must rely largely on their own quality control systems.

2.22 The FDA currently attempts to provide both technical assistance and regulatory control. In order to avoid any conflicts of interest which might occur under the present arrangement, it is recommended that inspection and enforcement of regulatory standards be kept separate from technical assistance in development of new processes, process improvements, new products, and product formulation. Technical assistance is more important than inspections. Also, stiff legislation and penalties for negligence which causes harm are considered a better alternative than increased inspections.

D. Research and Development

2.23 The institutional arrangements for food processing research and development are very complex and it is not easily apparent who is responsible for what. There is a lack of coordination among various entities and this, among other factors, has led to inefficiencies in the use of the limited resources.

2.24 The National Science and Technology Authority (NSTA) is the overall planning body for a wide range of activities in science and technology. It is also responsible for food processing research. Coordination of this research has been lacking and duplications and inefficiencies have resulted. The coordination of Government-funded food processing research and development is so important that this function might be considerably strengthened by the appointment of a food research and development coordinator. He would be responsible for the allocation of funds in accordance with national priorities and for ensuring that duplication and other inefficiencies are avoided.

2.25 Under NSTA is a group of 10 agencies one of which is the Philippine Council for Agriculture and Resources Research and Development (PCARRD). PCARRD is responsible for funding and overseeing research being undertaken by a hundred or more organizations located in different parts of the country. These organizations include universities and colleges and government and quasi-government research groups. Their research involves agricultural

production, harvesting, storage and processing. PCARRD has provided approximately US\$3.6 million to nine research centers since 1980. Of this amount, US\$2.3 million have come from USAID. Other funds have been received from the Australian Center for International Agriculture Research (ACIAR), the International Development Research Center of Canada (IDRC), the Japan International Cooperation Agency (JICA), and the World Bank.

2.26 PCARRD is responsible for presenting state-of-the-art summaries of current knowledge on the production and utilization of natural resources. It is also responsible for the preparation of economic analyses for policy makers. PCARRD is noted for its series of extension publications, "The Philippines Recommends." These cover the propagation, planting, growing, harvesting and storage of many crops, including mango, papaya, coconut, passion fruit, grapes, coffee, citrus, fish and shellfish in ponds, forest products, and rubber.

2.27 At the base of the research and development organizations' pyramid are the working level research centers in government-financed universities, research stations, extension centers, etc., throughout the country. The laboratories and pilot plants of these centers appear to be adequately equipped for the research and development needs of the foodprocessing industry. However, operating funds and to a lesser extent staff are inadequate. For example, during the mission's visit, the central Luzon pilot plant could not afford fuel for the oil-fired boilers, and cold rooms at the University of the Philippines at Los Banos were shut down to conserve electricity. The lack of operating funds is one reason for the low capacity utilization of most existing food research facilities. However, these research facilities are too expensive to be duplicated under private auspices, and it is therefore recommended that the underutilized facilities be made available to private industry for a fee. Thereby more funds could be obtained to cover operating expenditures, and private firms, particularly smaller ones, could undertake research and testing without having to make significant investments in capital equipment.

2.28 Almost without exception the processing plants visited were aware of the continuing need for increasing profitability through process modifications designed to increase efficiency and/or improve quality. Many also had a keen interest in developing new products for export or domestic markets. Information on how to achieve these development objectives is often difficult to obtain. Most companies are trying to develop new or improved products by using their existing production line equipment. This tends to limit their development to products that can be made using available equipment. The need for a mechanism whereby industry can have access to government run food processing pilot plants with a wide range of specialized equipment is apparent. By being able to use such pilot plants on a confidential basis, industry would be able to test a much wider range of new product and process ideas without themselves investing in the necessary equipment or facilities.

2.29 Many new product and process ideas were discussed with processors. These included canned tropical fruit salad, various types of tropical fruit juices and concentrates, dried powdered or flaked tropical fruit purees, natural colorings and flavorings derived from tropical fruits and vegetables,

use of vegetable proteins in formulated meat products, use of cold and frozen storage to extend the processing period for seasonal crops, and the use of various levels of storage technology to reduce waste of fresh market produce.

E. Packaging

2.30 Packaging questions are important for almost all products in the food processing sector. By far the most commonly used containers for domestic and export marketing are tin cans which are discussed below.

2.31 The Philippines obtains tin cans from three major sources:

- (a) imported cans, usually from the United States, Japan or Taiwan, are used for export products such as tuna or canned pineapple;
- (b) domestically assembled cans made from imported tinplate are mainly used for export products. As in (a), a wide range of tempers (hardness of steel), differential tinplate coatings, and lacquers (coatings) are available for any application; and
- (c) domestically produced cans made from domestically produced tinplate and lacquered with domestically produced lacquers are for domestically consumed products only.

Domestic production of tin plate in 1983 amounted to 96,000 mt whereas imported tin plate (including cans translated into tinplate tonnage) amounted to 59,500 mt.

2.32 For export purposes processing firms need, for quality reasons, either imported tin cans or domestically manufactured cans based on imported tinplate. The quality of domestically produced tin cans has been improving but there are a number of unresolved technical problems in steel plate making, tinning and lacquering that still limit the range and quality of products that can be produced. The most important limitation is that domestically produced cans do not have the quality and consistency necessary for the export market. The source of the problems are several. First, tin mill blackplate cannot currently be made sufficiently flat or of sufficiently uniform hardness for good tinning or for certain special applications requiring high-hardness steel. Second, with the existing tinning lines,⁸ it is only possible to produce tinplate with certain levels of thickness whereas other levels cannot be produced economically. Third, because of the lack of flatness in the tinplate and the type of tinning lines, it has been difficult to produce a highly uniform tin coating.

2.33 Another problem is the lacquering of cans. Lacquer manufacturers in the Philippines lack the technical know-how to produce some types of specialized can coatings. This is because most coatings have been developed

⁸ The Ferrostan line is about 15 years old with vertical tinning tanks and the Halogen line is over 20 years old and has horizontal tinning tanks.

by major United States or European can manufacturers and are trade secrets. Lacquer applicators or lithographers (printers which print or decorate cans) also have problems in that they are not set up to print universal product codes (UPCs) on lithographed cans. Finally, many of the production lines still use solder to seal cans. Since it is associated with a high lead content in canned foods, this technique is less and less acceptable in the export market.^{9/}

2.34 The problems mentioned above are all technological in nature and could be corrected largely by additional investments. Whether the benefits of these investments outweigh the costs would, of course, have to be analyzed carefully. The investments required would be:

- (a) a further upgrading of the steel plants owned by the National Steel Corporation. Plans are now proceeding to establish a five-stand Blaw Knox cold mill capable of producing high quality tin mill black plate. Apparently, the financing of US\$105 million has already been secured for this plant. The capacity would be 300,000 tons per year and it is expected to be on stream in September 1986. In addition to the ongoing upgrading, further investments would be needed for the production of high quality tin plate. This would require a temper mill, a continuous annealing line and a new pickling line. The additional funds required would be in the range of US\$125-150 million. (When completed, the plants could produce 300,000 tons of tin plate annually. Using the 1983 level of imports, this would replace US\$44.6 million of imports annually; about 145,000 tons would be available for exports. Whether production would be competitive in export markets would need to be determined);
- (b) an improved tinning line for the production of a specific thickness (1.0-0.25 lb) differential tin plate (required for the exportation of canned pineapple) would cost US\$21 million;
- (c) since it would be impractical to repeat the research that resulted in the existing lacquer products, a technology purchase agreement should be made with a can company or lacquer manufacturer in an industrialized country; and
- (d) the transformation of soldering to side-seam welding lines is essential to meet export market requirements. Eleven side-seam welding lines are already in operation in the country but an additional 10-15 further conversions (each costing about US\$0.4 million) are required.

2.35 The above are only rough and preliminary estimates of investment requirements if it were decided that top quality tin cans acceptable in the export markets were to be produced domestically. Whether domestic production

^{9/} For example, legislation in the United States, to become effective in 1985, will prohibit importation of soldered cans.

would be indeed more beneficial to the country than continued importation would have to be carefully analyzed. Also, the technology and the market preferences in packaging are subject to change. Packaging options include, for example, tin-free steel cans, nickle cans, aseptic packaging, foil and the retorte pouch. Any assessment of an investment in improved tin plate production must therefore consider the alternative options. The Bank's Regional IDF Division is planning to explore with Government how further investigations of packaging issues can best be carried out.

F. Investment Needs

2.36 A variety of factors have resulted in reduced investment in food processing activities. Limited raw material availability (which is the biggest constraint), shortages of working capital, and problems with the importation of tin plate, tin cans or spare parts have led to considerable capacity underutilization which, for the time being, obviates the need for new investments. Further, tight credit and uncertainties in the economic outlook are reducing the incentives for potential investors. Significant new investment needs in food processing would only arise if the specific constraints noted above can be successfully overcome and if the economy as a whole is back on a reasonable growth path.

2.37 Before the mission undertook the field visit it was believed that a shortage of food processing facilities and equipment presented a constraint to development, and that the Bank could relieve this constraint possibly by financing a project in this subsector. The findings of the mission in this regard are that investments in the subsector are currently not a major constraint; while there are some needs for finance, they do not appear to be large enough to justify a separate Bank project. The working capital needs of processing enterprises, particularly for financing contract farming operations, as well as any new modest investment needs, can be met by the Agricultural Credit Project.

III. AGRICULTURAL PRODUCTION FOR PROCESSING

A. Procurement of Raw Materials: General Aspects

3.01 The most serious constraint to expanding food processing in the Philippines is neither access to export markets nor availability of processing equipment or know-how but production of raw materials. One of the most frequent complaints of processors and fresh produce exporters is that they are unable to secure raw material supplies in the quantities and of the quality which they wish to purchase. Seasonality of production is also a problem in certain crops. As a result of constraints in supplies, a significant number of food processing factories are operating below full capacity, and potential overseas demand, especially for fresh and processed fruits, remains unfilled. The purpose of this chapter is first to review the various measures which have been taken by processors and exporters to improve their access to raw materials supplies, and secondly to examine one highly promising option for expanding raw material production.

1. Sources of Raw Material Supplies

3.02 Four principal means of securing raw materials supplies are currently used by processors in the Philippines (listed from worst to best supply-security provided):

- (a) Open-market purchasing;
- (b) Collection at farm gate (with or without advance payment);
- (c) Contract farming; and
- (d) Own-account farming.

3.03 Open-Market Purchasing. Most agricultural products used for processing are bought on the open market, without any formal or direct link between processor and producer. Although there are some exceptions, crops are generally sold by farmers to local (barrio) buyers who, in turn, may sell to higher level buyers who bulk up supplies for delivery to the factories. For fruits and vegetables the open market is still a significant source of supplies for small to medium scale processors. However, reliance on the open market is decreasing as other forms of procuring input supplies such as contract farming are gaining in importance.

3.04 There are two reasons why some small and medium scale processors can still rely on open-market purchases. First, their raw material requirements are small in relation to the total marketed quantities of a given type of produce during its peak production season. Second, they are sufficiently versatile in their equipment and facilities to be able to process a wide range of raw materials, changing production according to the availability and price of inputs and correspondingly adjusting the number of people employed. In addition, they often lack capital to invest in their own production equipment, to make the necessary credit advances for contract farming or to build up their own extension staff and acquire up-to-date know-how. Also, products processed by small to medium firms are often destined for the local market, which is less discriminating about quality and regularity of supply than potential export markets.

3.05 The main problems associated with operating a processing firm exclusively on open-market purchasing of raw materials are the unpredictability of supplies, volumes and prices, and the difficulty of ensuring homogeneity of quality. Therefore, the thrust of processors will have to be in the direction of strengthening their ties with producers. Increasing costs and specialization of food processing equipment are additional factors why processors in the future will want to rely less on the open market and more on contractual or other more reliable supply arrangements.

3.06 On-Farm Collection. As a means of increasing security of supplies, processors have frequently been obliged to arrange for collection of produce directly from farmers. In the case of perishable goods, such as fruits and vegetables or milk, farm-gate pick-up also provides a way of reducing both the time and the frequency of handling between harvesting and processing, and

hence contributes to quality. Particularly in areas with an over-capacity processors may arrange for collection, which is usually associated with prepayment for the crop several weeks before harvest, at a discounted price. Such prepayments are, however, generally made too late in the crop cycle to influence the technology applied by the farmer and merely help him overcome personal liquidity problems.

3.07 Contract Farming. This is a production arrangement which is growing rapidly in the Philippines. It offers attractive elements to both agricultural producers and processors. Generally such contracts have been promoted by processing and marketing companies, interested in increasing the reliability and quality of their raw material supplies.^{10/} Normally the processing firm provides extension services and the production inputs on credit to be deducted when the produce is sold. Close contact between extension staff and the farmers is an important element in a successful operation. Prior to planting a crop or starting a livestock cycle the processor makes a written (but not legally binding) commitment to the producer to purchase all or part of the output, either at a fixed price or at one related to the market or support price prevailing at harvest time.

3.08 Contract growing systems have been or are being adopted for the production of a wide range of commodities. In fruits and vegetables, processors arrange for the supply of planting material, fertilizers and pesticides; provide technical supervision throughout the crop season, and assume responsibility for grading, processing, packaging, and marketing. The farmer supplies land and labor. For long-term fruit crops, such as mangoes, contracts would cover one crop cycle during which the processor oversees the spraying program; however, there are thus far no examples of fruits being planted under long-term contractual arrangements in the Philippines.^{11/} As in other countries, intensive poultry and pig production is sponsored by vertically integrated firms which provide all inputs (e.g., day-old chicks, feed, drugs), technical and veterinary advice, and a guaranteed market. Farmers provide buildings and labor. For prawns, purchasers or processors provide technical advice on pond construction and management. The farmer's input consists of providing ponds, pumps and labor. Contract growing has recently been extended to cover yellow corn, soybeans, navy beans and tomatoes, largely because restrictions on foreign exchange availability and the increased profitability of these crops following successive devaluations,^{12/} have made it either essential or

^{10/} There are, however, also instances of input distributors entering into similar contracts (as under the RP-Japan fertilizer project and the recent Planter's Products corn program) as a means of increasing their sales.

^{11/} Some limited apple production on a contractual arrangement is being studied (Business Day, October 24, 1984).

^{12/} The increased profitability is being eroded by increasing production costs given the relatively stable exchange rate at present.

attractive for processors to look to the local market rather than imports as the main sources of their raw materials.

3.09 A review of a number of contract farming operations now in progress in the Philippines led to the following conclusions. First, contract farming has been successful in introducing superior technology to farmers and hence in raising yields, quality and regularity of production. Where contractors have operated in good faith, substantial benefits have been obtained by both producer and contractor. Second, since the majority of farmers involved in contract farming are smallholders (1-3 ha), the system has had a beneficial social impact. Third, processors are developing contract farming in favorable growing areas and, even though they largely work with small farmers, they carefully select good and reliable ones, using information from banks, input suppliers, barangay captains, etc, and endeavor to build up a relationship of mutual confidence and trust. Fourth, credit repayment rates are generally close to 100% of the amount due. Fifth, contractors have largely been unable to draw on the results of Government-sponsored agricultural research, or depend on the national extension service for advising farmers. Thus, they have to invest heavily in acquiring and testing "know-how" and in providing farmers with technical support services, paying staff substantially more than prevailing public service salaries. And finally, the difficulty of raising finance to cover the costs of inputs advanced to farmers, restricts the scale of several contract farming operations.

3.10 From the processor's point of view, one of the attractions of contract growing is that it enables raw material supplies of the right quality and amount to be obtained (within reasonable limits) without the commitment of heavy investments in fixed capital and land, and without major increases in permanent staff. Many processors are concerned that, if they were to acquire land for production, this could expose them to provisions under land reform.

3.11 Own-Account Farming. Full integration of production and processing within the same enterprise has characterized several agro-industries, notably those based on pineapple, bananas, and, more recently, oil palm. Examples also exist of vertically integrated companies producing, processing and retail marketing their own milk, beef, pork, chickens, fruits and vegetables. The development of these enterprises has been possible because of the present exemptions for corporate farming from agrarian reform. The advantages of such full integration are that it permits an even higher standard of management to be attained than is usually possible with contracted smallholders, transaction costs are cut and supplies can be forecast with considerable accuracy. These benefits may be outweighed, however, by the problems of raising capital for large-scale land acquisition and development, by the difficulties of managing a large labor force and by the conspicuousness of large holdings in a country in which periodic calls are bound to be made for further land reforms, and in certain areas by peace and order problems.

2. Options for Expanding Contract Farming

3.12 Contract farming systems offer the most promising means of expanding throughput production since they have been generally successful and are politically acceptable. The question arises whether the scale of the opera-

tions and the range of products covered can be increased and what the respective roles of the private sector and the Government should be. Except in isolated cases, private firms have entered into contract farming arrangements without any government support. Indeed, some contractors claim that their success is due to the lack of involvement by government institutions and that, if the public sector were to assume a promotional role, this could soon lead to the red tape and obstacles commonly associated with the management of incentive-based schemes. While this may be true, the current programs appear to be operating under a number of constraints some of which could be partially or wholly removed by government action. Various options for Government's support for a greater private sector role in increasing small farmer production are examined below.

3.13 Research and Development. Most contractors have had to invest heavily in acquiring knowledge and experience by sending staff abroad to acquire technical skills and know-how, by bringing foreign experts to the Philippines or by carrying out their own agronomic trials. The extent to which companies have relied on local sources of technologies has been limited. Possible approaches to reducing the costs to firms of such R&D work, and hence of encouraging an expansion, include:

- (a) redirecting the agricultural processing research of the Philippine Council for Agriculture and Resources Research and Development (PCARRD) and the National Institute of Sciences and Technology (NIST) to address immediate problems identified by processors and exporters (possibly by including the latter as members of the relevant commodity committees);
- (b) providing Government grants to finance approved R&D activities undertaken by the private sector; and
- (c) consideration of tax deductions for approved R&D expenditures.

3.14 Technical Services to Farmers. If the extension services of the Ministry of Agriculture and Food (MAF) were adequately staffed and equipped to assist horticultural activities, there would be no need for processors to build up their own field staff, especially to provide technical support services to small farmers. Processors claim, however, that MAF extension staff are, in general, underpaid and ill-equipped and hence not sufficiently motivated, and thus do not generally offer the kind of service they need. Yet the direct recruitment of staff by firms may lead to duplication of services, with its attendant costs. One approach to reducing the cost to firms of providing technical services, which is being considered in tomato processing areas, would be for MAF to second selected extension staff to work with the private company for a predefined contract period - possibly either the cropping season for a 1-year assignment. MAF would continue to pay base salaries, while the firm would supplement this with project and travel allowances, and provide special training, supervision and transport.

3.15 Financing Inputs. One of the constraints on the scale of current contract farming programs appears to be the shortage of working capital available for financing inputs. The proposed Agricultural Credit Project is expected to help remove this constraint.

B. Specific Production Aspects

1. Selected Fruits and Vegetables

3.17 Tropical fruits are well suited for contract farming arrangements. Some of them are particularly attractive in the current economic environment because of their short gestation period. But the production of others with long gestation periods, most notably mangoes, should also be encouraged since they offer high returns and can contribute to economic growth in the longer run.

3.18 Mangoes. Output of mangoes increased from 137,000 tons in 1971 to 400,000 tons in 1983 (Annex 3, Table 5). While demand for increased volumes of exports for fresh and processed products exists (para. 4.18), increased production is mainly constrained by a lack of capital for investment and operations and maintenance during the trees' first five unproductive years. According to data published by PCARRD,^{13/} the rate of return of a mango orchard is high. PCARRD estimated that the 1976 costs of planting and maintaining a mango orchard with a tree density of 72 trees per ha were P 2,230 in total up to the end of the fifth year including cash and labor costs. The net income from year seven to fifteen was estimated at P 11,457 and from year 16 to 30 at P 43,248, implying a high overall rate of return.

3.20 With mangoes as with many other tree crops, more intensive horticultural research should pay off in greatly increased yields. Also, the use of plant hormones for obtaining earlier bearing or for changing the harvesting season should be investigated. Use of more compact-form trees, or improved systems such as treewalls, planting of hybrids, etc., might have a major effect on yields and possibly on costs and ease of spraying, harvesting and other field operations. For the longer term, plant breeders should develop new varieties of mangoes as well as of other tropical fruits with a view to producing high yielding, high quality fruits that are acceptable for the fresh market as well as for processing. From both fresh and processing market viewpoints, it would also be desirable to select varieties that would extend the harvesting season with an ultimate objective of having a year-round supply. The harvest season for mangoes is February to June and an extension of the season would be highly desirable. It should be recognized that trials of promising new varieties will have to be conducted in various locations throughout the Philippines since no one variety may be suited for all regions.

3.21 Papayas. Papayas are fast growing plants which bear fruit within less than a year of planting. The national average yield was 12.8 mt per ha in 1982; in one area (Central Visayas) the average yield was a high 40 mt per ha. Production expanded at a rate of 7 percent per year in the 1970s and reached 104,000 tons in 1981. Since then, however, it dropped back to 80,000 tons in 1983. The reasons given are drought and typhoon damage. Productivity

^{13/} "The Philippines Recommends for Mangoes," PCARRD Technical Bulletin Series No. 38.

could be increased by better agricultural practices. Investment and labor cost for a 1 ha plantation of papayas for year 1 exceed income by P 6,090 at 1981/82 prices, but net income in year two and three is P 16,800 and P 12,100, respectively.^{14/} Compared to mangoes the gestation period of papayas is very short, and they also provide attractive returns, but again capital is needed during the time the cash flow is negative.

3.22 Since its production life is effectively only four years, papaya may well be fitted into a rotation involving annual crops. As in the case of mango, papaya varieties that are most suited to different growing areas should be selected. Also, dual purpose selection would allow fruits not suitable for the fresh market to be converted into processed products. It is considered important that evaluation of fresh market quality and processing quality of all new fruit variety selections be carried out by a team comprising food technologists, plant breeders and storage and marketing specialists. The team approach will help to prevent biases, so that varieties are selected which meet a variety of objectives.

3.23 Bananas. At approximately 3.67 million tons, bananas comprised 67% of the total Philippine fruit and nut crop in 1983. Most of the bananas for processing are used to produce banana chips. This involves a two-stage frying process of bananas or plantain with a high starch content. A small quantity of the Cavendish banana is also processed into puree and packaged in an aseptic process. Since there is a large potential surplus of ripe Cavendish bananas for puree, the export market, and not the raw material supply, appears to be the main constraint in this case. The peak harvest seasons for banana in the Philippines are January-February and June-July.

3.24 Pineapples. After bananas, pineapples, at slightly less than one million tons, were the second major fruit crop in 1983. A large percentage of this supply is grown by Dole, Inc. and Del Monte on their own plantations. Their mechanized cultural practices, mechanically assisted harvesting and integrated fresh packing and processing operations appear to be highly efficient. Again it may be short-sighted to rely on only one main variety, the Cayenne. Australian and other dual-purpose varieties should be tested in Philippine conditions. As with other fruit crops, the idea of dual-purpose pineapples is important. Pineapples that are good only for canning may miss some of the highly profitable fresh fruit market. On the other hand a purely fresh market variety of any fruit would end up - in normal conditions - with 25% or more of the crop rejected for defects that would render it unacceptable for the fresh market. Without a processing possibility, this portion would have to be dumped or sold as food ruffs at a low price. Pineapples are harvested year-round with only small crop peaks in summer and winter and with only minor seasonal variation in quality; therefore, seasonality problems in processing operations are minimal.

3.25 Tomatoes. Of the 1983 production of 103,000 tons the majority was for fresh market usage. Because of inadequate coloring, tomatoes for proces-

^{14/} Technology Resource Center Data.

sing have been imported in the past. But the technical information is now available for efficient domestic production of a variety that meets processing requirements. Average yields are only about 8 tons per ha, but with the use of improved varieties and the right cultural practices 20 to 25 tons per ha could be achieved. Production lends itself well to contract growing, and the potential exists for the efficient substitution of US\$6 million of imports.

3.26 Beans. Up to very recently, most of the 4,500 tons of canned pork and beans consumed domestically have been produced with imported beans. For the last two years a multinational firm has been selecting suitable varieties for domestic production. Trials have been successful, and production costs of P 0.425/kg based on a 1.5 tons/ha yield compare favorably to the import price of P 0.90/kg (1984 data). The 1984/85 crop season will involve 150 ha of plantings, and prospects for a further expansion to supply part or all of the US\$6-8 million of bean imports appear promising. An important aspect of beans is that, as canning uses the dried product, it is a good off-season item in a multi-product line using fresh produce.

3.27 Other Vegetables. Onions are already produced in large quantities in the Philippines (42,000 tons in 1983). With appropriate research and extension, dehydrated onion flakes produced from locally grown onions should be able to replace imports. Research is also needed for potato, asparagus and garlic growing for processing. Asparagus production involves a long gestation period (six years until full production), but it is labor-intensive and possibilities in the export market exist, particularly as production in Taiwan may decline.

2. Beef, Pork, and Poultry (Including Feedgrain Inputs)

3.28 Meat production in the Philippines is currently inadequate for domestic consumption and must be supplemented by imports. While meat exports have been in the order of US\$1-3 million in recent years, prospects for a further expansion are limited. Imports, however, amounted to US\$10 million in 1982 and US\$13 million in 1983. In order to save valuable foreign exchange, domestic production should be increased by relieving constraints that now limit the sector.

3.29 Since 1976, the carabao population has grown from 2.7 million head to 2.9 million head in 1983 (see Annex 3, Table 11).^{15/} The number of cattle and hogs is also on a slightly increasing trend, while the number of chickens has expanded more rapidly, particularly since 1979.

3.30 Inputs for Production. Corn and soybean meal are the major commercial inputs for livestock production, and if domestic meat production is to be increased, then feedgrains production should also grow. But at present, corn production is not yet large enough to meet domestic demand and only a small

^{15/} While the trend of data before 1973 may be correct the level does not seem consistent with later data. There appears to have been a change in the statistical series.

part of soybeans are produced locally. Corn imports have increased from about 1,000 tons in 1970 to 250,000 tons in 1980 and doubled to 528,000 tons in 1983 (from US\$35 million in 1980 to US\$71 million in 1983). During these years production has remained roughly stable at 3 million tons. Soybean meal imports also increased from a low level in 1970 to 400,000 tons in 1982, then dropping off to 274,000 tons in 1983 (value in 1983: US\$60 million). Domestic production of soybeans has been small, reaching only about 8,000 tons in 1983.

3.31 The Government has had a program in effect for corn (Maisagana) which earlier had some success in increasing production but has stagnated since 1979. Several problems have hindered progress: technical advice and input availability for farmers have been lacking; the availability of credit for farmers under the program has been reduced, particularly in the last two years; post-harvest losses have been high, in some areas reaching an estimated 30% and the lack of infrastructure has constrained deliveries from some areas which are well-suited to yellow corn production. Most wastage occurs for lack of shellers, dryers, storage facilities and infrastructure (roads to producing areas). Because imports have become sizeable and because the potential for efficient domestic production exists, every effort should be made to remove the constraints to production and marketing of both corn and soybeans.

3.32 Much of the soybean research and development has been undertaken mainly in Mindanao by two to three private companies. So far it has not been as successful in terms of yields as research in hybrid corn but a potential for expanded production does exist. Yet even if private firms were willing to share their know-how, it would still be necessary to devise a means by which information could be disseminated through government entities such as the Bureau of Plant Industry, the Extension Service, Agricultural Research Stations, PCARRD or others. At the same time research is needed on substitute protein sources such as sugarcane tops, ipil-ipil, copra milling by-products, etc.

3.33 Increased livestock development would also require increased availability of animal vaccines. The Bureau of Animal Industry controls vaccine importation, but according to livestock producers bureaucratic delays at times delay the timely availability of required medication. Simplification of vaccine importation procedures should therefore be explored by Government.

3.34 Poultry Operations. Broilers are being produced by integrated operators, by independent producers and under a variety of contractual arrangements. Integrated growers breed, hatch and grow their own chickens, mix their feed, and process and market their own products. Integrated producers have been expanding production by 10 to 15% annually, and have increased their share in total production from 14% in 1976 to 35% in 1983. This increase is expected to continue. In one type of contractual arrangement processors provide growers with day old chicks and feed. The growers in turn provide production facilities and their labor for some 45 to 50 days under the supervision of the processor's field technicians. The growers are granted a 4% allowance for transit mortality. They are paid a fixed fee for every broiler raised and an additional amount for broilers above 1.2 kg. For broilers below 1.2 kg a certain amount is deducted. In another arrangement integrators sell

the growers broiler type chicks (usually a minimum of 5,000) and the necessary feeds at an agreed price. Later, at maturity, the growers sell the broilers back to the integrators also at an agreed price. The contractual operations in poultry production are successful; therefore no specific actions are recommended.

3. Dairy Products

3.35 The dairy subsector in the Philippines provides only a small contribution to total agricultural output, and domestic production as a percentage of final consumption is very small (2.5% in 1983). The bulk of dairy products are imported. According to the National Dairy Development Plan of 1979 the objective was to achieve 20% self-sufficiency within a 10 year period. This target was much too optimistic. In the mission's assessment of possibilities of expanding dairying, the Philippines can realistically expect to achieve only 10% to 15% self-sufficiency within a 20-year period, principally because of a shortage of foodgrains as well as the low milking potential of local cattle. However, backyard dairy cattle raising, whose economic viability has been demonstrated in other countries despite low yields, has shown some promise in the Philippines and should be encouraged.

3.36 Milk Production. Milk production in 1983 is estimated at 28 million liters (see Annex 3, Table 11) while total milk consumption amounted to about 1.1 billion kg. Imports of milk and milk products increased from US\$32 million to a peak of US\$166 million in 1982 and then dropped to US\$128 million in 1983.

3.37 Most livestock production takes place as a small-scale backyard activity. In general, cattle and carabao backyard enterprises are intended to provide work animals and some meat for home consumption. With the current breed of animals, the milk production potential is low. The backyard carabao and cattle population has roughly remained constant over the last 10 years. The number of actual dairy cows, most of which have been imported is now at an estimated 3,500 head. Accelerated upgrading of the current local stock of animals can be achieved through greater use of artificial insemination. Extension services need to be further strengthened for that purpose.

3.38 The price of imported dairy products have been relatively cheap for two reasons: (a) the surplus of milk and milk products in the European Economic Community and other countries depressed world market prices, and (b) the cost of foreign currency was undervalued in the past. Price incentives for domestic production were therefore low. With the changing economic environment, a better incentive structure is expected to prevail in the future, leading to expected higher production, but with a significant time lag involved.

4. Marine Products

3.39 The important processing species of fish in the Philippines are sardines and mackerel for the domestic market and tuna for the export market. Sardines and mackerel are canned almost exclusively in tomato sauce, much of which has been imported in the past. Top grade tuna is sold for sashimi at a

premium price but because of the current catching and handling system, most tuna being landed is of canning grade. Fish are caught with locally based seiners using the Payao system. Payaos consist of 2.5-3 cm diameter nylon line up to 2 km long anchored to the sea bed and supported with floats on the surface. The line may be branched in the upper portion to increase the area covered. Palm leaves and other vegetation tied into the upper portions of a Payao support marine growth that attracts the smaller fish, etc. that in turn attract feeding tuna. Payaos are costly (\$3,000/km) and subject to loss by storms or by theft. Fish caught by local seiners using Payaos are gutted and may be held on board with ice for up to 2 days before delivery for processing. Capacity utilization in Philippine tuna canneries is low, particularly during the off season (November-February). During that time processors are permitted to buy frozen tuna from ocean-going fishing vessels with on-board freezers. Some of the Japanese vessels bringing frozen tuna have capacities of up to 300 tons. There are currently no vessels of Philippine registry with this kind of on-board freezing capacity to take part in mid-ocean fishery. Costs for large ocean-going fishing vessels vary greatly with capacity and the age of the unit. A new vessel of about 46 meters in length with on-board freezing and storage capacity of 360-450 tons is estimated to cost about US\$14 million. There is an apparent need for the Philippines to acquire one or more of these vessels. Used ships would be proportionally less expensive depending on age and physical condition.

3.40 Prices in June 1984 for 7-8 kg tuna of suitable quality for canning were US\$0.35-\$0.40 per kilogram. Fresh tuna of the highest quality (rated as sashimi grade) sold for up to US\$2.00/kg. Currently used longline boats are not capable of producing high grade tuna and a potential 5,000 tons/year market for this premium product is therefore largely untapped by the Philippines. Required are boats with ability to: (a) catch and land fish quickly, (b) chill fish immediately in cold brine, and (c) pack chilled fish in ice. One such option would be a small single man 9-meter troller with twelve power-gurdies (reels) which would also be suitable for going further offshore than the 30 km range that is currently being overfished. Such boats for example of the "Oregon Dory" type developed by Oregon State University could be built inexpensively with locally made marine plywood.

3.41 Recently, import restrictions for canned sardines and mackerel have been imposed. Therefore, relative prices of (both fresh and canned) sardines and mackerel have risen and production is expected to expand. It remains to be seen to what extent this is possible within existing fishing grounds. There may be unexploited fishing grounds but there seems to be no clear idea of the size of various stocks in Philippine territorial waters. A fishing resource assessment should therefore be undertaken (and, if necessary, a conservation program be instituted). If a resource inventory indicated the existence of unexploited areas, upgrading the fishing fleet would be a priority in fishing resource development.

3.42 There are other marine product resources in the Philippines, some of which, like milkfish or bangus, are well established as a fish farming business. The potential exists for development of other resources, such as squid, for drying or freezing and krill or euphasids for "shrimp" paste or aquarium fish food. Another industry with a good potential is shrimp farming. The

risks and opportunities in the Philippine shrimp farming industry have recently been assessed in an in-depth report by IFC.^{16/} Consequently, this topic is not treated in this report.

IV. EXPORT SUPPLY AND DEMAND

4.01 The emphasis of this chapter is on exports, particularly the export of processed fruits, with only brief discussions on vegetables and marine products. The reason for this emphasis is that a far greater potential exists for the expansion of fresh and processed fruit exports by comparison with vegetables and marine products. Export marketing is not significant for livestock and dairy products (barring some pork exports) since the country is an importer of these products.

4.02 For fresh fruit exports, market proximity is an important factor. In this regard, there are particular advantages for the Philippines over other competitors in the Japanese, ASEAN and Australian markets. In 1983, 98% of fresh pineapple exports and 74% of fresh banana exports went to Japan. Because of stringent standards for fumigation only 18% of fresh mango exports went to Japan; 63% was exported to Hong Kong and 14% to Singapore. For processed products, market proximity plays a lesser role. Of canned pineapple exports, for example, 59% were sold in the United States market whereas the rest was relatively evenly distributed among the major developed and newly industrializing countries.

A. Fruits and Vegetables

1. Exports and Export Marketing

4.03 Exports of processed fruits and vegetables increased from US\$64 million in 1970 to US\$137 million in 1982 and declined to US\$115 million in 1983. In value terms the growth rate from 1970 to 1982 was 6.5% and in volume terms 6.1%, implying that unit values were almost unchanged. The sector has been dominated by pineapple products which in 1979 achieved a share in total processed fruit and vegetables of 87% but declined to 78% in 1983. A large proportion of pineapple exports are handled by the two leading transnational corporations, Dole and Del Monte.^{17/} Through their aggressive market building and distribution network, and backed by sustained advertising investments over many years, these firms have contributed much to the Philippines becoming a world leader in canned pineapple and juices.

^{16/} "The Philippine Shrimp Farming Industry: Risks and Opportunities for Private Investors", IFC, July 1984.

^{17/} Del Monte brand products are manufactured in the Philippines by Philippine Packing Corporation (PPC).

4.04 With the economic expansion continuing in industrial countries and elsewhere, the prospects for an expanded market for pineapple products appears good. Even so, Dole and Del Monte are trying to diversify their operations somewhat (such as into fruit cocktails). It is noteworthy that the dominance of the two multinational companies has not prevented smaller companies from entering the market. Among the reasons for this are that the large companies are less flexible, they require a minimum market size to enter a market and have contractual arrangements with certain chain stores which limit their dealings with other chains. Also, some chains prefer not to be completely dependent on a certain brand, but like to offer more than one, possibly including a product under a generic label. This offers definite opportunities for smaller firms.

4.05 The success of the pineapple industry in capturing world markets has not been followed up in the case of other products, despite the fact that the majority of tropical fruits required by export markets are indigenous to the Philippines. Indeed, exports of canned and preserved fruits, other than pineapple products, amounted to no more than US\$17 million in 1983. Yet, in the context of the expected growth of worldwide demand for tropical fruits and by-products, opportunities for the Philippines clearly exist.

4.06 Pineapple Canned in Syrup. Canned pineapple is a traditional export product the value of which had already reached US\$28 million in 1970. Expansion in the 1970s was swift; more than a doubling of the volume was achieved from 1970 to 1979 (with an export value of \$83 million in 1979). Between 1979 and 1983 the export volume decreased by 23%, while the value remained at about \$83 million because of higher unit prices. The recession in industrial countries appears to have been a major cause of the decline. In 1984, in spite of domestic problems, processed pineapple exports expanded by 10 percent (in value terms). Pineapple is produced in primarily single-product operations of Dole and Del Monte, but is also a key component of a variety of fruit products produced by a number of medium-size companies. The established record of the Philippines as a world supplier of canned pineapples provides a valuable "umbrella" under which an extended range of associated tropical fruit products can be launched.

4.07 Other Fruits Canned in Syrup. This category of canned fruits consists of tropical fruits, either whole or in portions, and mixed fruit cocktails. Total exports were about US\$7.0 million in 1983. Canned mixed fruit cocktails account for 85% of exports of this category. The remaining 15% is made up of four tropical fruits, jackfruit, mangoes, palm fruit and santol. The development of canned fruit cocktails to a US\$5.9 million export business during recent years is more important than may at first appear, and, if efficiently promoted, could emerge as the backbone of the non-pineapple canning industry, since it uses as ingredients many local tropical fruits, some of which individually may not be commercially viable in export markets for some time to come. Moreover, international manufacturers of canned fruits recognize that fruit cocktails provide a unique opportunity to extend the range of their existing brands, while at the same time expanding the total market. The logical development would be the marketing of a range of fruit cocktails consisting of different combinations of a variety of fruits. The principal demand for mixed fruit cocktails is in the industrialized countries.

Of particular significance is the demand from Western Europe, a market which offers good opportunities for expansion. Demand is in excess of available supplies as evidenced by unfilled orders. The addition of new fruits, e.g., passion fruit or guyabano, is expected to further contribute to expanding the market.

4.08 Banana Chips. One out of every three fruit processing firms in the Philippines is producing banana chips, with combined exports totalling US\$7.2 million in 1983. Banana chip exports were negligible or nonexistent in 1975, but rose to US\$8 million in 1982. The export market worldwide is highly competitive, with Taiwan, Thailand, Mexico and Ecuador being the other main sources of supply. In Western Europe additional competition is encountered from Africa and the Caribbean.

4.09 Fruit Purees and Pastes. The Board of Investment (BOI) list of registered firms includes six processors manufacturing fruit puree with a combined plant capacity of 17,000 tons annually. Exports have been limited and volatile largely due to scarcity and seasonality of fruits for processing. The instability of this relatively new market sector points to a problem that is generic to tropical fruit products, and is partly attributable to importers' reluctance to expose themselves to too much risk during new-product promotion and new-use formulation stages. However, the leading processors are convinced that a large export market does exist for fruit purees and pastes, and that the real constraint is supply shortages rather than low demand levels.

4.10 Pineapple Juice. Pineapple juice exports experienced a 3-1/2 fold increase in volume terms and a 7 fold increase in value terms between 1970 and 1982. However, exports contracted to only US\$4.4 million in 1983 from US\$9.2 million in the previous year. Pineapple juice is predominantly a product of Dole and Del Monte but an increasing volume is also being produced by other firms. Volume and value of pineapple juice exports depend very much on the requirements of the U.S. market, which accounts for 88% of all exports in this category. The U.S. market has been experiencing some demand instability the reason for which are not entirely clear.

4.11 Other Fruit Juices and Concentrates. The export value of other fruit juices and concentrates was less than US\$1.0 million in 1983; but prospects for increases appear good. The juices are usually packed in cans ready-to-drink. The principal disadvantage is the high cost of transporting the water content of each container. A principal advantage is that the product is a convenience food which requires no preparation before consumption.

4.12 Processed Vegetables. The total exports of processed vegetables - frozen, packed in preservative solutions, dehydrated or canned - were US\$3.4 million in 1983. Dehydrated onions represented the major share in this category up to 1982 but other vegetables became more important in 1983. The list of all other processed vegetables exported covers a wide range of tropical pulses, salads and root produce, none of which individually is very large. The international market for dried and dehydrated vegetables is highly competitive, with strong competition from Eastern Europe and the United States.

Import demand in individual countries fluctuates sharply. The total market is stagnant and not expected to grow.^{18/}

2. Assessment of Export Market Demand

4.13 The only consolidated figures for world trade in fruit juices are for the period 1977 to 1981. According to them the value of world imports from all sources doubled during 1977-81 from US\$957.5 million to US\$1.9 billion (see Annex 3, Table 13). OECD member states accounted for over 81% of world imports of fruit juices in 1981 of which 67% was for citrus juices (US\$1,080 million, mostly for orange juice), 4.4% pineapple juices (US\$68.5 million), and the remaining 28% (US\$432.4 million) was unspecified.

4.14 For the purpose of this report "Tropical Fruit Juices" and "Citrus Juices" are classified as separate product categories. In comparison to citrus juices, world trade in tropical fruit juices is small, estimated at about US\$100 million in 1981. However, a recent survey of tropical fruit juices^{19/} indicated growing consumer and industrial interest which is reflected in imports increasing at an average of about 10% annually in volume terms.

4.15 Over the last decade or so, consumers' attitudes towards fruit juices have changed considerably. Traditionally regarded and consumed as a breakfast drink in many countries, fruit juices have replaced beverages during the rest of the day as they have gained in popularity, particularly among younger consumers. Recent years have witnessed the growth of health consciousness, especially in Western markets. The considerable interest in natural, pure and healthy food products has benefitted the fruit industry greatly.

4.16 Consumers in the United States and Western Europe are gradually acquiring a taste for exotic fruit juices. There is a willingness to try new flavors and tropical fruit juices are growing in popularity in spite of higher prices relative to citrus. Among the tropical fruit drinks most preferred are mango, guayabano and calamansi (Philippine lemon). Guava, papaya and naranghita (Philippine oranges) are less preferred, at least as single fruit drinks, but recent tests combining guava-with-apple, and papaya-with-apple, have been well received.

4.17 The beverage industry is the most notable user of tropical fruit juices, concentrates and pulps with an estimated share of 80% of all imports. It uses these products in the manufacture of a wide range of beverages, including juices, nectars, fruit juice drinks, multi-vitamin drinks, syrups, etc. The dairy industry uses imported juices, concentrates and pulps to produce yoghurt, ice-cream, desserts, pudding, etc. It probably absorbs 10% of all imports. The remaining 10% are used by a variety of other food industries to produce jam, marmalade, jelly, baby food, confectionery and

18/ "The Market for Dehydrated Vegetables," ITC, UNCTAD/GATT, Geneva 1981.

19/ "The World Market for Fruit Juices," ITC, UNCTAD/GATT, Geneva 1982.

other products. The beverage industry is characteristically a high-volume, limited-variety user, while the food and dairy industries are low-volume, wide variety users. It is through these two industries that most of the tropical fruit juices have been or are being introduced into the market. The most significant products traded internationally are currently juices of passion fruit, mango, guava and papaya. (Other tropical juices include cherimoya, a closely related fruit to the Philippine "atis", and guyabano or soursop, which are relative newcomers to export markets.) The prospects for these are discussed below. A more indepth analysis of prospects in individual countries is presented in Annex 1.

4.18 Passion Fruit. This is the best known of tropical fruits in Europe, North America and Australia/New Zealand. Both yellow and purple varieties are demanded, without a clear trade preference for either. Owing to its penetrating flavor and high acidity, passion fruit is consumed as a nectar, a juice drink or in dairy products with a low content of pure juice. Its flavor and color are universally acceptable, and it is used increasingly as a blender by the drinks industry. It has also become increasingly popular as a fruit drink in its own right. With more steady and reliable supplies, trade sources hold the view that the market will expand significantly. Current supplies of passion fruit products originate in Brazil, Kenya, Colombia, Peru, Taiwan, Ivory Coast, India, Sri Lanka, and Venezuela. Philippine production of passion fruit is still negligible. Del Monte has planted a 45 ha area in Mindanao and Crown Fruit has a 3 ha experimental plot. Some farms in Luzon are also conducting trials.

4.19 Mango. Fresh mango is traditionally an important product in the Middle East and in various ethnic markets in Europe and North America. It is now appealing to a new consumer base in these markets, and is growing in importance in other markets as well. The Philippines is already a supplier of mango puree. Expansion in Western Europe is limited only by supply constraints from the main producers, and significant opportunities exist for the Philippines since it is able to produce a high quality product at a competitive price. Philippine exporters have also had some success in the United States, but Mexico's proximity puts the latter in a strong competitive position. Nevertheless, mango puree from the Philippines promoted on the demonstrable merits of the variety of the fruit grown locally could well secure a premium price. The major sources of competition are India, Brazil and Mexico.

4.20 Guava. Guava juice is increasingly being used as a raw material, and trade sources predict a steady expansion in demand. Market information indicates a considerable increase in the popularity of guava juice, with market preference for the pink variety. However, the white variety is preferred in the United States due to its stronger flavor. Currently, importers in the United States report an upsurge in the demand for guava.

4.21 In the Philippines Del Monte has a small area planted with guava. The fruit is used in various canned products. Another processing firm has been utilizing guava in the past, but because of unreliability of supplies and the existence of numerous varieties which detract from a uniform quality, it stopped producing. More research will have to be done on the production side

to select the best varieties for the various areas, followed by arrangements such as contract farming to assure sufficient quantities and the right qualities of product.

4.22 Papaya. Although the taste and flavor of papaya do not normally appeal to consumers in the major markets, particularly in the United States, papaya has grown in importance in recent years. Principal uses are with other fruit, e.g., mixed drinks, and in yoghurt and baby foods, partly because of its papain (tenderizer) content. Growth in demand is expected to be steady but not spectacular.

3. Export Development

4.23 One of the functions of the Export Development Strategy Group^{20/} is to estimate projected exports for specific categories of fresh and processed fruits. Each year the actual performance is reviewed against the targets and then the targets for the next several years are revised. The overall targets set in 1982 for 1983 were too optimistic. However, the projections for 1983 for 1984 turned out to be more accurate for fresh fruit exports where an impressive 20% growth was indeed achieved (see Annex 3, Table 14). In processed fruit exports the expectations for a good performance were also high, but the general macro-economic situation as well as the emergence of unforeseen specific constraints such as the availability of high quality tin cans prevented the expectations from being realized. However, in spite of the constraints, a significant 11% growth was achieved.

4.24 The world market for tropical fruit juices and purees (excluding pineapples) was estimated at about US\$100 million in 1981. It is expected to grow in real terms at 10% per year. The Philippines' share of the world market in 1981 was 7.6%. Since in the judgment of leading exporters an 18% volume growth rate of Philippine exports in processed fruits (other than pineapples) is feasible, the Philippines share in the world market will increase from the estimated current share of about 8% to about 11% by 1990. The 18% rate is also being used by the Export Development Strategy Group, and, in the mission's view this is a realistic expectation. It is based on a 1979-82 performance of 14.5% (1983 was a drought year) and on the 1984 performance (Annex 3, Table 7) which was impressive in spite of an unfavorable macroeconomic environment. An even higher growth rate would be feasible if a number of constraints could be overcome (faster growth of raw material production, simplification of export procedures, etc.).

4.25 If Government firmly decides to support export development in the tropical fruits sector by creating a conducive economic environment and, more directly, by various actions or measures recommended in this report, significant progress could be made since good export market opportunities exist. The working assumption based on the mission's preliminary explorations are that,

^{20/} Established as an advisory body to the Minister of Trade and Industry in 1982. Consists of heads of industry representing seven industrial groups including fresh and processed foods.

with the exception of bananas, the market potential exists in importing countries for fresh and processed tropical fruits both for varieties of short and long gestation. With this knowledge producers and processors who might have a limited knowledge of the export markets can expand production, and the government should facilitate this development by reducing hindrances which might exist such as in export and duty drawback procedures.

4.26 The question has been raised about a potential oversupply of long gestation fruits such as mangoes. In the production of apples an oversupply situation currently exists because too many producers in too many countries planted trees simultaneously which led some years later to excess supply and lower prices. The reason why this may not occur with mangoes is that (a) only few countries can grow them; (b) because of the attractive flavor mango can be used in many forms and types of products; and (c) even an all-out production effort of a country like the Philippines would result in absolute export production totals that are still small in relation to products of a similar nature currently being demanded by the world market.

B. Marine Products

4.27 In 1983 the major marine product exports were: canned tuna (US\$53 million), shrimps and prawns (US\$36 million), and frozen tuna (US\$18 million). These exports have developed only toward the end of the 1970s; in 1975, with the exception of shrimp and prawns (US\$7 million), exports in all categories were still very small (see Annex 3, Table 8).

4.28 Taiwan and Thailand are strong competitors for Philippine marine product exports. According to information from processors, the cost of imported cans is one of the factors making the cost of processed tuna from the Philippines higher than that from Thailand. An effort should be made by the exporters to broaden the traditional market base now heavily concentrated in the United States in view of protectionist pressures in the United States markets. In 1983 a countervailing duty amounting to 35% was requested by U.S. canners on tuna imports from the Philippines on grounds of dumping. The request was later canceled when a court ruled that the actual Philippine subsidy was only 0.75%. Since then, however, other requests for protection have been introduced by producers in the United States (under the escape clause provision No. 201).

V. THE ROLE OF GOVERNMENT IN FOOD PROCESSING AND MARKETING

5.01 Food processing in the Philippines was developed largely by a private sector that showed initiative and ability; private sector development should be encouraged further. The role of Government should be to enhance the efficiency of its support functions and to reduce interventions which might militate against an economic environment in which the private sector can maximize its contribution. The perceived threat of new government interventions and the frequency of changes in rules and regulations increase the risks for potential investors, discourage investment and therefore limit the exploitation of opportunities which exist in the sector.

A. Export Procedures

5.02 In the early 1970s export procedures had become very complicated and there were overlapping functions of various agencies responsible for export clearances. The time required to obtain a permit was excessive since a large number of steps were involved. Altogether an exporter needed to obtain 47 signatures from various government offices. Presidential Decree No. 930 of May 1976 achieved some simplifications and reduced the signature requirement to 23. Still, export procedures were considered a hindrance by private sector exporters. They were requesting further simplifications, and with an increased emphasis on exports, Government decided to take further actions in this regard. Executive Order No. 843 was issued in November 1982 with the objective to "eliminate the obstacles of red tape and cumbersome export procedures." For this purpose the Commission on Export Procedures was created. The Commission is chaired by the Minister of Trade and Industry and includes the Governor of the Central Bank, the Commissioner of Customs, the Director-General of NEDA as well as four members from the private sector nominated by the Philippine Chamber of Commerce and Industry. The secretariat for the Commission is provided by the Ministry of Trade and Industry.

5.03 The focus of the Commission's work has been on moving away from shipment-based documentation to period- source- or product-based documentation. For example, the exports of a particular firm may be authorized for a specified period of time by a single set of technical and administrative permits. Individual shipments during that time would then only require monetary and fiscal authorization, and these would also be simplified. Authorizations of a periodic or source nature may take 30 days or more to secure, but the time savings on individual shipments are significant.

5.04 As one of the intended simplifications a "one stop shop" for export clearance was established by centralizing the representatives of all major regulating agencies in the Export Office of the Bureau of Customs. While this was expected to streamline export clearance, it did not seem to be viable. Informal as well as procedural problems arose, and coordination proved difficult when input was required from more than one unit of an agency. Facilities were also inadequate since no laboratories were provided for the testing which is often a prerequisite of export approval. While inter-agency secondment is feasible to a greater extent than is now being practiced, the one-stop shop does not appear to have been fully successful.

5.05 The Commission on Export Procedures had achieved some simplifications but disincentives for exporters continued, arising from export regulations and procedures. This was particularly the case in the area of processed food exports where such agencies as the Bureaus of Food and Drugs, Plant Industry, Animal Industry and Forest Development, the National Food Authority and the Philippine Coconut Authority were involved, in addition to the usual agencies dealing with exports such as Bureau of Customs or the Central Bank. As noted in paragraph 8(a) on April 25, 1985 the implementing rules of Executive Order 1016 were put into effect which abolished all inspection and commodity clearances on exports (with certain exceptions).

5.06 Another area where simplifications are needed is the duty-drawback system. Currently, exporters pay import duties on their imported components, and later, after the exportation has occurred, they obtain a refund; the administrative procedures involved in this process are tedious. The Commission on Export Procedures agrees with the need for simplification and is expected to make proposals in the near future.

B. Food Terminal Inc. (FTI)

5.07 The FTI was organized in 1968 with the status of a private entity fully owned by the Development Bank of the Philippines. It initially envisioned linking producers and retailers by providing modern trading facilities for farmers, food processors and wholesalers. FTI's core facilities consist of a central refrigerated warehouse, farmers' sheds, wholesalers' building, dry warehouses, food research laboratory, roads and site utilities and cover an area of 120 ha. The facilities were underutilized during the late 1970s and large losses were incurred.

5.08 In 1980, FTI became a subsidiary of the National Food Authority (NFA). Since then, use of existing capacities has increased and some new facilities have been built. The volumes of goods procured, processed, marketed and exported have increased but the financial situation continues to be precarious. In 1980, FTI started the KADIWA program, intended to make basic commodities available to low-income consumers at fixed prices. FTI is currently managing 24 KADIWA centers and 65 mobile stores in Metro Manila. In addition to the retail outlets in Manila, 242 NFA provincial centers and 47 satellite centers are being used for retailing and for procurement of raw materials. Buying from farmers is usually done at pre-negotiated prices and volumes. For procurement of processed food and other products, FTI relies on 180 manufacturers. A variety of products is exported by FTI such as milkfish, prawns, fruit juices, food preserves, snack foods, fruits and vegetables.

5.09 Because the losses incurred by FTI are a drain on NFA's resources and because FTI's activities are outside NFA's main mission, it has been recommended that NFA divest itself of FTI.^{21/} Should the divestiture not materialize soon or should FTI be detached from NFA but remain publicly owned, fairness requires that FTI compete with the private sector on an equal footing. Direct or indirect subsidies should be reduced and made explicit, and a public accountability system should be established. Also, there is much resentment in the private sector of the fact that NFA is responsible for a number of regulation, licensing and enforcement activities while at the same time NFA, or its subsidiary FTI, compete with the firms being regulated. The obvious solution is either that FTI ceases to benefit from its association

^{21/} "Organization and Systems Study for the National Food Authority," Consultant study for ADB and IBRD, Public Administration Service, Washington, January 1985.

with NFA or that NFA's regulatory functions are transferred to the appropriate Government agency.

C. Support Functions of the Ministry of Trade and Industry

5.10 Authority and responsibility for all matters relating to foreign trade are vested in the Ministry of Trade and Industry (MTI). Although specialist functions have been delegated to MTI's specific departments and agencies in the past, their roles have become fragmented, and their terms of reference complex. The situation leads to duplication of functions and internal rivalries; however, it goes beyond the scope of this report to make specific recommendations for making the support functions more efficient.

5.11 Philippine International Trade Corporation (PITC). This body is the Philippine Government's official export agency. Because it is outside the government civil service, it can pay salaries commensurate with the private sector and therefore attract higher quality staff. It was originally set up to develop markets in Eastern Europe and socialist countries elsewhere. The objective was to achieve volume exports for specialized products in markets where a government-backed negotiating authority could be expected to have greater leverage than individual exporters in the private sector or where a government agency was a more natural counterpart to a state trading agency. To this end, PITC has established offices in East Berlin, Moscow, Peking, and Bagdad. Later, offices were also established in Sydney, Tokyo, San Francisco, New York and Munich. The cost-effectiveness of these offices could, however, not be established by the mission.

5.12 Until recently PITC's main activity areas have been in support of the garment, footwear, electronics and construction industries. But PITC has now also been charged with promoting exports from the food industry, not only to socialist economies, but also to other markets. PITC sees its role as complementary to the private sector, and not as competitive, since the company does not take physical possession of goods. PITC's main function is to initiate and negotiate large scale transactions, arrange trade credits in excess of US\$1 million, and supervise documentation and shipment procedures. PITC services are available to a specific exporter or group of exporters, on the basis of a fee of 5% on the value of the transaction. Because PITC possesses valuable information or can obtain market intelligence, it is suggested that consideration be given to PITC's provision of information to the private sector on a fee paying basis.

5.13 The Center for International Trade Expositions and Missions, Inc. (CETAM). CETAM is a statutory enterprise set up by MTI for the purpose of handling all functions of export promotion relating to participation in trade fairs and overseas trade missions. Its budget is met by donor agencies and the fees charged to Philippine fair participants. At the conclusion of each promotional event, CETAM publishes details of business contacts made, sales, activities by competitors, and favorable factors and constraints affecting future development. CETAM is considered to provide useful services to exporters.

5.14 Information on Trade and Markets. Information on market opportunities is provided to all registered exporters in a bi-weekly bulletin (Trade Trends) which lists overseas trade inquiries and other relevant information.

5.15 Training in export marketing is provided largely through two-day regional seminars organized by the Bureau of Foreign Trade. Speakers are drawn from commercial offices of foreign embassies in Manila and from various government agencies involved in export promotion. They are well attended and include topics such as product development and adaptation, export costing and pricing, export financing, shipping and transportation, and export procedures. Since these seminars are quite general, dealing with the whole range of export products, it is suggested that seminars also be conducted for specific commodity groups such as fresh and processed fruits which are high on the Government's priority list.

5.16 Information and Assistance on Packaging. Packaging, including graphics, materials and container construction, is important particularly for export marketing since technical requirements and promotional properties in export markets are especially strict. Recognizing this in February 1983, the Ministry proposed the establishment of a Packaging Center within the Design Center of the Philippines. The implementation of the proposal has been suspended because of current financial conditions. The initial proposal appears to have been too wide-ranging for present domestic and export market requirements. What is required is a package design facility geared to meeting the needs of specific products in specific markets. For that purpose, a small full-time staff may be sufficient, supplemented by specialists who could be employed on an ad hoc basis.

5.17 NDC Food Processing Project. The mission gathered that a food processing project is being studied for possible promotion by NDC. The project would establish an investment company to provide funding in the form of loans and equity for food processing activities. It is, however, questionable whether increased government involvement in the sector is needed since financing, at market rates, is available through IGLF and could be supplemented by the proposed Agricultural Credit Project. Food processing sector development should take place as far as possible under the auspices of the private sector given the good track record, and without recourse to public funds.

D. Government Intervention in the Livestock Sector

5.18 Import Monopoly. The importation of briskets and beef trimmings has been centralized and managed solely by PHIL-BAI, a government corporation. Presidential Decree No. 1297(as amended by PD 1593) appointed PHIL-BAI as the country's sole importing agent from Australia and New Zealand. To improve marketing efficiency, imports should be opened up to permit private sector participation on equal terms with PHIL-BAI.

5.19 Ban on Inter-Provincial Movements of Carabaos. A ban on inter-provincial movements of carabaos was imposed by Memorandum 37-80. This was done with the purpose of preserving the carabao population to be used as work animals. This is an important objective; however, carabaos are already

sufficiently protected by Executive Order No. 626 which only allows the slaughter of carabaos "seven years old or older if male, and eleven years old or older if female". The effect of the inter-provincial trade ban has segmented the market and created surpluses in some provinces and shortages in others. It is recommended that the ban be abolished.

VI. SUMMARY OF RECOMMENDATIONS

6.01 This section includes a brief summary of each of the principal recommendations of the report, and is intended for quick reference. The paragraph numbers in parenthesis will assist a ready reference to the main text.

(a) Import and Export Procedures:

- Simplify export and duty drawback procedures (export procedures for processed food products are especially cumbersome) (paras. 5.02-5.06).
- Remove product standard biases in favor of imports (8(e)).
- Review vaccine import procedures with view toward possible simplification (para. 3.33).
- Remove ban on inter-provincial trade of carabaos (para. 5.19).

(b) Food Processing Research:

- Coordinator to be appointed in NSTA (para. 2.24).
- Private sector to have access at cost to government research facilities, now much underutilized (para. 2.27).
- Private sector to be represented on research committees (3.13).

(c) Government Monopolies:

- Eliminate unfair competition of FTI (paras. 5.07-5.09).
- Abolish beef import monopoly of PHIL-BAI and increasingly transfer responsibility to private sector (para. 5.18).

(d) Market Information:

- Provide better marketing information (including documentation requirements) to private sector (paras. 5.14-5.16).

(e) FDA Role:

- Separate FDA technical assistance from enforcement function (para. 2.26).

(f) Private Sector Role:

- Actively promote feedgrain production under private auspices - greatest potential for efficient import substitution (para. 3.31).
- No need for NDC food processing project (para. 5.17).

(g) Study:

- Study tin can problem and other packing options with assistance from the Bank's Regional IDF Division (paras. 2.30-2.34).

EXPORT PROSPECTS FOR TROPICAL FRUIT PRODUCTS

IN SELECTED MARKETS

1. United States. Domestic production of tropical fruit juices does not meet current demand and is certainly insufficient for the demand expected in the future. Philippine suppliers (particularly suppliers of bulk concentrates) of the juice/pulp of passion fruit, guava (the pink variety with few seeds), mango and papaya have good prospects in this market. The current volume of demand is small compared with that of citrus and other juices, but the outlook is positive.
2. As the market for consumer-packed juice is intensively competitive, prospective suppliers should select market segments and product ranges carefully. They could, for example, aim at the Hispanic community, the country's fastest growing community and a substantial consumer of tropical fruit juices and nectars.
3. Canada. Traditional sources meet most import requirements. With the exception of Brazil and the Philippines, developing countries have been unreliable suppliers in terms of quality standards and delivery. As a result, the trade has been reluctant to promote tropical fruit juices at the consumer level. Philippine exporters should exploit their acceptance in the Canadian market.
4. Health food retail outlets, which seek suppliers of all types of unadulterated, sugar-free juices, offer other sales prospects. A certain growth in the consumption of yoghurt is also expected, especially yoghurt and milk drinks with fruit flavors, which in turn will increase demand for fruit pulps and juices.
5. Tropical fruit juice products are still relatively unknown in Canada except among small ethnic groups in some of the larger cities. However, some of the larger supermarket chains have displayed some interest in selling a good line of tropical fruit juices and nectars in their gourmet food departments, thus providing an opportunity for suppliers of a range of canned juices, including mango, guava, papaya, and passion fruit. The possible introduction of multi-drinks in the near future will also improve the prospects for tropical fruit juices of various types.
6. Japan. As growth in production of juices from domestic fruit is lower than the growth of consumer demand, the shortfall is being filled by imports which are growing more varied in response to consumer demand. Consumers are attempting to move away from the imposed flavor of orange juice, as is evidenced by the increase in the consumption of grapefruit, apple, grape and other juices, including those of tropical origin.
7. A number of tropical fruit juices are distributed in Japan but sales are mainly concentrated in the larger urban areas and are made up of soft

drinks or nectars. The leading flavors are passion fruit, guava, papaya and mango. The stagnation of the market for tropical fruit juices results from the import quota system, which awards priority to the principal juices, i.e. orange, grapefruit, apple, grape etc., and leaves only the remainder of the quota for the other juices.

8. In June 1984 the Japanese Government approved some trade measures which will ease the situation somewhat for Philippine exporters of tropical products.

9. Australia. Orange juice and orange juice blended with pineapple or mango juice, are the most popular juice products, each accounting for about 45% of the market, or a total of 90%. The remaining 10% is shared by apple, blended apple and guava, blended tropical fruit, grapefruit, grape and other juices. Small quantities of mango juice, mixed tropical fruit and pineapple juices are sold as straight juices.

10. In 1981, an attempt to market calamansi juice imported from the Philippines as a blender failed for lack of consumer interest. Australia's imports of passion fruit juice mostly come from Fiji - approximately 8,000 gallons p.a.

11. Consumer demand for tropical fruit juices may develop over the medium term to a level representing increased opportunities to Philippine exporters. Although tropical fruit concentrates are not specified in the national import quantities, the Philippines exporters can probably increase this trade by carrying out trade promotion activities in the market. The products with the best current opportunities, and which would benefit most from joint marketing activities with an importer, are passion fruit, pineapple, mango and guava juices.

12. Gulf States. Total imports of all fruit juices, including citrus, amounted to \$189 million in 1980 ^{1/} of which Saudi Arabia imported \$159 million (84%). Imports of mango and guava accounted for 8.2% of Saudi Arabia's total, which, on the basis of comparable ratios for the rest of the region, suggests mango and guava imports of \$15.5 million. Of this Philippines fruit juice exports (non-pineapple) represent only around 0.8%.

13. Saudi Arabia is the fifth largest importer of tropical fruit juices in the world after the U.S.A., West Germany, Canada and the U.K. Principal supplies of mangoes and guavas are Egypt 56%; Cuba 22%; Taiwan 10%; India 6%; China 3%; Japan 2%. Mango and guava juices are required in easy-open cans.

14. The market is particularly attracted to products with novel flavor or combinations of flavors (fruit mixes). Increased imports of concentrate and pulp will be required to supply the expanding domestic processing industry. At the same time, imports of consumer packs may level off.

^{1/} 1980: Latest statistical period common to all states, for comparative order of magnitude only.

15. France. In 1981, the estimated value of imports of tropical fruit juices exceeded an estimated \$1.6 million compared with \$185,000 in 1977. Importers are optimistic that further growth will take place because increased consumption of mixed juices and beverages (e.g. tropical fruit cocktails), usually with citrus juice as the major component, is making consumers more aware of the "new" flavors.

16. The current market comprises small firms that market the products within limited areas rather than nationally. The interest generated in this manner may prompt larger firms to attempt wider distribution of tropical fruit juice products under their own brands.

17. Importers of tropical fruit juices, concentrates and pulps have expressed continuing interest in passion fruit concentrate, papaya, cherimoya and guava.

18. United Kingdom. Citrus juices accounted for 75% of all imports value in 1981. Imports of pineapple juice made up 6.2% of the total that year.

19. Only passion fruit has been imported continuously and even then only on a limited scale. However, marketing of juice mixtures, such as those of various citrus juices, is stimulating sales of tropical fruit drinks, i.e. mixtures based on orange juice and containing one or two tropical fruit juices. Furthermore, recent trends in other European markets, viz. Federal Republic of Germany, toward multi-flavored juice drinks, may influence the U.K. trade to follow similar trends.

20. Most importers consider it premature to expect a sudden upsurge in demand for tropical fruit juices; however, a small demand already exists, estimated at between 400 - 500 tons year, and this demand is increasing. The time is right for Philippine suppliers to attempt to secure a foothold in the current market.

21. Federal Republic of Germany. With imports of tropical fruit juices, concentrates and pulps probably amounting to 20,000 tons of single-strength equivalent, the Federal Republic of Germany is among the world's largest import markets for tropical juices. Although their share of total juice imports is still very small, this situation indicates considerable growth potential. The two major industrial end-users of juices and nectars ingeneral, i.e. the beverages industry and the dairy industry, are both expected to grow. In 1981, for example, per capita consumption of juices and nectars in the Federal Republic of Germany was 20.6 litres, which is high, compared with the that of most other European markets. Consumption of yoghurt is also quite high. In view of the general interest in health products, it is likely that the juice market will continue to grow during the coming years. Tropical fruit juices are expected to benefit, especially if further sales promotion and advertising are undertaken.

22. On the other hand, high prices are likely to have a negative effect on the market, especially under adverse economic conditions. It is also important to note the trend towards buying nectars or juice drinks with lower

and lower juice content. Nevertheless, it is probable that the market for tropical juices, concentrates and pulps will continue to grow, provided that good-quality products are offered at competitive prices.

23. The Netherlands. Despite its small population (14.1 million in 1981), the Netherlands is an important rapidly growing importer of juices. Over the five-year period 1977-1981, its imports increased in value by 86.5% from \$77.6 million to \$144.7 million or by an annual average of over 16.5%.

24. The Netherlands is a substantial re-exporter of fruit juices, mainly to other EEC countries and in particular to the Federal Republic of Germany, France, the United Kingdom, Belgium and Luxembourg. Re-exports accounted for 35% imports in 1980 or \$90 million.

25. The Netherlands' role as a major European importer/re-exporter of juices is due to various factors. First, Rotterdam, Europe's largest port, is especially well equipped to handle shipments of food products, making it an attractive terminal point for exporters from all over the world. Second, it has traditionally been an important trading center for many products due to its central location and excellent communications with the major European cities. Finally, advanced food technological facilities prompt many European importers to obtain specific products tailored to their specifications, from Netherlands compound houses.

26. The market for the general category of products, which includes tropical fruit juices, almost doubled in terms of value and quantity between 1977 and 1981. Although the quantity (9,254 tons) represented only 3.8% of all imports in 1981, the value made up 11.7% of the total (\$145 million). Developing countries are large and growing sources of these products, with 48.1% of supplies by value in 1981 compared with only 12.9% in 1977. As these countries mainly export tropical fruit juices (passion fruit, mango, papaya, etc.), the figures clearly indicate a growing interest in these products, if not in the Netherlands itself, then certainly in the European market.

EXPORT MARKETS FOR TROPICAL FRUIT JUICE: MARKET ACCESS,
CUSTOMS DUTIES, FOOD LAWS AND REGULATIONS

USA

1. Custom Duties. All imported juices are subject to duties varying between a maximum of 35 cents per gallons on citrus concentrates, 3 cents per gallon on juices not elsewhere specified (free under the Generalized System of Preferences (GSP), and 1 cent per gallon on vegetable juices.
2. Food Laws and Regulations. All processed foodstuffs entering the United States are subject to inspection by the Food and Drug Administration, which has established Standards of Identify, Quality and Fill for a number of canned products.
3. In addition, the United States Department of Agriculture, Food Safety and Quality Service, has promulgated Quality Grade Standards for voluntary use: canned, glass and frozen foods.
4. The latter standards have been developed to designate different levels of quality and to provide a convenient basis for buying and selling and for establishing quality control programs. Importer goods that conform to them will have easy access to the market, and will not be subjected to long and costly delays at the port of entry.
5. End-users impose their own standards or specifications for products not included in the foregoing standards.

Canada

6. Custom Duties and Quantitative Restrictions. There are no quantitative restrictions on imports of juices into Canada. Duties may be as high as 35% on some items under the general tariff. Most favored nation (MFN) rates do not exceed 15% and many items, including some tropical products, enter duty free under the MFN schedule. A few other products from developing countries benefit from the GSP, which gives free access to most products excepting those also produced in Canada.
7. Food Laws and Regulations are contained in the Canada Agricultural Products Standards Act and in the Processed Fruit and Vegetable Regulations. An amendment referring to permitted can sizes for fruit and vegetable juices was published in Canada Gazette Part II, 1980.
8. The Department of National Health and Welfare, through the Food and Drug Act, has also enumerated a series of standards for fruit juices.

Japan

9. Custom Duties. Imports of all juices excluding lemon and lime juice are subject to quota restrictions. Importers must apply to the Ministry of Trade each year to obtain their quota. The latter is partly determined by end-use and importers specializing in specific segments of the market are allocated quantities accordingly. Special quotas have also been negotiated with certain supply sources such as the United States.

10. Import restrictions are imposed on certain food products to protect the domestic producers. The fruits and vegetables subject to quota restrictions are as follows:

CCCN Code	Description
08.02	Oranges and tangerines, fresh
08.11	Oranges and tangerines, temporarily preserved
20.05	Fruit puree and fruit pastes
20.06	Canned pineapples, fruit pulp
20.07	Fruit juices, tomato juice
21.04	Tomato catsup, tomato sauce and mixed seasonings

Quotas on imported items are applied on a global basis.

11. The Philippines benefit from preferential duty on these items; duties nevertheless remain quite high, i.e. 12% on vegetable juices, 22% on fruit juices not containing sugar and 27%-30% on those that do.

12. Food Laws and Regulations. The Food Sanitation Law (No. 233 of December 24, 1947 and amended June 30, 1977) and the Standards for Food Additives in Japan are applicable to all foodstuffs. Philippine exporters should carefully consult them before attempting to trade with this market.

13. In general, three types of inspection are carried out on imported food products, viz., a visual inspection and two tests, one to verify the content of chemicals or additives, and the other to examine the bacteria count. Failure to qualify may cause delay or rejection of shipment.

Australia

14. Custom Duties. Australia sets no quantitative restrictions on imports of juices, concentrates, pulps/purees. It levies a floating duty on frozen orange concentrate, which in 1982 amounted to A \$2.40/kilo of total soluble solids. A customs duty of up to 10% ad valorem is also levied on most juice products. However, preferential rates are granted to developing countries for a number of products. A statutory sales tax of 25% is levied on consumer products that contain more than 25% of imported material to protect domestic fruit growers.

15. Imports. At the time of the mission, precise data on Australian imports were not available beyond 1979. Imports during the previous 4 years

vacillated between \$4.5 and \$8.5 millions p.a., averaging \$6.6 million. About half of all juice requirements are imported with citrus fruit juices comprising approximately 85%.

Middle East/Gulf States

16. This group includes Saudi Arabia, Bahrain, Kuwait and the U.A.E.

Customs Duties

- (a) Saudi Arabia. Customs Duty: 3% ad valorem. Certificate of Origin is required;
- (b) Bahrain. Customs Duty: 5% ad valorem. Certificate of Origin is required;
- (c) Kuwait. Customs Duty: Nil. Certificate of Origin is required. All labelling must be in Arabic.
- (d) U.A.E. Custom Duty: 3% ad valorem (by sea); 2% ad valorem (by air). Certificate of Origin is required.

France

17. Custom Duties. France applies the EEC common external tariff on imported fruit juices, which varies according to the product's specific gravity (degree of concentration), sugar content and country of origin. Certain preferences exist under the GSP scheme, in addition to supplementary preference accorded to signatories to the Lome Convention.

18. Food Laws and Regulations. Juice sales are regulated by decrees jointly issued by various ministries, including the Ministries of Agriculture, Industry and Health and by EEC directives.

United Kingdom

19. Customs Duties. The United Kingdom applies the EEC common tariff on imported juices and juice products.

20. Food Laws and Regulations. The Minister of Agriculture, Fisheries and Food, acting jointly with the Secretary of State for Social Services, issued regulations in 1977 under the Food and Drugs Act of 1955 on fruit juices and fruit nectars. These aim at protecting consumers by providing more specific safeguards against unfair practices and against the sale of fruit juices and fruit nectars not of the nature, substance or quality expected. They were also intended to harmonize United Kingdom regulations with EEC Council Directives by controlling the composition, description and labelling of fruit juices, concentrates, dried juices, and fruit nectars.

Federal Republic of Germany

21. Customs Duties. The Federal Republic of Germany applies the EEC common customs tariff. There are no quantitative restrictions for fruit juices classified under BTN 20.07 with the exception of grape juice.

22. Food Laws and Regulations. The fruit juice industry is regulated both by Federal Republic food laws and regulations and by EEC Council Directives.

23. All imported foodstuffs offered for sale in the country must comply with the provisions of the food law, Lebensmittel-und Bedarfsgegenstandegesetz of August 15 1974, as amended. This is a general law, which is supplemented by a number of regulations concerning labelling and packaging (including that of prepacked goods); the use of preservatives, coloring agents and other additives; dietetic foodstuffs; and vitaminized foodstuffs.

24. In addition, special food laws and regulations are applied to fruit juices, including:

- (a) Verordnung uber Fruchtsaft, konzentrierten Fruchtsaft und Getrockneten Fruchtsaft (regulations on fruit juices, concentrated fruit juice and dried fruit juice) of 1982.
- (b) Verordnung ueber Fruchtnektar and Fruchtsirup, regulations on fruit nectar and syrups, 1982.

The Netherlands

25. Customs Duties. The EEC common external tariff is applied. There are currently no quantitative restrictions on imports of fruit juices, with the exception of grape juice.

26. Food Laws and Regulations. Food regulations applicable to fruit juices are included in the EEC Council Directive 75/726. In addition, sales of fruit juice beverages are governed by the general food law, Warenwet, of 28 December 1935. It is strongly recommended that Philippine exporters ensure that their goods comply with the specifications required by agents and importers before shipping to this market.

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PHILIPPINESFOOD PROCESSING SECTOR REPORT

Gross Value Added in Agroprocessing 1970 to 1983
(in million pesos at 1972 constant prices)

	1970	1975	1979	1980	1981	1982	1983
Food industry	3,552 (30.0)	4,245 (25.6)	7,865 (35.4)	8,419 (36.3)	8,803 (36.7)	9,099 (37.1)	9,244 (36.9)
Beverage industry	609 (5.1)	808 (4.8)	707 (3.2)	732 (3.1)	730 (3.0)	747 (3.0)	763 (3.0)
Tobacco manufactures	784 (6.6)	1,542 (9.3)	1,038 (4.7)	1,039 (4.5)	1,100 (4.6)	1,114 (4.5)	1,113 (4.4)
Wood products	497 (4.2)	471 (2.8)	686 (3.0)	665 (2.9)	707 (3.0)	704 (2.9)	703 (2.8)
Paper products	341 (2.9)	486 (2.9)	202 (0.9)	191 (0.8)	188 (0.8)	172 (0.7)	195 (0.8)
Leather products	30 (0.3)	30 (0.1)	49 (0.2)	68 (0.3)	70 (0.3)	71 (0.3)	67 (0.3)
Rubber products	161 (1.4)	263 (1.5)	312 (1.4)	302 (1.3)	311 (1.3)	324 (1.3)	316 (1.3)
Total Agroprocessing	5,974 (50.5)	7,845 (47.0)	10,859 (48.8)	11,416 (49.2)	11,909 (49.7)	12,231 (49.8)	12,401 (49.5)
Total Manufacturing	11,823 (100.0)	16,537 (100.0)	22,239 (100.0)	23,175 (100.0)	23,959 (100.0)	24,535 (100.0)	25,084 (100.0)

Source: Philippine Statistical Yearbook 1984.

PHILIPPINESFOOD PROCESSING SECTOR REPORTPhilippine Exports of Food and Non-food Agricultural Products 1970 to 1983
(US\$ million fob)

	1970	1975	1979	1980	1981	1982	1983
Marine products	4 (0.5)	17 (1.2)	94 (4.8)	168 (7.5)	143 (7.0)	119 (6.6)	132 (8.0)
Fresh fruits	7 (1.0)	77 (5.3)	111 (5.7)	131 (5.9)	145 (7.1)	170 (9.7)	127 (7.8)
Processed fruits	64 (8.8)	89 (6.2)	100 (5.1)	117 (5.3)	123 (6.0)	132 (7.5)	112 (6.8)
Vegetables	2 (0.3)	1 (*)	2 (.1)	2 (*)	4 (.2)	5 (.3)	3 (.2)
Coffee and cocoa	0.5 (0.1)	4 (.3)	55 (2.8)	64 (2.9)	81 (4.0)	101 (5.7)	77 (4.7)
Rice	0.4 (0.1)	0 (0)	47 (2.4)	76 (3.4)	32 (1.6)	0.2 *	9 (.5)
Sugar	198 (27.3)	616 (43.0)	240 (12.3)	659 (29.6)	609 (29.8)	444 (25.3)	320 (19.5)
Coconut products	178 (24.5)	403 (28.0)	917 (47.0)	695 (31.2)	648 (31.6)	522 (29.7)	592 (36.1)
Beverages and tobacco	15 (2.1)	35 (2.5)	35 (1.8)	32 (1.4)	54 (2.6)	52 (3.0)	38 (2.3)
Wood and wood products	257 (35.4)	196 (13.6)	349 (18.0)	283 (12.7)	208 (10.1)	209 (12.0)	231 (14.1)
Total food and non-food agricultural products	7,259 (100.0)	1,439 (100.0)	1,950 (100.0)	2,227 (100.0)	2,047 (100.0)	1,754.2 (100.0)	1,641 (100.0)
Memo item: Total merchandise exports	1,142	2,294	4,601	5,788	5,721	5,021	5,005

Source: Annex 3, Table 8.

* Less than 0.1%.

PHILIPPINESFOOD PROCESSING SECTOR REPORTPhilippine Imports of Food and Non-food Agricultural Products 1970 to 1983
(US\$ millions cif)

	1970	1975	1979	1980	1981	1982	1983
Live animals	0.1 (0.1)	0.4 (0.1)	3 (0.4)	3 (.4)	4 (.5)	4 (0.4)	4 (0.5)
Meat products	5 (2.8)	10 (2.1)	17 (2.5)	12 (1.4)	16 (2.0)	20 (2.2)	13 (1.6)
Dairy products	32 (17.9)	62 (13.1)	96 (14.2)	112 (13.6)	135 (16.4)	167 (18.3)	128 (16.1)
Fish products	17 (9.5)	33 (7.0)	20 (3.0)	26 (3.2)	30 (3.6)	38 (4.2)	7 (0.9)
Cereal products	37 (20.7)	175 (37.0)	144 (21.3)	214 (26.0)	230 (27.9)	242 (26.5)	249 (31.3)
Fruit and vegetable products	4 (2.2)	7 (1.5)	10 (1.5)	11 (1.3)	14 (1.7)	15 (1.6)	14 (1.8)
Coffee, cocoa, tea spices	2 (1.1)	2 (0.4)	17 (2.5)	27 (3.3)	46 (5.6)	43 (4.7)	21 (2.6)
Feedstuffs	8 (4.5)	25 (5.3)	42 (6.2)	81 (9.9)	81 (9.9)	111 (12.1)	81 (10.2)
Beverages and tobacco	9 (5.0)	23 (4.9)	48 (7.1)	48 (5.8)	53 (6.4)	65 (7.1)	72 (9.0)
Non-food agricultural products	65 (36.3)	135 (28.6)	278 (41.2)	288 (35.1)	214 (26.0)	209 (22.9)	207 (26.0)
Total food and non-food agricultural products	179.1 (100.0)	472.4 (100.0)	675 (100.0)	822 (100.0)	823 (100.0)	914 (100.0)	796 (100.0)
Memo Item:							
Total merchandise imports	1,286	3,459	6,142	7,727	7,946	7,667	7,487

Source: Annex 3, Table 9.

Table 4: SUMMARY STATISTICS FOR FOOD PROCESSING INDUSTRIES 1981

PSIC Code	Industry Group	Number of establishments (1)	Number of employees (1,000) (2)	Total compensation P million (3)	Total costs P million (4)	Capital expenditures 1981 P million (5)	Gross output P million (6)	Census value added P million (7)
	All manufacturing	84,931	1,064.0	10,745	114,551	8,033	134,178	39,995
311-312	Food manufacturing	29,199	250.6	2,179	25,453	1,207	30,429	7,681
3111, 3114- 3115	Slaughtering, preparing and preserving meat; canning and preserving of fruits and vegetables, fish, crustacea and other seafoods	1,084	26.3	344	2,409	155	3,158	1,039
3112- 3113	Manufacture of processed milk and dairy products	392	6.1	114	1,751	89	2,057	495
3116- 3117	Production of crude coconut oil, including cake and meal; and manufacture of vegetable and animal oils and fats	206	5.8	92	2,454	134	2,762	522
3118, 3119- 3121	Rice, corn and flour milling and manufacture of other grain mill products	18,630	71.2	319	6,458	69	7,605	1,520
3123	Sugar milling and refining	454	37.6	563	5,398	265	6,395	1,596
3128	Manufacture of prepared and unprepared animal feeds	100	7.5	75	1,849	30	1,995	284
311-312 (3122, 3124- 3127, 3129)	Rest of manufacture of bakery products, cocoa, chocolate and sugar confectionery, desiccated coconut, ice (except dry ice); coffee roasting and processing; and food manufacturing, n.e.c.	8,333	96.0	668	5,131	412	6,453	2,222

Source: NCSO

PHILIPPINES
FOOD PROCESSING SECTOR REPORT

Production of Selected Products 1971 to 1983
(in '000 m tons)

	1971	1975	1979	1980	1981	1982	1983
Corn	2,012	2,514	3,090	3,123	3,109	3,290	3,126
Soybeans	1	6	8	9	10	11	8
Banana	1,035	1,686	3,582	3,977	4,073	4,077	3,668
Guyabano	7	7	10	10	10	11	11
Jackfruit	64	84	89	91	97	94	82
Mango	137	239	363	377	367	426	400
Papaya	54	61	85	95	104	94	80
Pineapple	234	424	605	1,281	1,293	1,242	964
Coffee	49	91	115	125	147	171	139
Cacao	4	3	4	4	4	5	6

Source: Bureau of Agricultural Economics.

PHILIPPINESFOOD PROCESSING SECTOR REPORTWorld Imports of Fruit Juices by Major Countries, 1977 and 1981
(US\$ '000)

	1977	% of total	1981	% of total
USA	88,941	9.3	411,220 /a	16.2 /f
Germany, Fed. Republic	162,763	17.0	273,859	15.4
Canada	93,783	9.8	193,842	10.9
United Kingdom	91,075	9.5	182,955	10.3
Saudi Arabia	108,644	11.2	161,824	9.2
The Netherlands	77,610	8.1	145,075	8.3
France	68,650	7.2	98,817	5.6
Belgium	29,989	3.1	65,057	3.1
Sweden	50,745 /b	5.3	47,695	2.8
Switzerland /c	19,508 /b	2.0	34,504	1.9
Libya /c	17,596	1.8	34,500 /b	1.9
Austria /c	22,665	2.4	27,880	1.6
Japan	8,980	0.9	26,818	1.5
Denmark	22,419	2.3	26,030	1.5
Finland	12,851	1.3	20,245	1.2
Israel /c	9,272	1.0	18,227	1.1
Hongkong /c	8,493	0.9	17,761	1.1
Norway	10,903 /b	1.1	17,664	1.0
Yemen /c	10,000 /b	1.0	17,500 /b	1.0
Australia	4,794 /b	0.5	16,000 /b	0.9
USSR /c	3,621	0.4	15,067 /d	0.8
Italy	3,621	0.4	14,351	0.8
Kuwait /c	15,857	1.7	13,000 /b	0.7
Ireland	4,438	0.5	11,352	0.6
United Arab Emirates /c	10,176	1.1	11,000 /e	0.6
<u>Total Imports into</u> <u>25 Major Markets /g</u>	<u>957,425</u>	<u>100.0</u>	<u>1,891,243</u>	<u>100.0</u>

/a 1981 imports increased substantially due to disease in Florida citrus crop. Average imports 1980/81 suggest \$288,133 for 1981.

/b ITC estimates.

/c Import statistics include vegetable juices, believed to be minimal.

/d Comtrade.

/e National statistics.

/f Calculation based on /a and adjusted pro rata to total \$1,768,156.

/g Estimated to represent over 95% of world imports.

Source: Comtrade data base system, UNSO/ITC, 1982.

PHILIPPINESFOOD PROCESSING SECTOR REPORTFresh and Processed Fruit Exports 1983-87
(FOB in US\$ million)

	<u>Actual</u>	<u>Estimate</u> /a	<u>Change</u>	<u>Projections</u> /b		
	<u>1983</u>	<u>1984</u>	<u>(%)</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
Fresh banana	105	128	22	134	140	146
Fresh pineapple	14	16	14	20	23	26
Fresh mango	8	9	12	11	14	18
Fresh papaya	0	0	-	3	5	8
Subtotal	<u>127</u>	<u>153</u>	<u>20</u>	<u>68</u>	<u>182</u>	<u>198</u>
Processed pineapple	88	97	10	107	117	129
Other processed fruits	17	20	18	25	30	37
Sub-total	<u>105</u>	<u>117</u>	<u>11</u>	<u>132</u>	<u>147</u>	<u>166</u>
<u>Total</u>	<u>232</u>	<u>270</u>	<u>16</u>	<u>300</u>	<u>329</u>	<u>364</u>

/a Based on actual data for the January to September 1984 period.

/b Mission estimates.

PHILIPPINES

FOOD PROCESSING SECTOR REPORT

Exports of Fresh and Processed Food and Nonfood Agricultural Products
(Volume in '000 tons, value in US\$ million at current prices)

Commodity category	1970		1975		1979		1980		1981		1982		1983	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Meat & meat preparations	0.03	0.03	40.58	0.08	0.84	1.40	0.88	1.51	0.65	1.54	0.58	1.30	0.28	0.53
Livestock products	-	-	4.70	0.16	0.01	0.02	0.03	0.03	0.01	0.01	0.02	0.01	0.11	2.06
Total	0.03	0.03	45.28	0.24	0.85	1.42	0.91	1.54	0.66	1.55	0.60	1.31	0.39	2.59
Marine products														
Fresh														
Frozen tuna (except fillets)	-	-	-	-	35.47	34.44	48.72	68.33	35.53	48.21	14.92	17.86	14.17	18.27
Shrimps & prawns, fish, chilled or frozen	0.58	1.45	1.67	7.06	3.83	35.75	2.57	20.68	2.72	22.77	3.94	32.73	4.74	36.08
Bangus (milk fish)	0.01	-	-	-	0.59	1.32	0.76	1.81	0.73	1.79	0.98	2.36	2.54	3.63
Cuttle fish & squid (pusit)	-	-	0.13	0.48	0.57	2.78	0.57	2.34	0.45	2.36	0.54	2.98	0.68	2.95
Total Fresh Marine Products	0.59	1.45	1.80	7.54	40.46	74.29	52.62	93.16	39.43	75.13	20.36	55.93	22.13	60.93
Prepared														
Canned tuna	-	-	0.12	0.21	4.08	6.50	11.15	29.49	18.03	52.11	19.41	46.46	23.54	52.77
Shrimp & prawns														
Salted, dried, smoked	{				0.01	0.05	0.02	0.10	0.27	0.81	0.13	0.35	0.16	0.34
Prepared or preserved (in salt)	{	0.03	0.02	0.02	0.02	-	-	0.02	0.06	0.02	0.09	0.07	0.20	0.11
Paste (bagong alamang)	{				0.39	0.14	0.20	0.35	0.19	0.36	0.17	0.37	0.21	0.40
Bangus														
In airtight containers	{	-	-	0.04	0.06	0.02	0.07	0.01	0.04	0.04	0.14	0.06	0.17	0.08
Dried, salted or in brine	{				-	0.02	0.02	0.05	-	0.03	-	0.02	-	-
Total Prepared Marine Products	0.03	0.02	0.18	0.29	4.50	6.78	11.77	60.09	18.56	53.54	19.84	47.57	24.10	54.05
Others														
Fish, fresh (live or dead), chilled or frozen	1.52	0.76	9.82	7.32	2.67	4.63	2.42	4.53	2.42	5.16	2.51	5.45	2.83	6.36
Fish, dried, salted or in brine; smoked fish (whether or not cooked before or during smoking process)	0.03	0.05	0.40	0.47	0.57	1.20	1.20	4.22	0.80	2.64	0.90	2.53	0.14	1.83
Crustaceans & mollusks, in shell or not, fresh (live or dead), chilled, frozen, etc.; crustacean, in shell; simply boiled in water	0.06	1.46	0.52	0.75	0.15	6.79	2.15	5.32	1.95	5.91	2.20	6.38	3.03	7.22
Fish crustaceans & mollusks, prepared or preserved, NES	0.03	0.04	0.75	0.65	0.17	0.76	0.43	0.75	0.53	0.96	0.70	1.42	0.28	1.30
Total Other Marine Products	1.64	2.31	10.09	9.19	5.56	13.38	6.20	14.82	5.70	14.67	6.31	15.78	6.88	16.71
Cereal preparations	2.02	0.51	0.40	0.93	1.60	2.16	1.89	3.22	2.35	3.94	2.96	5.19	3.18	5.10

Commodity category	1970		1975		1979		1980		1981		1982		1983	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Fruits														
Fresh														
Bananas	106.79	5.90	822.74	73.10	858.61	96.68	922.71	114.18	868.56	124.02	926.68	146.11	643.73	104.73
Mangoes	6.54	1.01	5.51	1.78	7.46	4.89	8.96	6.48	7.21	5.91	9.64	8.14	8.67	8.67
Pineapples	3.29	0.13	43.64	2.03	108.32	9.43	114.76	10.13	134.78	15.04	142.08	15.86	127.28	13.67
Papayas	-	-	0.05	0.03	-	-	-	-	-	-	-	-	-	-
<u>Total Fresh Fruits</u>	<u>116.62</u>	<u>7.04</u>	<u>871.94</u>	<u>76.94</u>	<u>974.39</u>	<u>110.97</u>	<u>1,046.43</u>	<u>130.79</u>	<u>1,010.55</u>	<u>144.97</u>	<u>1,078.40</u>	<u>170.11</u>	<u>779.68</u>	<u>127.07</u>
Processed														
Pineapple														
Juice	11.80	1.25	17.95	2.68	15.31	3.20	25.09	5.80	20.25	6.24	39.86	9.24	23.25	4.41
Others (dried, drained, concentrates or in syrup)	97.66	27.76	127.29	37.51	210.42	83.28	205.54	91.43	186.12	95.54	189.90	98.36	162.81	83.38
Fruit purees & fruit paste	-	-	0.24	0.13	1.32	0.88	1.84	1.64	1.69	1.89	2.00	1.94	1.74	1.99
Jams	0.01	-	0.19	0.10	1.47	0.80	1.61	0.87	1.51	1.08	1.94	1.17	1.07	0.68
Banana crackers	0.03	0.09	-	-	1.51	2.13	3.72	4.81	4.88	6.21	6.18	8.36	5.99	7.18
Mixed fruits	2.31	0.94	5.45	2.57	7.43	4.27	10.12	6.76	7.00	5.34	7.08	5.31	3.32	2.60
Others														
Fruits & nuts (not including oil nuts & pineapple), dried	-	7.06	-	-	1.03	1.62	1.36	2.12	1.35	2.24	1.25	2.37	1.41	2.50
Fruit preserved & fruit preparation	112.27	27.26	152.97	45.74	3.40	3.62	2.84	4.09	2.90	4.18	3.66	5.23	3.72	4.59
<u>Total Processed Fruits</u>	<u>124.08</u>	<u>64.36</u>	<u>304.09</u>	<u>88.73</u>	<u>241.89</u>	<u>99.80</u>	<u>252.12</u>	<u>117.52</u>	<u>225.70</u>	<u>122.72</u>	<u>251.87</u>	<u>131.98</u>	<u>203.31</u>	<u>112.33</u>
Vegetables														
Tomatoes, fresh or chilled	-	-	0.44	0.18	0.29	0.14	0.05	0.02	0.22	0.11	0.27	0.07	0.16	0.05
Vegetables, fresh, frozen or simply preserved	-	0.15	-	0.76	0.80	0.37	1.09	0.54	0.51	.46	0.59	0.42	4.67	1.99
Onions, dried	-	-	-	-	5.03	1.18	2.37	0.59	9.77	3.41	7.02	2.52	0.72	0.25
Vegetables, roots & tubers, prepared or preserved, NES	-	-	-	-	0.61	0.72	0.69	0.89	0.43	0.05	0.58	1.61	0.94	1.10
<u>Total Vegetables</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>5.64</u>	<u>1.90</u>	<u>3.06</u>	<u>1.48</u>	<u>10.20</u>	<u>3.46</u>	<u>7.60</u>	<u>4.13</u>	<u>1.66</u>	<u>1.35</u>
Coffee														
Raw beans	0.14	0.09	2.31	2.58	15.93	43.78	15.80	44.58	20.53	39.38	24.59	49.42	21.55	46.69
Processed	-	-	0.01	0.08	0.27	2.92	0.17	2.01	0.19	1.93	0.14	1.37	0.21	1.90
<u>Total Coffee</u>	<u>0.14</u>	<u>0.09</u>	<u>2.32</u>	<u>2.66</u>	<u>16.20</u>	<u>46.70</u>	<u>15.97</u>	<u>46.59</u>	<u>20.72</u>	<u>41.31</u>	<u>24.73</u>	<u>50.79</u>	<u>21.76</u>	<u>48.59</u>
Cocoa														
Mc Cor (cocoa butter)	0.29	0.41	0.71	1.80	1.58	8.31	2.36	16.58	6.04	37.12	7.95	44.15	4.75	20.99
Others (cocoa products)	-	-	-	-	-	-	1.00	1.34	2.99	2.64	7.63	5.65	4.06	2.61
<u>Total Cocoa</u>	<u>0.29</u>	<u>0.41</u>	<u>0.71</u>	<u>1.80</u>	<u>1.58</u>	<u>8.31</u>	<u>3.36</u>	<u>17.92</u>	<u>9.03</u>	<u>39.76</u>	<u>15.58</u>	<u>49.80</u>	<u>9.81</u>	<u>28.60</u>
Rice	1.91	0.41	0.02	0.01	165.60	46.74	263.37	76.35	94.77	31.61	0.45	0.20	40.40	9.33
Coconut Ciliate	-	-	-	-	548.30	85.52	545.19	81.39	620.36	80.76	588.57	72.12	550.84	72.01
Sugar	1,855.60	1988.30	1,647.40	616.20	-	240.00	-	658.70	-	6088.90	-	445.50	-	320.50
Coconut oil	339.20	97.60	614.40	230.30	803.50	742.50	918.50	566.80	1,039.90	533.50	921.20	401.00	998.20	515.80
Copra	447.40	80.60	761.20	172.30	144.70	89.10	121.40	47.20	108.30	33.60	177.70	49.20	16.10	4.40
Beverages and tobacco	-	15.30	-	35.90	-	35.30	-	31.70	-	53.80	-	52.40	-	37.70
Wood and wood products	-	257.40	-	196.10	-	348.80	-	282.90	-	208.20	-	208.60	-	230.60
<u>Total Food and Nonfood Agricultural Products</u>	<u>-</u>	<u>724.20</u>	<u>-</u>	<u>1,463.00</u>	<u>-</u>	<u>2,067.60</u>	<u>-</u>	<u>2,330.30</u>	<u>-</u>	<u>2,169.70</u>	<u>-</u>	<u>1,840.70</u>	<u>-</u>	<u>1,743.80</u>

Source: Philippine Yearbook of Foreign Trade Statistics, various issues.

PHILIPPINES
FOOD PROCESSING SECTOR REPORT

Imports of Selected Food and Nonfood Agricultural Products
(Volume in '000 tons, value in US\$ million at current prices)

Commodity category	1970		1975		1979		1980		1981		1982		1983	
	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value	Volume	Value
Bovine animals, live, purebred for breeding & scientific purposes	0.13	0.11	-	-	0.13	0.22	-	-	-	0.01	0.78	0.41	-	-
Pine, live, for breeding & scientific purposes	0.40	0.01	1.56	0.38	1.37	0.56	1.23	0.73	3.00	0.72	3.22	0.93	4.78	1.41
Poultry, live of a weight not exceeding 125 g for breeding	-	-	-	-	0.52	1.45	0.71	1.98	0.78	2.36	0.69	2.21	0.87	2.48
Live Animals (Total)	0.65	0.12	1.57	0.39	0.53	2.72	0.73	3.15	0.80	3.65	0.72	3.96	0.91	4.29
Meat of bovine animals, fresh, chilled or frozen, with bones in	1.62	1.87	9.46	8.58	0.65	1.19	0.15	0.68	0.37	1.34	0.87	2.41	0.28	1.19
Meat of bovine animals, fresh, chilled or frozen, boneless	-	-	-	-	0.58	12.65	4.35	9.01	5.29	12.24	6.58	14.69	4.15	9.66
Meat of swine, fresh, chilled or frozen	0.28	0.09	0.30	0.19	2.30	1.49	1.36	0.91	0.93	0.78	0.98	0.96	0.68	0.58
Edible offals of the animals, filling in subgroups fresh, chilled or frozen	0.28	0.87	0.24	0.19	0.88	0.61	0.81	0.69	1.10	1.04	1.43	1.67	0.96	0.84
Meat & Meat Preparations (Total)	-	5.18	-	9.88	-	16.68	-	12.15	-	16.04	-	20.34	-	12.94
Whey, preserved, concentrated or sweetened	-	-	-	-	6.69	3.13	3.95	1.76	5.27	2.92	5.85	3.30	5.56	2.87
Skimmed milk, powdered, in bulk containers (barrels, drums)	26.62	6.61	30.82	24.17	7.83	43.67	68.91	53.33	43.91	46.76	65.79	66.44	53.47	46.38
Milk, in powder or granules, in bulk containers	-	-	2.18	2.39	1.84	11.52	9.14	12.32	10.40	15.45	11.89	18.14	12.85	15.52
Milk, in powder or granules, in consumer containers	16.13	8.88	8.37	16.27	10.74	18.55	11.16	21.77	15.32	36.60	19.19	48.78	14.99	35.26
Milk & cream	90.35	27.81	49.56	48.74	109.36	78.54	96.21	92.63	78.41	106.18	104.28	138.53	91.33	102.76
Butter	4.47	2.40	3.51	4.89	8.26	11.21	8.03	13.06	8.61	19.60	7.54	18.52	8.93	17.08
Cheese	3.71	1.40	0.12	0.3	0.23	0.32	0.17	0.30	0.21	0.29	0.41	0.49	0.34	0.58
Curd	-	-	2.63	3.29	4.83	5.38	4.58	6.44	5.74	9.08	6.41	9.65	5.24	7.40
Dairy Products (Total)	-	32.47	-	61.79	-	95.78	-	112.46	-	134.91	-	166.81	-	128.21
Fish, fresh (live or dead), chilled or frozen	-	0.01	-	0.01	-	0.08	-	0.04	-	0.06	-	1.43	-	0.61
Mackerel (hasa-hasa), prepared or preserved in airtight containers	48.37	14.80	49.19	26.69	9.37	7.19	17.50	15.29	4.55	4.51	4.66	7.31	0.84	0.77
Sardines, prepared or preserved in airtight containers	2.02	0.95	6.18	4.62	11.25	10.58	10.09	9.91	24.11	23.14	29.07	29.60	4.04	4.03
Other fish & squid (pusit), prepared or preserved, whether or not in airtight containers	2.38	0.82	2.82	2.02	1.79	1.48	1.14	1.00	1.65	1.64	2.45	2.56	0.48	0.66
Fish & Fish Preparations (Total)	-	16.78	-	33.40	-	19.72	-	26.46	-	29.55	-	38.09	-	6.80
Wheat (including spelt) & meslin, unmilled	494.87	29.68	518.00	94.61	704.80	105.91	785.72	148.55	796.43	150.77	924.10	157.68	797.17	134.58
Rice	-	-	104.78	37.35	0.02	0.02	-	0.01	0.01	0.01	-	-	0.01	0.01
Barley, unmilled	-	-	-	-	-	-	0.17	0.03	0.89	0.20	1.18	0.21	1.14	0.18
Maize (corn), unmilled	1.01	0.01	121.47	16.49	34.76	3.90	249.94	35.12	253.14	42.08	340.94	42.67	528.44	70.75
Cereals, unmilled (other than rice, barley & maize)	2.72	0.17	26.31	3.20	3.87	0.52	4.12	0.60	3.75	0.83	3.91	0.68	-	-
Meal & flour of wheat & flour of meslin	16.34	1.32	16.91	4.40	19.72	4.44	9.15	2.61	13.08	3.34	13.40	3.30	10.78	2.58
Other cereal meals & flours	0.07	0.01	0.08	0.03	0.05	0.03	0.05	0.04	0.71	0.30	0.93	0.34	0.68	0.28
Malt, whole or ground	43.50	4.71	67.45	18.81	110.34	24.48	84.10	21.38	83.92	24.77	100.99	28.64	125.21	32.07
Malt extract	0.06	0.03	0.12	0.07	3.31	1.94	2.69	1.61	3.53	2.57	3.73	3.42	3.67	2.90
Hypoallergenic soy food	0.03	0.02	0.05	0.01	0.52	0.45	0.83	1.43	0.73	2.17	1.80	2.44	0.94	1.71
Cereal preparations & preparations of flour or starch of fruits or vegetables	46.28	5.83	68.51	19.23	116.48	28.73	90.33	27.30	90.24	32.43	109.67	37.16	132.57	39.55
Cereals & Cereal Preparations (Total)	-	37.03	-	175.41	-	143.56	-	214.30	-	229.96	-	242.03	-	248.55

Commodity category	1970		1975		1979		1980		1981		1982		1983	
	Volume	Value												
Vegetables, fresh, frozen or simply preserved (including dried leguminous vegetables: roots, tubers & other edible vegetable products, NES, fresh or dried)	-	0.94	-	3.76	-	1.96	-	1.96	-	2.91	-	2.95	-	3.34
Other vegetables, roots & tubers, prepared or preserved	-	-	-	-	-	2.50	-	2.21	-	3.60	-	5.06	-	5.11
Fruit & nuts (not including oil nuts), fresh or dried	-	0.99	-	1.27	-	3.22	-	3.60	-	3.39	-	3.55	-	1.43
Fruit, preserved & fruit preparation	1.89	0.82	1.86	1.24	1.66	2.56	2.21	3.25	2.68	4.57	3.98	3.65	3.91	4.36
<u>Vegetables & Fruit (Total)</u>	-	<u>3.64</u>	-	<u>7.41</u>	-	<u>10.23</u>	-	<u>11.02</u>	-	<u>14.47</u>	-	<u>15.20</u>	-	<u>14.24</u>
Sugar, sugar preparations & honey	2.51	0.05	-	0.20	-	2.62	-	3.33	-	4.96	-	4.59	-	5.01
Cacao beans for the manufacture of cocoa butter for export	2.51	2.03	2.36	1.92	2.32	8.09	2.25	7.11	12.07	26.50	12.58	26.88	6.77	13.35
Cocoa paste (in block or in bulk), whether or not defatted	-	-	-	-	-	-	4.19	12.11	1.20	15.37	4.12	10.57	1.50	3.59
Cocoa	2.97	2.09	2.86	5.89	4.35	15.48	6.84	23.51	17.46	42.72	17.20	38.10	8.53	17.32
Chocolates & other food preparations containing cocoa	0.05	0.03	0.00	0.01	0.09	0.31	0.20	1.19	0.38	1.19	1.12	2.90	0.65	1.56
Spices	0.45	0.31	0.61	1.02	0.72	1.43	0.65	1.22	0.89	1.30	0.95	1.50	1.01	1.43
<u>Coffee, Tea, Cocoa, Spices & Manufactures Thereof (Total)</u>	-	<u>2.45</u>	-	<u>2.15</u>	-	<u>17.50</u>	-	<u>26.72</u>	-	<u>45.77</u>	-	<u>42.89</u>	-	<u>20.86</u>
Oil cake & other residue of soya beans	48.77	4.74	43.71	7.67	113.74	22.48	226.95	52.36	243.92	62.38	373.50	78.62	274.70	59.88
Flours & meals of meat or offals (including tankage) unfit for human consumption, greaves	15.48	1.73	55.39	9.18	33.38	8.04	55.06	16.31	33.33	9.93	59.40	14.95	14.09	9.81
Flours & meals of fish, crustaceans or mollusks, unfit for human consumption	9.61	1.50	28.71	7.49	23.36	8.34	24.62	10.04	16.50	6.92	41.05	14.20	14.09	4.34
Prepared animal feeds	2.17	0.32	3.87	0.91	0.65	0.76	0.98	0.47	1.76	1.12	3.06	2.59	5.40	5.93
<u>Feeding Stuff for Animals (not Including Unmilled Cereals) (Total)</u>	76.14	<u>8.31</u>	31.78	<u>25.25</u>	190.77	<u>42.07</u>	317.58	<u>80.75</u>	300.23	<u>81.10</u>	482.00	<u>111.36</u>	342.02	<u>80.84</u>
Miscellaneous edible products & preparations	-	2.01	-	1.71	-	2.03	-	1.50	-	2.82	-	4.46	-	5.90
<u>Food & Live Animals, Chiefly for Food (Grand Total)</u>	-	<u>108.04</u>	-	<u>322.58</u>	-	<u>352.90</u>	-	<u>491.85</u>	-	<u>563.22</u>	-	<u>649.72</u>	-	<u>527.65</u>
Beverages	-	0.80	-	4.39	-	13.64	-	12.62	-	11.01	-	12.85	-	14.13
Tobacco & tobacco manufactures	-	7.77	-	18.31	-	34.85	-	35.76	-	42.06	-	53.13	-	32.32
<u>Beverages & Tobacco (Total)</u>	-	<u>8.57</u>	-	<u>22.70</u>	-	<u>48.49</u>	-	<u>48.38</u>	-	<u>53.07</u>	-	<u>65.18</u>	-	<u>72.45</u>
Hide, skin & fur skins, raw	1.93	0.58	5.41	2.02	n.a.	1.04	n.a.	0.83	0.65	0.59	1.08	1.57	1.13	0.88
Oil seeds & oleaginous fruit	-	0.21	-	-	-	3.04	-	2.86	-	0.12	-	7.85	-	7.41
Cruda rubber (including synthetic & reclaimed)	-	3.34	-	6.86	-	16.50	-	14.09	-	17.44	-	17.18	-	16.81
Pulp & waste paper	61.82	7.68	39.20	10.58	113.30	31.10	102.82	35.14	92.69	31.99	43.63	29.77	113.74	21.91
Cotton	35.76	19.41	29.47	36.13	20.68	35.78	30.19	43.98	20.35	33.58	14.23	19.72	21.48	29.17
Synthetic fibers suitable for spinning	28.10	19.49	33.24	40.73	36.13	46.82	19.97	37.71	25.62	51.86	24.89	51.13	1.33	42.65
Textile fibers (other than wool tops) & their waste (not manufactured into yarn or fabric)	-	39.16	-	72.62	-	112.72	-	106.94	-	113.14	-	98.61	-	95.86
Crude fertilisers & crude minerals (excluding coal, petroleum & precious stones)	-	1.17	-	10.03	-	23.86	-	22.74	-	21.63	-	21.84	-	18.64
Crude vegetable materials, NES	-	1.79	-	6.66	-	7.12	-	6.01	-	6.30	-	11.20	-	12.59
<u>Crude Materials, Except Fuels, Inedible (Total)</u>	-	<u>59.38</u>	-	<u>128.31</u>	-	<u>259.40</u>	-	<u>269.17</u>	-	<u>196.15</u>	-	<u>192.98</u>	-	<u>182.65</u>
Animal & vegetable oils, fats & waxes	23.74	5.50	13.01	6.56	27.55	18.74	27.54	18.52	29.05	17.61	31.78	15.96	47.44	25.46

Source: Philippine Yearbook of Foreign Trade Statistics, various issues.

PHILIPPINES

FOOD PROCESSING SECTOR REPORT

Capacities of Food Terminal Inc. (FTI)

Facility	Capacity	
1. Canning Plant	125 (6,000)	cases per day cans per day
2. Bakery Plant		
- loaf bread	960	loaves per day
- cup cakes	1,200	pcs per day
- bread buns	1,150	pcs per day
3. Packaging Plant		
- rice (1.0 kg/pack)	1,500	sacks per day
- sugar	500	sacks per day
Others - mungo	40	sacks per day
- salt	100	sacks per day
- charcoal	115	sacks per day
4. Meat Processing Plant		
A. Pork tocino	275	kg per day
B. Pork longaniza	371	kg per day
C. Pork tapa	86	kg per day
D. Beef tocino	86	kg per day
E. Beef longaniza	86	kg per day
F. Beef tapa	86	kg per day
G. Chicken tocino	214	kg per day
H. Chicken longaniza	43	kg per day
5. Fish Processing Plant		
A. Packing of dried fish	300-500	kg per day
B. Processing		
a. marinated milkfish	428	kg per day
b. boneless milkfish	71	kg per day
c. boneless marinated	71	kg per day
d. smoked milkfish	71	kg per day
e. fish ball	50	kg per day
f. lapu-lapu fillet	71	kg per day

Facility	Capacity	
6. Fruits/vegetables (packaging)		
A. Onions	1,000-1,500	kg per day
B. Garlic	1,000	kg per day
7. Bottling Plant		
A. Cooking oil (bottles)	2,000	per day
B. Patis	2,000	per day
C. Vinegar	2,000	per day
8. Slaughterhouse (old)		
Hogs	650	head per day
Large animals	50	head per day
Slaughterhouse (new)		
Hogs (KADIWA)	65	head per day
(Third party)	85	head per day
Large animals	20	head per day
9. Chicken Dressing Plant	7,500	birds per 8-hr shift.

PHILIPPINES

FOOD PROCESSING SECTOR REPORT

Population of Livestock and Poultry, 1950-83
(In thousand heads)

Year	Livestock				Poultry	
	Carabao	Cattle	Goat	Hog	Chicken	Duck
1950	1,903	698	355	3,899	25,235	709
1955	3,279	806	459	5,289	44,584	1,696
1960	3,696	1,110	617	6,573	52,335	2,231
1965	3,346	1,560	606	6,938	56,929	1,478
1970	4,432	1,679	772	6,456	56,999	2,132
1971	4,556	1,795	924	7,050	56,512	2,352
1972	4,711	1,933	1,083	7,742	50,103	2,600
1973	4,937	2,099	1,248	8,627	49,965	2,906
1976	2,725	1,737	-	6,489	45,671	4,104
1977	2,897	1,723	1,104	5,696	45,289	4,228
1978	2,959	1,820	1,290	6,910	58,892	5,365
1979	2,803	1,833	-	7,445	49,320	5,338
1980	2,870	1,883	-	7,934	52,761	4,725
1981	2,783	1,921	-	7,557	56,275	4,492
1982	2,908	1,942	1,783	7,795	59,710	4,905
1983	2,946	1,937	1,859	7,980	62,254	5,419

Note: The reference date of the population is March 1 for 1955, 1960 and 1965 and January 1 for 1950 and 1970 to 1980. Data for 1973 and 1975 are not available.

Source: Bureau of Agricultural Economics.

PHILIPPINESFOOD PROCESSING SECTOR REPORTMeat Consumption - Total and Per Capita

	1974-76	1982-83
Population (million)	42.0	50.0
Total meat consumption (MT)	478,000	720,000
per capita (kg)	11.4	14.4
of which:		
Total pork consumed (MT)	296,856	439,200
per capita (kg)	7.1	8.8
Total beef/carabeef consumed (MT)	24,488	122,400
per capita (kg)	3.0	2.4
Total poultry consumed (MT)	57,446	158,400
per capita (kg)	1.4	3.2

Source: Mission estimates.

PHILIPPINES
FOOD PROCESSING SECTOR REPORT

Estimated Rated Capacities of Integrated Poultry Processors

	Pieces/annum
1. San Miguel	44 million
2. General Milling	22 million
3. Republic Flour Mills	13 million
4. Robina	26 million
5. Vitarich	22 million
6. Golden Country (FTI included)	11 million
7. Purefoods	16 million
<u>Total Rated Capacity /a</u>	<u>154 million</u> <u>pieces</u>

/a Based on 20 hours/day operation, 275 working days/year. The integrators could easily produce at 60% to 70% of this rated capacity i.e. about 92.4 million to 107.8 million pieces per year.

Source: Mission estimates.

PHILIPPINES

FOOD PROCESSING SECTOR REPORT

Estimated Processed Meat Volume for 1983

	Processed percentage (%)	Processed volume (MT)
Pork	10	43,920
Beef/carabeef	30	36,720
Poultry	35	55,440
<u>Total Processed Meat</u>	<u>19</u>	<u>6,080</u>
<u>Total Consumed/Supply</u>	<u>100</u>	<u>720,000</u>

Source: Mission estimates.

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FOOD PROCESSING SECTOR REPORT

Meat Consumption - Fresh Versus Processed
(%)

	Fork	Poultry	Beef/carabeef
Fresh	90	65	70
Canned	2	0	12
Frozen/processed/chilled	8	35	18

Source: Mission estimates.

PHILIPPINES
FOOD PROCESSING SECTOR REPORT

Milk Production and Collection, 1983
(Liters)

Dairy plants/ projects/farms	Farm production	Collection	Farm production and collection
DTRI Los Banos	84,546.1	-	84,546.1
KKK, Carnation & PDC	-	498,453.9	498,453.9
BAI Alabang	16,454.7	61,554.3	78,009.0
BAI Sorsogon	19,032.4	60,545.1	79,577.5
BAI Albay	9,089.6	7,408.25	16,497.85
BAI Baguio	55,235.7	-	55,235.7
BAI Ilocos Norte	9,547.3	-	9,547.3
BAI Sta. Elena	2,820.0	-	2,820.0
BAI Sta. Maria	-	95,963.6	95,963.6
BAI Cabanatuan	-	34,104.1	34,104.1
BAI Floridablanca	-	7,556.6	7,556.5
BAI Misamis Oriental	-	7,398.8	7,398.8
Magnolia /a	2,007,500.0	-	2,007,500.0
Selecta (production and collection) /a	146,000.0	-	146,000.0
Balance (smallholders and other commercial farms) /b	24,876,790.0	-	24,876,790.0
Subtotal	<u>27,227,015.0</u>	<u>772,984.55</u>	<u>28,000,000.0</u>
<u>Total</u>			<u>28,000,000.0</u>

/a Calculated from daily production reported by the Philippine Smallholder Livestock Development Project, May 1980.

/b Obtained by subtracting total production and collection of the different farms from 28,000,000 liters total production from the FAO Production Yearbook, 1982.

PHILIPPINES

FOOD PROCESSING SECTOR REPORT

Selected Commercial Dairy Herd Population - June 1984

	Beef	Total dairy herd	Milking	Yield l/day	Total liter/day
Magnolia		1,500	700	14	9,800
Puyat (Exotic) (Upgrade)	800 600	800	200	15	3,000
Aberdeen	-	250	42	9	378
Monterey	4,000 9,000	400 200	200 100	15 11	3,000 1,100
Philpacking	-	150	100	9	900
Phildairy	-	800	400	6	2,400
Sodaco	5,000	200	50	6	300
Sarangani	20,000	-	-	-	-

Source: Mission estimates.

PHILIPPINESFOOD PROCESSING SECTOR REPORTReconstituted Evaporated Milk - Comparative Cost Matrix
(As of June 1984)

	<u>Jun. 1984</u>	<u>Jan. 1984</u>	<u>Oct. 1983</u>	<u>Mar. 1983</u>
	<u>(P)</u>			
<u>Raw Materials</u>				
Milk power	84.64	62.22	58.22	47.52
Butterfat	74.98	56.16	55.05	43.79
Tin cans	75.97	53.24	50.54	36.49
Packaging materials	18.33	14.85	6.35	6.05
Vitamins/stabilizers	0.95	0.80	0.52	0.38
Subtotal	<u>254.87</u>	<u>187.27</u>	<u>170.68</u>	<u>134.24</u>
Direct labor and factory overhead	24.01	19.95	20.04	14.77
Financial cost	26.67	18.18	8.04	6.43
Distribution cost	11.75	10.10	8.37	6.35
General expenses	8.15	7.48	6.22	6.15
<u>Total Cost per Case</u>	<u>325.45</u>	<u>343.98</u>	<u>213.35</u>	<u>168.11</u>

Source: Mission estimates.

PHILIPPINESFOOD PROCESSING SECTOR REPORTList of Fruits and Vegetables Processing Firms

Firm	Plant location	Capacity	Product(s)
1. California Mfg. Company	Taguig, Metro Manila	3,653 MT (1 shift)	Pickles, jam, marmalade juices, tomato catsup
2. Los Primos Mfg. Company	Malinta, Valensuela Metro Manila	720 MT (1 shift)	Tomato sauce, sweet corn, peas, mango halves, fruit cocktail
3. Ram Food Products	Calamba, Laguna	2,754 MT 8-hr shift 270 days	Tomato sauce, pasta, whole, pickles, canned fruits in syrup
4. Pure Foods Corp.	Marikina, Metro Manila	4,317 MT (1 shift)	Various canned fruit and vegetables
5. RFM Corporation	Manegahan Pasig Metro Manila	2,554 MT (1 shift)	Baby Foods, pork and beans, tomato sauce
6. Foodmaster Worldwide Inc.	Marilao, Bulacan - expansion -	9,789 MT 1,123 MT	Purse, juices, and beans, jam
7. Phil. Packing Corp.	Bukidnon	175,000 MT (3-shift)	Canned pineapple, fruit cocktail, tomato products
8. Dole Phils., Inc.	Polomolos, Cotabato	172,500 MT	Canned pineapple
9. Newton Food Products	Maulas, Val. Metro Manila	648 MT/yr (1 shift)	Bottled/canned fruits and vegetables
10. Simex Int'l Manila	Quezon City	113.5 MT	Fruit Preserves
11. Universal Food Corporation	Caloocan City	3,000 MT	Pork and beans, banana catsup
12. Litton-Agro-Marine, Co., Inc.	FTI Complex	3,150 MT	Fumigated mango

13.	Pelican Agro Products	FTI Complex	4,400	Fumigated mango
14.	Sta. Monica Canning Corp.	Malinta, Valenzuela	n.a.	Canned peas, tomato paste
15.	Lorenzana Foods Corporation	Laus, Cavite	700 MT	Frozen fruits and vegetables
16.	Wise and Co.	Pasig, Metro Manila	190 MT	Dehydrated vegetables, spice crops
17.	Philips Food Corp.	Pasay City	2,150 MT	Canned peas, pork and beans, banana, catsup
18.	Finest Food Products	Valenzuela Bulaeon	3,000 MT	Canned fruits
19.	Agro Gold Corp.	Bagcarlan, Laguna	900 MT	Coconut milk
20.	Tobi Marketing	Paranque, Metro Manila	323 MT	Nuts
21.	Crown Fruits and Cannery Corp.	Davao	36,720 MT	Canned pineapple
22.	Panama Food Industries	Malabon, Metro Manila	26,600 MT	Canned fruits and vegetables and fish
23.	San Carlos Fruit Corp.	San Carlos Pangasinan	1,500 MT	Mango puree
24.	Stanfood Corp.	Tondo, Manila	166,320	Canned fruits and vegetables and fish
25.	Sureland Asparagus	Garona, Tarlac	672 MT	Canned asparagus

DEHYDRATED FRUITS

26.	Country Harvest, Inc.	Cuyapo, Nueva Ecija	624 MT	Dehydrated mango and papaye
27.	Del Mar Domestic Enterprise	Quezon City	720 MT	Banana chips
28.	Green and Gold	Calamba, Laguna	408 MT	Banana chips
29.	Fruit chips GMBH Philippines	Paranaque, Metro Manila	237 MT	Dehydrated fruits (flakes, chips, powder or granule)

30.	Leslie Corp.	San Pedro, Laguna	1,012 MT	Banana and coconut chips
31.	Montreal Mrkg. Corpopration	Tambo, Paranaque Metro Manila	240 Mt	Banana chips
32.	Orient Corp.	Dumagueta City	1,000 MT	Dehydrated fruits (mango, pineapple, etc.)
33.	Cyamito Enterp.	Bo. Sto. Tomas, Pampanga	228 MT	Banana chips
34.	Red V Coconut Products	Orioquieta, Misamis Occidental	1,000 MT 480 MT 600 MT	Banana chips Dehydrated pineapple Coconut cream powder
35.	Camar Food Corp.	Passay City	n.a.	Banana chips
36.	Domavic Phils., Inc.	Quezon City	n.a.	Banana chips
37.	Globus Multi- Food	Makati, Metro	n.a.	Banana chips
38.	Jo-na's Domestic Enterprises	Novaliches	n.a.	Banana chips
39.	Lagura Snack Foods	Makati, Metro Manila	n.a.	Banana chips
40.	L. Domestita & Sons	Quezon City	n.a.	Banana chips
41.	A&P Foods Corp.	Cebu City	n.a.	Mango puree and coconut necta
42.	Exotic Dried Fruits Int'l. Corp.	Trece Martirez	1,500 MT	Dehydrated fruits (mango, pineapple, papaya, and other tropical fruits

PHILIPPINES

FOOD PROCESSING SECTOR REPORT

List of Fish Processing Firms

Name of Company	Plant Location	Product/Capacity No. of cases per year
1. Century Canning Corporation	Tagig, Metro Manila	Canned tuna - 225,000 Canned sardines - 200,000
2. Diamond Seafoods Corporation	Zamboanga City	Canned tuna - 403,000 Canned sardines - 200,000
3. Judric Canning Corporation	Tagig, Metro Manila	Canned tuna - 252,900
4. Mar Fishing Co., Inc.	Zamboanga City	Canned tuna - 761,250
5. Phil. Tuna Canning Corp.	Zamboanga City	Canned tuna - 240,000
6. Premier Ind'l. Dev. Corp.	Zamboanga City	Canned tuna - 450,000
7. Pure Foods Corporation	Marikina, Rizal	Canned tuna - 83,000
	Gen. Santos City	Canned tuna - 200,000
8. Sancanco Canning Corp.	Malinta, Lalenzuella	Canned tuna - 720,000
9. Tresco Canning Corp.	Cebu City	Canned tuna - 57,600
10. South Pacific Expt. Corp.	Navotas, Metro Manila	Canned sardines - 180,000
11. Pan Asia Food Mfg. Corp.	Malabon, Metro Manila	Canned sardines - 288,000
12. Kingstown Mfg. Corp.	Zamboanga City	Canned sardines - 87,000
13. Aguila Canning Corp.	San Juan, Metro Manila	Canned sardines - 150,000
14. Alliance Food Corp.	Malabou, Metro Manita	Canned sardines - 450,000
15. Bagumbuhay Ind'l. Corp.	Malabon, Metro Manila	Canned sardines - 252,000
16. Finest Food Products	Pasalo, Val. Bulacan	Canned sardines - 216,000
17. Hoc Guan Good Corp.	Malabon, Metro Manila	Canned sardines - 70,000
18. Philip Food Corporation	Pasay City	Canned sardines - 45,000
19. Pioneer Food Mfg. Center	Novaliches, Cal. City	Canned sardines - 480,000
20. Sta. Monica Canning Corp.	Malinta, Val. Bulacan	Canned sardines - 480,000
21. Three Golden Star Canning Products	Tondo, Manila	Canned sardines - 264,000
22. Victorias Milling Corp.	Victorias, Negros Occ.	Canned sardines - 165,000
23. YCB Food Corporation	Paranaque, Metro Manila	Canned sardines - 45,000
24. Daily Harvest Mfg. & Marketing Corporation	Zamboanga City	Canned sardines - 120,000
25. Del Mar Foods Corp.	Bacolod City	Canned sardines - 50,000
26. Central Lopez or Parsiso Food Processing Corp.	Sagay, Negros Occ.	Status not verified
27. Honle Food Manufacturing	Malahon, Rizal	Status not verified
28. Kingfisher Corporation	Navotas, Rizal	Status not verified
29. NMYC Multi-purpose Coop. Canary	Hinubaan, Neg. Occ.	Status not verified
30. Posiedon Packing Corp.	Cadir, Neg. Occ.	Status not verified
31. Regalta Food Products		Status not verified
32. North Bay Packaging, Inc.		Status not verified
33. Victorias Foods		Status not verified

34.	Alecon Food Corp.		Status not verified	
35.	Eastman Foods, Inc.	San Pedro, Laguna	Status not verified	
36.	Emerald Fishing Dev. Corp.		Status not verified	
37.	AA Expt. & Impt. Corp.	Tondo, Manila	Frozen seafoods	- 810 MT
		Roxas Cotu (Exp.)	Frozen seafoods	- 1,710 MT
38.	Erma Industries, Inc.	Tondo, Manila	Frozen seafoods	- 1,080 MT
39.	Jones Seafoods Corp.	Quezon City	Frozen seafoods	- 120 MT
40.	Phil. Marisco Corp.	Navotas, Metro Manila	Frozen marine products	- 700 MT
			Expansion	- 650 MT
41.	Marina Corp. of South Pacific	Mandaue City	Frozen marine products	- 150 MT
42.	Oceanlight Exp. & Im. Corp.	Malinta, Val. Bulacan	Frozen marine Products	- 760 MT
		Mandaue City (Exp.)		- 650 MT
43.	Superior Gas & Expt. Co., Cebu	Mandaue City	Frozen marine Products	- 2,260 MT
44.	Simax Int'l. Manila	Quezon City	Processed seafoods & fruits	- 500,000 MT
45.	JBL Sales Corporation	FTI Complex, Tagig	Frozen seafoods	- 960 MT
46.	San Miguel Bay Trading Corp	Naga City	Frozen shrimps	- 600 MT
47.	Manila Inter-Trade Ent.	Cathalogan, Samar	Cured Jelly Fish	- 540

PHILIPPINES
FOOD PROCESSING SECTOR REPORT
List of Meat Processing Firms

Firms	Plant Location	Capacity	
1. California Mfg. Co. Inc.	Tagig, Metro Manila	2,202 MT per 12 hour shift	Canned meat
2. Liberty Flour Mills Inc.	Angoac, Metro Manila	1,290 MT 1,200 MT (1 shift/day) 300 days	Processed meat Canned meat
3. Superior Food Products	Pasay City	3,875 MT	Canned meat
4. Reno Food Products	Malabon, Metro Manila	2,400 MT (1 shift)	Canned meat
5. Premium Meat Products	Caloocan City	300 MT	Processed meat
6. Mirad Multi-Food Inc.	Quezon City	375 MT (1 shift)	Processed meat
7. Virginia Farms, Inc.	Cebu City	480 MT 2,400 MT (1 shift)	Processed meat Canned meat
8. King Sue Ham Factory	Grace Park Caloocan City	3,750 MT	Processed and Canned meat
9. Philips Food Corp.	Pasay City	5,161 MT per 8-hour shift	Canned meat
10. Finest Food Products	Pasolo, Valenzuela Metro Manila	2,800 MT	Processed/ canned meat
11. RFM Corporation	Cabuyao, Laguna - expansion -	2,700 MT 5,000 MT	Processed and canned
12. Phil. Integrated Meat (PINECO)	Pasig	6,000 MT	Processed and Canned. po
13. Universal Food Corp.	Cabocan	684 MT	Canned meat

14.	YCB Food Corp.	Paranaque, Metro Manila	n.a.	Canned meat
15.	Hoc Guam Mfg. Corp.			Canned meat
16.	International Ham & Sausage Mfg. Co. Inc.	Malabon, Metro Manila	1,275 MT	Processed
17.	D.M. Food Products	Mandalyuong, Metro Manila	300 MT	Processed meat
18.	Galaxy Food Products	Quezon City	n.a.	Processed meat
19.	VFI Food, Inc.	La Consolacion, Cebu	120 MT/month	Processed and canned frank- furter and sausages

