Vol. 3

PHILIPPINES LOGISTICS STUDY

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Abbreviations

ADB	Asian Development Bank
AFMA	Agricultural and Fisheries Modernization Act
ASEAN	Association of Southeast Asian Nations
ASYCUDA	UNCTAD's Customs Automation System
BGA	Ball Grid Array
BOC	Bureau of Customs
BOI	Board of Investments
C & F	Cost & Freight
CDO	Cagayan de Oro (Port)
CEP	Cargo Entry Permit
CFS	Container Freight Station
CRF	Clean Report of Findings
CY	Container Yard
DA	Documents Against Acceptance
DP	Documents Against Payment
DPWH	Department of Public Works and Highways
DR	Direct Remittance
DSA	Domestic Shipowner's Association
DSMP	Domestic Shipping Modernization Program
DTI	Department of Trade and Industry
DUCC	Davao Union Cement Corportation
DWT	Deadweight Ton
ED	Export Declaration
EDI	Electronic Data Interchange
EDP	Entry Processing Division
FDC	Food Development Center
FOB	Freight on Board
GMC	General Milling Corporatioin
GVA	Gross Value Added
GRT	Gross Registered Ton
IAN	Import Advice Note
IBRD	International Bank for Reconstruction and Development
ICCO	International Cocoa Organization
Ics	Integrated Circuits
IED	Import Entry Declaration
IEIRDTD	Import Entry and Internal Revenue Declaration Transit Document
IPP	Investment Priorities Plan
JBIC	Japan Bank for International Cooperation

LC	Letter of Credit
LGUs	Local Government Unit
MAV	Minimum Access Volume
MTADP	Medium-Term Agricultural Development Plan
NFA	National Food Authority
NGO	Non Governmental Organization
NSO	National Statistics Office
OA	Open Account
OP	Order of Payment
PCB	Printed Circuit Board
PDIG	Permit to Deliver Imported Goods
PEZA	Philippine Economic Zone Authority
PPA	Philippine Ports Authority
SAFDZs	Strategic Agricultural & Fisheries Development Zones
SF	Self- Funded
SMC	Saigon Maritime Company
SME	Small to Medium Enterprise
STAND	Science and Technology Agenda for National Development
TEU	Twenty-foot Equivalent Unit
URC	Universal Robina Corporation
USAID	US Agency for International Development
VAN	Value-added Network
WTO	World Trade Organization

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Executive Summary

This report examines the logistics for selected commodities produced in the Philippines and shipped to internal and foreign markets. Most of these are agricultural products produced in Mindanao. By identifying problems in agricultural logistics, strategies can be developed for increasing the market share, farm income and downstream processing in Mindanao. The logistics for electronics manufactured in Luzon were also examined to determine if there were any bottlenecks in these relatively sophisticated supply chains.

The agricultural commodities selected were corn, rice, vegetables and fruits. Mindanao, especially the Bukidnon plateau, is a major producer of white and yellow corn. White corn is grown primarily for household consumption but is also used as an input for processed foods. Yellow corn is grown for animal feed, and is used both milled and non-milled.

In recent years, imported animal feeds from Thailand have replaced yellow corn as the low-cost feed in the Luzon markets. The Thai agro-industry is larger and more efficient and does not contain corn, thus avoiding the protective import duty. It is also less expensive to ship large consignments of feed from Thailand because of economies of scale in shipping and simpler supply chains.

Delivery of corn from a farm in Mindanao to the market in Luzon involves multiple transactions and handlings. From the farm-gate to the local mill, traders are involved at the Barangay and municipal/provincial level. One or more wholesalers are involved in the transfer from the mill to the retail feed dealers or directly to the hog or poultry farm. The corn is shipped in relatively small consignments. The logistics costs account for about 20 percent of the delivered costs to Cagayan D'Oro but about 40 percent of the delivered cost to Manila. The relatively high port and shipping charges for movement of small consignments of bagged corn, often in containers, account for the increased costs for shipments to Manila.

Rice is grown primarily for home consumption and for sale in deficit areas in Mindanao. Yields have not improved significantly over the last decade, but the government's effort to obtain self-sufficiency has increased the acreage of irrigated rice by about 33 percent. As a result, total rice production has increased by about 20 percent.

The market price for domestic rice is two to three times higher than that of Thailand and Vietnam. This is because of lower yields and less efficient production and distribution. As a result there is a significant amount of imported rice consumed in the country. Most of this is smuggled to avoid high tariffs and National Food Authority's (NFA) controls over rice imports.

The high cost of rice production and distribution is due to the small scale of farming and processing. The solar drying used by farmers and the small mills for processing paddy produce low yields and poor quality. Since there is a limited amount of storage, farmers sell at harvest thus minimizing the price they receive. The mills have enough storage to allow for several months milling but not for the storage of rice. Private warehouses for rice are small and costly. The transfer of paddy from farm to mill and then the subsequent transfer of rice from mill to market involves multiple transactions and handling. This, combined with the small shipments of

bagged rice, increases the delivered cost and losses in transit. Despite these inefficiencies, logistics, including milling, account for only about 10 percent of the retail price of rice in local markets (5 percent excluding milling). For rice shipped to other markets in Luzon, this percentage is more than double.

Vegetables are grown for home consumption and sale in local markets. The farmers sell to traders who then transfer the vegetables to the regional market for sale to wholesalers. The grower is responsible for post-harvest processing including sorting, cleaning, and packaging, but additional processing is performed by traders and wholesalers. The more perishable crops such as tomatoes experience significant losses due to excessive handling in the transfer from the farm to the market, improper packaging by the grower, and exposure during transit. These problems increase further with inter-island shipping of the products. Larger buyers limit these losses by providing growers with packaging material and arranging for transport and post harvest processing. The logistics costs for tomatoes account for about 16 percent of the delivered cost for local markets and about 25 percent for Luzon. This does not include the costs associated with losses, which ranges from 2 percent to 15 percent depending on delays and packaging.

Fruits are grown primarily for sale in local markets where they are purchased by processors and exporters. The volume of exports of processed fruits has increased rapidly in the last several years. The traditional exports of pineapples and bananas by multinational corporations have increased slowly. These have been supplemented by exports and inter-island shipments of coconut and local fruits, e.g., mangoes, papayas, calamansi, tamarind, etc. These are exported or shipped to Luzon primarily in the form of juices and preserved fruit. Most of the processing plants are located in larger towns close to the growing areas. With the exception of plantation operations, these are small- to medium-scale enterprises (SMEs). They employ simple technology and manual processes and are able to adjust their processes and capacity according to the change in availability of fruits during the year. Waterborne shipments use containers or, in the case of juice, drums. The logistics are costly because of the size of the shipments but more important is the principal problem of inadequate quality control and lack of standards.

The processing of local fruits differs significantly from the processing associated with exports from the large bananas and pineapple plantation operations in Mindanao. The latter are managed by large multinational companies. They have large-scale automated production facilities that operate throughout the year and maintain stringent quality control. These companies are also involved in the marketing and sale of the product and can therefore adjust the quality and level of production to the requirements of their markets.

The Philippine electronics industry, centered in the CALABARZON area in Metro Manila, produces a range of semiconductor products and assembled components. It accounted for 66 percent of the total value of exports in 2001 with a growth rate averaging close to 30 percent per annum (this is likely to be lower in the coming years). Shipments are managed by the importer and usually involve small consignments shipped by air on a weekly or bi-weekly basis. The time required for movement of goods from the point of production to the airport for loading is about 2 hours provided there are no road works in the vicinity of the airport. The cost for logistics is less than 5 percent of the delivered price of the products. Most of this is for airfreight. The cost of inbound logistics for the imports used in the manufacture of these products adds perhaps 2

percent-3 percent. Most of the inputs are also transported by air. Both the inbound and outbound supply chains are efficient and have allowed the industry to increase its market share.

The major logistics bottlenecks examined in this report apply to agricultural commodities. These include:

- Limited market information available to farmers and traders
- Few options for farmers in selling their products
- Lack of technical services to improve the growing, processing, and marketing of agricultural goods
- Small-scale production, processing, and transport which increase delivered costs
- Limited transport services in many parts of Bukidnon and other farmland areas
- Inefficient inter-island shipping
- Cumbersome government regulations and public monopolies that increase the cost of inter-island transport.

Since most of the agricultural products are produced on small farms, post-harvest processing is done either at the farm using simple but inefficient technologies, or at the village level where the technology is more efficient but the scale of production limits quality and yield, or at a regional center where the scale of production justifies the use of modern equipment with higher yields and quality that is suitable for urban markets. However, the efficiencies achieved by large-scale processors are lost in the transaction costs from the farmer to the factory. These include the costs of the intermediaries involved in the transfer of goods, and for damage to the goods in transit. In the absence of adequate storage facilities, the farmer has limited options because the agricultural products cannot be stored or are too costly to store and also because financial obligations require that the products be sold shortly after harvesting. The buyers are typically small traders who consolidate and sell to local processors or to wholesalers who, in turn, sell to large-scale processors. Each of the intermediaries is responsible for transport to the point of the next transaction. The large number of transactions increases the delivered cost and isolates the producer from the consumer. As a result, the type and quality of agricultural products sold by the farmer often do not match the needs of the consumer.

The inefficiencies in processing, storing, transporting, and marketing agricultural products can be improved in two ways. The first is through improvement in backward linkages from the retailer to the farmer. The major fruit exporting companies in Mindanao have accomplished this through production contracts with the farmers. These contracts provide the farmer with inputs and sufficient financial incentives to guarantee the processor and/or exporter an adequate supply of agricultural products. This same arrangement insures that the processing is designed to yield products of the type and quality required by the market. While the large fruit exporting companies began as multinationals, there has been a gradual transfer of responsibility/ ownership to local companies that collect and process the agricultural products. This approach is now being replicated by some of the larger food-processing companies in Luzon. They are contracting with the farmers directly and establishing processing facilities in Mindanao rather than transporting the goods to Luzon for processing.

The second alternative is to improve the downstream linkages from the farmer to the processor and the wholesaler/trader. The current system of information flow from the market through various intermediaries and eventually to the farmer would be replaced with a direct linkage. Under the new system, the farmers would be provided with information on the demand in the central markets for agricultural products of different quality and both current and future prices offered by processors. The local processors would obtain information from the wholesalers/retailers or food companies on the market demand including quality standards and price. Local shipments would be consolidated by farmers' groups or consolidators who provide warehousing and logistics services. Inter-island shipments would be consolidated by the processors acting together in cargo pooling arrangements or by large-scale wholesaler/retailers buying under contract for the large food companies and distributors.

This approach assumes that the major participants in the supply chain are willing to bypass intermediaries and provide information in an unbiased manner. Given the past history, this may not be achievable. An alternative would be to develop a commodity exchange operating in the major markets in Mindanao. This would provide a clearinghouse for both agricultural products and information. The Businessman's Council or another organization with broad representation in the agro processing industry would manage this exchange collectively.

The ability of the farmer to obtain a higher income from his labor depends on his access to information concerning improved agricultural techniques and access to inputs at a reasonable cost. It does not appear that the government extension services have been effective in this regard. Traders and buying agents have been the traditional source of information and inputs for the farmer, in part because these are linked with financial incentives, that is, future sale of their crops. The introduction of contracts between the farmers and the larger food processors has provided another source of information which is also linked to financial incentive. Any efforts to expand the information available to the farmer should also provide some form of financial incentive such as better prices for the product or lower costs of production and logistics.[1]

The mechanisms currently available for disseminating both technical and financial information are constrained by the poor quality of telecommunications services in Mindanao. Internet access is limited to the urban centers and could serve the larger markets but not the farmers. Telephone connections, although increasing, are still limited in the rural areas. This would be a costly form of mass communication despite the Philippines experience with call centers. Radio, and to a lesser extent television, remain the major sources of communications at the farm level. So far, programming directed at farmers has been limited but could be extended. Any efforts to improve this or other methods of dissemination of information should be coordinated with efforts to improve the content and timeliness of the information.

Transport services to the more remote villages are often limited to carabao-drawn carts, jeepneys and other small capacity vehicles, although these are generally used over relatively short distances. The difficulties with this form of transport are not just availability and cost but more important, damage to the commodities in transit and during transfer to larger vehicles for

[1] Farmers are generally conservative and the process of innovation is slow due to the penalties associated with unsuccessful innovations. In this environment too much information can cause confusion. Therefore some mechanism for validating and prioritizing the information needs to be put in place.

delivery to the market. This two-stage movement, from the growing areas to the provincial road and from there to central markets or large processors, increases the time and cost of delivery and reduces the quality of the delivered product. However, shipments of these products from the central markets to urban markets on other islands involve greater cost and time. These shipments involve smaller consignments and therfore more costly. Grain is shipped as bagged cargo rather than bulk. It often moves in containers even though this adds to the cost of transport without providing benefits in terms of reducing door-to-door costs or delivery time or even damage. Bagged cargo can be shipped efficiently with proper logistics, but neither the ports nor the shipping lines are configured to provide efficient handling of bagged cargo. The scheduled inter-island shipping services employ vessels that mostly carry a combination of passengers and freight. These vessels cannot spend a long time in port, and the ports in turn, do not have equipment for rapid loading of bagged cargo. Bulk shipments are not used because of the lack of port facilities and because the logistics are not designed to aggregate cargo to a degree that would justify the chartering of a bulk vessel.

The inefficiency of the ports not only limits cargo-handling productivity but also limits the types of vessels that can operate profitably. Bulk carriers spend a long time in port because of the lack of bulk handling equipment. RoRo vessels cannot achieve quick turnaround times and low cargo handling costs because of the inefficient cargo-handling concessions. Government regulation of the sector has made the situation worse. The monopoly power granted to the Philippines Port Authority (PPA), constraints on entry of new shipping lines to the inter-island services. Regulation of freight rates for selected commodities have prevented the inter-island transport system from adapting to the needs of its users. Its logistics costs are high because of increasing losses, damage and delays as well as passing on inefficiencies in the form of higher freight rates.

A number of other recommendations for improving the logistics of goods being shipped to and from Mindanao are presented in this report but few are new. The problems related to inter-island shipments affect not just Mindanao but the entire country and have existed for some time. The possible solutions include ending the economic regulation of inter-island shipping, creating separate port authorities independent of the Philippine Port Authority, and allowing competition in the provision of port and inter-island shipping services, have not been achieved despite a decade of effort. Therefore, it is proposed to allow for the development of parallel shipping services between Mindanao-Manila and Mindanao-Cebu, which would:

- utilize private port facilities that provide specialized but common-user cargo handling services.
- operate without oversight or taxation by the Philippine Port Authority.
- utilize chartered vessels to transport grains as bulk and neo-bulk cargoes and perishables and higher-value goods as RoRo cargo.
- undertake bulk shipments as voyage charters arranged by the buyers. The Ro-Ro operations would involve time charters with a third party carrying cargo as a common-user.

This initiative is currently under review by the government.

A summary of the initiatives developed in this study is summarized in the following matrix.

Proposed Initiatives for Improving Logistics for Philippines

Initiative	Activities	Implementation Agency	Goals	Role of Development Agency
Establish Commodity Exchange	Develop exchanges to provide marketing information and support financial transactions for farmers.	DTI/ Private Sector	Increase farmers' income, Crop Diversification, Improve quality of crops sold	Technical Assistance, Start-up Capital
E-commerce	Extend commodity exchange functions to internet.	Commodity Exchange, ISPs, Private Sector	Reduce transaction costs Increase Farmers income	Technical Assistance
E-xtension	Develop extension services for cooperatives and farmers groups Improve post- harvest processing, packaging	MoA/Universities Private Media Companies	Reduce losses and improve quality for agricultural products shipped domestically and internationally	Technical Assistance, Start-up Capital
Farmer Contracts	Develop and promote contracting of farmers.	Chamber of Commerce, Businessmen's Council	Reduce farmer's risk Encourage crop diversification	Technical Assistance
Improved Village Transport	Local road maintenance Use of Larger vehicles	LGU, Village Council	Reduce logistics costs including transport and cargo losses	Technical Assistance, Start-up Funds
Warehousing	Establish Warehouses for third party concession	DTI/DBP Private Sector	Consolidate cargo, reduce transport costs and cargo losses	Financial Support
Cargo Pooling	Expand cargo pooling arguments, Support efforts to develop logistics/consolidation providers	Private Sector	Increase the size of shipments of grain and other agricultural products in order to reduce transport costs	Technical Assistance
Cold Chain	Develop cold chain distribution system for perishables	Traders, Buyers	Reduce cargo losses, Increase farmers' income by improving product quality	Start-up Capital
Local Production Facilities	Establish rural production facilities	DTI/Private Sector	Generate non-farm employment, Increase value added retained in Mindanao	Technical Assistance Start-up Capital
New Bulk Handling Facilities	Establish small- consignment, bulk-handling private terminals	DoF/DBP/ Private Sector	Reduce handling and shipping costs	Technical Assistance Capital Investment
New Inter-island Shipping Services	Develop RoRo Service between Mindanao and Luzon/Visayas Reduce economic regulation of shipping	DoF/DBP/ Private Sector	Create a lower cost transport system for general cargo shipments, Reduce impediments to competition in inter-island shipping,	Policy Reform Technical Assistance Capital Investment

Introduction

SCOPE

The objectives of the Philippine Logistics Study are to[2]:

- Assess the current patterns of trade both domestically and internationally
- Identify those trades with direct impacts on the poor,
- Identify logistics impediments and bottlenecks
- Assess their importance relative to the total supply chain, market price and household budgets,
- Determine mechanisms for reducing these impediments and the impact of this reduction
- Estimate the cost of implementation of these mechanisms.

The focus of this study is the inbound and outbound supply chains for the agricultural activities in Mindanao. The original impetus for the study was the oft-quoted story of the high cost of shipping food grain from Mindanao to Luzon that was said to exceed the cost of imports from Vietnam and Thailand. The local shipping industry has pointed out flaws in that analysis, but the fact remains that there are significant inefficiencies in the inter-island transport system. There is also the issue of economies of scale that ultimately affect both the cost of production and the cost of shipment.

SUPPLY CHAINS

In order to examine these issues, five supply chains for Mindanao were examined for the following products:

- Yellow Corn (Fertilizer to Corn to Livestock)
- Rice (Fertilizer to Palay to Rice to Retail Market)
- Vegetables (Fertilizer to Vegetables to Regional Markets)
- Processed Fruits (Picked Fruit to Processing Plant to Export Market)
- Processed Food (Imported Foods to Manila Wholesaler to Local Market)

In addition, the outbound logistics for exports manufactured at the export-processing zone in Cavite, Luzon was examined. The latter is a relatively simple chain but provides an important insight into the functioning of these zones.[3]

Mindanao, specifically Northern Mindanao, is a major corn growing region in the Philippines. Corn is the second most important crop in the Philippines. It provides income to about one third of the Filipino farmers. White corn made into grits serves as a staple food for about one fifth of the national population, mostly in the Visayan and Mindanao Regions. The food industry processes this corn into higher value consumer products, such as cornstarch, corn oil and snack

[2] The study of Philippine logistics was initiated on March 17, 2002. Initial interviews were conducted with the national agencies and private sector organizations and farmers' associations in Mindanao, importers, freight forwarders and exporters.

3 The World Bank earlier funded the development of the Subic Airport, which provided essential airfreight services for the industries that located in the free trade zone.

foods. The major use of yellow corn is in feed for the country's hog and poultry industries. The corn is shipped from Cagayan de Oro (CDO) to Cebu and Manila in sacks and at times in containers as backhaul cargo. It is milled and then transported to the poultry and piggery farms that produce meat for the Manila/Cebu markets. The livestock industry is centered in Luzon because of the demand for fresh meat and the lack of refrigerated transport. The grain trade is managed by the Grain Traders Association, which comprises several regional organizations. In recent years, the yellow corn shipped to Luzon has declined as the livestock industry has taken advantage of lower cost of imported feeds shipped in bulk from Thailand.[4]

Rice is an important staple for the Philippines. Mindanao accounted for 18 percent of the total palay production of 12.4 million tons in the year 2000. Unlike corn, rice remains within the Mindanao regions, which is a rice deficit area. The National Food Authority (NFA), which is mandated to provide food security to the country, is supposed to help farmers by purchasing palay during the harvest seasons. Due to lack of funding, NFA is able to buy on average only 3 percent of total production. Instead, NFA has been importing since 1980 as a means to stabilize supply and ensure sufficient buffer stocks. The major suppliers are Vietnam, Thailand and China. Since the price is less than for locally produced rice, NFA is, in effect, driving down the price of domestic crops.

Processed fruit exports are handled by the large plantation companies in Mindanao, e.g. Del Monte and Dole Philippines. Their exports include fresh pineapples, bananas and processed fruits. These companies have split up over the years into locally controlled production companies and international trading companies that provide outbound logistics and marketing for both fresh and processed fruit. While these companies still control the pineapple plantations, bananas are produced by local farmers for sale to the large companies. Even the pineapples are grown under contract with the employees. These exports are loaded at private facilities.

A variety of vegetables are grown on Bukidnon plateau in Northern Mindanao. These are sold as fresh vegetables in the local market and shipped to regional markets. The principal vegetable export is cabbage. Tomatoes are grown throughout the year. A factory was established to produce tomato paste but proved unviable and is now being auctioned off.

Imports of food and other consumer goods are shipped to Mindanao either directly or through traders in Manila. Formerly, all imported goods were required to be transshipped through the port of Manila but in recent years the shipping sector has been liberalized and imports can now be offloaded at regional ports including Davao, Cagayan De Oro and General Santos in Mindanao. The cargo must be cleared through Manila but this involves a relatively simple procedure for clearing documents.

The manufactured exports from Cavite in Luzon include electronics and other medium to high value goods. These are moved by truck to the airport or seaport in Manila for shipment overseas.

[4] The Philippines established a 30% duty on imported yellow corn in order to protect local production, however, the same duty does not apply to other grains which can be used as feed and which are imported from Thailand at lower cost. These grains can be shipped in bulk form in large consignments and unloaded efficiently at bulk facilities such as those at Marivelles, Harbor Center and along the Pasig River.

LOGISTICAL CONSTRAINTS

The major difficulty with the logistics of inter-island movements is the regulated nature of the port and shipping industry. The network of public ports is controlled by the Philippine Ports Authority (PPA), which acts as both landlord and regulator. It leases out selected berths and storage facilities to private operators and grants cargo-handling licenses to stevedoring companies that operate on common-user facilities. It has a policy of limiting the number of cargo handlers to a maximum of two in any one port, with the exception of Manila. The monopolization of cargo handling was to have been formalized during the previous administration under Executive Order 59, which would have granted an exclusive contract for the handling of cargo in all ports. The shippers were able to resist this rather blatant attempt at monopolization for private gain.

There are a large number of private ports in the Philippines but most are small. They are allowed to handle their own cargo, and in some circumstances third party cargo, but these are prevented from competing with the public ports. PPA collects a tax (wharfage charge) on the cargo handled at these facilities and prevents them from providing common-user services. Under the previous management of the PPA, there was a proposal to transfer all private ports within 100 km of a public port to control of the PPA. Again, the shippers resisted this attempt at monopolization.

Through its monopoly power, the PPA has been able to raise its fees without offering any improvement in services or facilities. PPA charter also allows it to share in the cargo handling rates that it regulates (10 percent on domestic charges and a higher percentage for foreign), resulting in an increase in port rates (cargo handling charges have increased even when cargo-handlers have not asked for an increase). Despite its considerable income, the Authority has been unable to properly maintain its facilities or to develop modern facilities to meet the growth in traffic. A decade of efforts to reform the PPA and to introduce modern port management techniques have failed and the Authority continues to exercise its monopoly power to the detriment of the country. Recently, the government granted a rollback of 20 percent in recognition of the excessive levels of PPA's fees.

The inefficiency of the ports adds to the cost of inter-island shipping in three ways:

- A limit on the competition in cargo handling services
- Insufficient investment in cargo-handling equipment to speed vessel turnaround
- Lack of facilities to encourage use of modern shipping technology e.g. container, dry bulk and RoRo cargoes

The inter-island shipping industry is constrained not only by the condition of the ports but also by the regulations that govern its operation. Shipping is covered under the Public Services Act, which limits the profits of shipping lines, requires licensing of routes, and regulates rates. The sector was liberalized in the mid 90's, when the rates were deregulated with two exceptions: rates on routes where there is insufficient competition and rates for third class passengers and basic commodities (not shipped in containers). Because of the low rates on third class cargoes, the shipping lines shut out this cargo during peak periods. Alternatively, they carry the cargoes as backhaul cargo in containers, which allows for a different rate. Also regulated are the rates of return earned by the shipping lines. These are set below commercial discount rates and

discourage investment in new vessels.

The shipping lines have attempted to operate as a cartel taking advantage of government oversight over new entries. Despite the barriers to entry, there has been considerable turnover in the industry over the last five years. This has lead to discounts in freight rates below the range prescribed by the regulatory authority. In order to increase their revenues, the shipping lines have taken control of a number of the stevedoring companies licensed to operate in the various ports. Their argument for being involved in cargo handling is that they need to invest in modern cargo handling equipment to reduce vessel turnaround. However, there has been little improvement in berth productivity. Instead, the shipping lines have been able to take advantage of the relatively high cargo handling charges.[5]

ORGANIZATION OF THE REPORT

The Report begins with an overview of the Philippine economy and external trade.
Chapter 2 focuses on agriculture, agricultural markets and tariff policies.
Chapter 3 presents the supply chain for corn in Northern Mindanao comprising several distributions and marketing channels that affect wholesale price of yellow corn. Imports of corn substitutes and relatively low price of domestic yellow corn have motivated small farmers particularly in Bukidnon in Northern Mindanao to shift to higher value crops, which provide better returns.
Chapter 4 discusses the supply chain for rice, highlighting the dependency of small farmers on traders at *barangay*, municipal and provincial levels. In recent years, the relatively high production costs of rice compared to that of Thailand and Vietnam triggered an increase in imports to meet the demands of the large consumer market. Despite this, the retail price for rice remains high because of several layers of marketing.
Chapter 5 presents the supply chain for vegetables in Northern Mindanao and discusses how the trade is evolving to meet quality standards set by institutional buyers based in Metro Manila. The market trend encourages farmers to shift to more advanced and appropriate technology to yield better quality vegetables that can compete with imports.
Chapter 6 examines the processed fruits for exports. The example presented is the simple supply chain of large pineapple grower/exporter such as Del Monte Inc. based in Northern Mindanao, which has centralized procurement operations.
Chapter 7 presents the supply chains for processed food imported by Manila wholesalers for distribution to local markets.
Chapter 8 illustrates the supply chain of electronic products exported from Calabarzon techno-parks, south of Manila, and shipped out thru Ninoy Aquino International Airport (NAIA) at Manila.
Chapter 9 examines the ports and shipping sector in some detail to determine the source of inefficiency in inter-island shipping.
Chapter 10 presents the general findings and conclusions of the supply chain study and recommendations for reducing inefficiencies and logistics costs, particularly in Mindanao. If the benefits from investments in the agricultural resource base of Mindanao are to be realized and the balance in trade for Mindanao is to improve, the government needs to improve the logistics system particularly in the shipping and port services sector.

[5] An increase in productivity would effectively increase the capacity of the interisland fleet which already suffers from over capacity and would reduce the unit costs for cargo handling which might lead to a reduction in cargo handling rates

Chapter 11 presents selected projects for improving inter-island shipping.

CHAPTER I

ECONOMIC SITUATION

The Philippine economy continued to grow throughout the latter half of 1990s despite the regional economic crisis and the problems created by a change in government. This is part of a long-term pattern of economic growth which has seen a 25 percent increase in per capita GNP over the last 15 years (Figure 1.1). There was a slight contraction in 1998 but the GNP has recovered as the volume of trade continued to increase.

Figure 1.1:

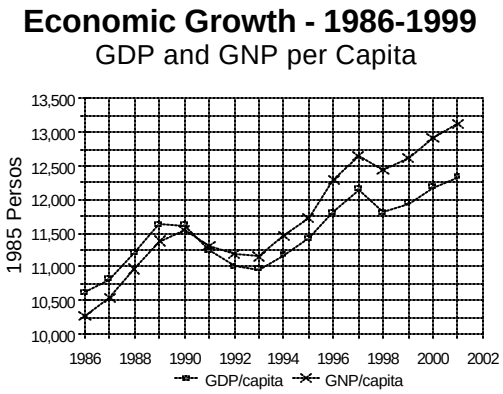
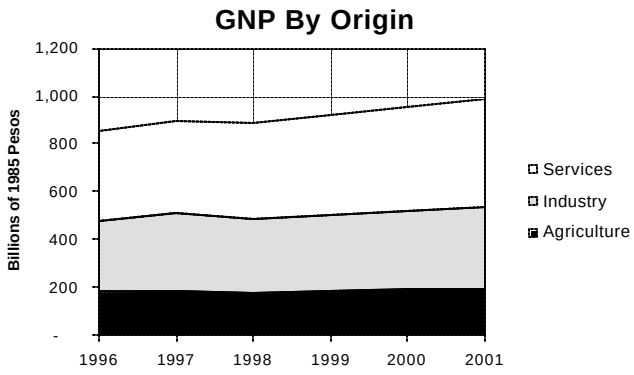


Figure 1.2:



Most of the growth has been in the services sector (Figure 1.2). Over the last seven years, services grew by 23½ percent in constant terms led by trade, transport and communications (Figure 1.3). Agricultural output increased by only 10 percent and industry by 11 percent.

Figure 1.3:

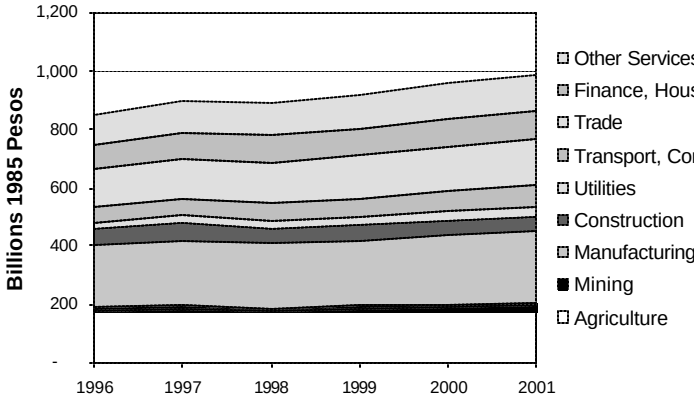


Figure 1.4:

The growth of trade has been quite strong over the last 15 years averaging about 10 percent per year for both imports and exports (Figure 1.4). This was slower than in the period from 1970-1981 when trade increased by 550 percent. However, over the subsequent four years, it declined by 50 percent due to political troubles. In the late 1990's, the Asian financial crisis and

mismanagement by the previous government caused a 50 percent decline in the exchange rate relative to the dollar (Figure 1.5) and a sharp drop in imports. Exports continued to grow until 2001, when the contraction in the global economy, especially in demand for electronics, caused a sharp drop-off.

The growth in trade has been lead by non-traditional exports that include semi-conductors (electronics), industrial manufactures, garments and processed foods. Non-traditional exports increased from US$ 7.35 billion in 1991 to US$ 35.1 billion in 2000. The traditional exports comprising of agricultural commodities such as coconut oil, banana, pineapple products, processed foods and vegetables have been steady at US$ 1.7 billion (Table 1.1).

Table 1.1 Traditional and Non-Traditional Exports, 1991-2000
(in FOB value, US$ million)

Year	Traditional Exports	Non-Traditional Exports
1991	1,388	7,353
1992	1,542	8,152
1993	1,395	9,777
1994	1,505	11,723
1995	1,970	15,096
1996	1,831	18,213
1997	1,913	22,514
1998	1,647	26,786
1999	1,326	32,332
2000	1,687	35,095

The major commodities exported as measured by value, are electrical and electronic equipment and machinery. They have provided a significant portion of the country's economic growth in recent years and currently account for about 3/5 of the total trade (Figure 1.6). The principal destinations for these goods are the US, Western Europe and Japan (Figure 1.7). Crude petroleum, chemicals and semi-processed raw materials accounted for 52 percent of the total value of imports in 2000 (Figure 1.8). Imports of machinery and equipment, including the inputs for the electrical and electronic exports, accounted for about 44 percent. The primary origins for the machinery and equipment were East Asia (Figure 1.9)

Figure 1.5:

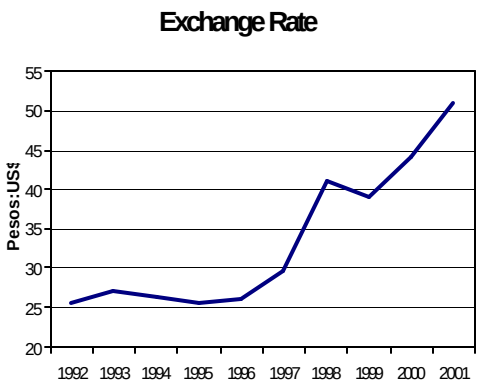


Figure 1.6:

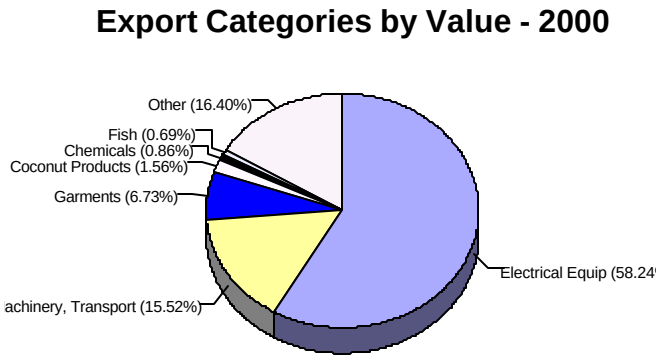


Figure 1.7:

Import Categories by Value - 2000

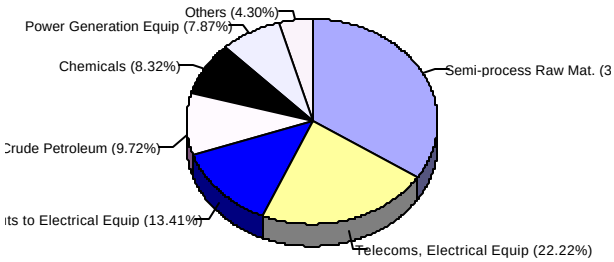
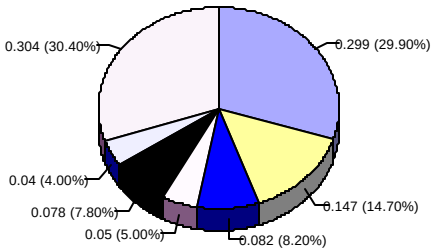


Figure 1.8:

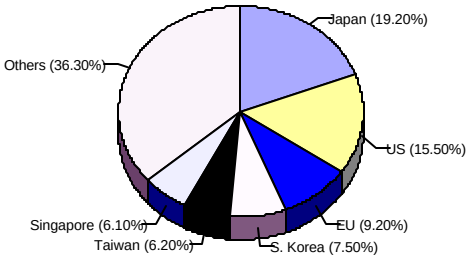
Export Destinations by Value - 200



Philippines has become a net agricultural importer although it remains a net exporter of fruits, vegetables, and vegetable oil. Shipments of agricultural products to foreign markets contributed only 5 percent to the total export trade in 2000 versus 7.5 percent the previous year. Exports dropped by 20.9 percent but imports decreased only slightly. Coconut oil remains the leading agricultural export although demand for this product has decreased considerably over the last decade. In 1999, it accounted for 19.5 percent of agricultural exports, generating US $ 342.28 million. The export shares of banana, pineapple and mango have also been decreasing.

Figure 1.9:

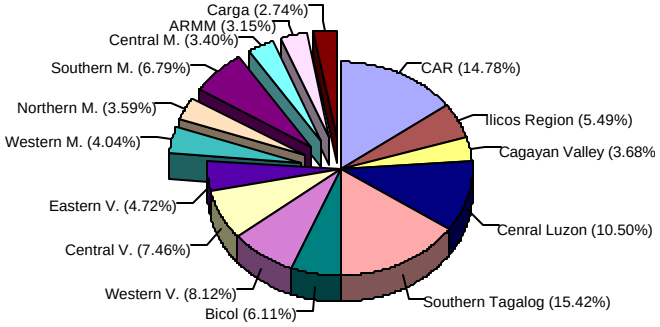
Import Origins by Value - 2000



Wheat and meslin emerged as the number one agricultural import with a volume of 1.95 million tons, valued at $ 351.53 million, in 1999. The volume of rice imports peaked at 2.14 million tons in 1998 but then dropped to 0.56 million tons in 2000. Also in the list of top ten agricultural imports are milk and cream product, soybean cake oil and soybean. Milk and cream products increased in volume from 1999 to 2000 by 11.1 percent and soybean imports by 71 percent.

Figure 1.10:

Population by Province



Mindanao

Mindanao accounts for about one-quarter of the population (Figure 1.10) and 37 percent of the country's land area but only 1/6 of its gross domestic product. About 60 percent of the land is classified as forests and much of it is mountainous (Figure 1.12). As a result, the population

density ranges from 111 to 263 persons per square kilometer (Table 1.2), about 5/6 of the average for the country (excluding the capital region). The average household size, 5.2, is similar to the national average. The economic growth in Mindanao has been slower than for the country as a whole. The two largest regions, Northern and Southern Mindanao achieved less than 10 percent growth in GRP in real terms over the last decade (Figure 1.11) while the country as a whole experienced a 35 percent increase in GDP. The centers of economic activity in the four largest regions of Mindanao are Cagayan D'Oro (Northern), Zamboanga (Western), Davao (Southern), General Santos (Southern), and Cotabato (ARMM). Each of these is also the major port for the region. For this study, the area of focus is Northern Mindanao and, in particular, the province of Bukidnon.

Figure 1.11:

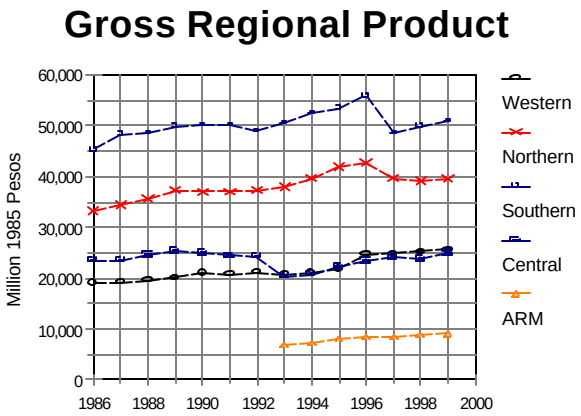
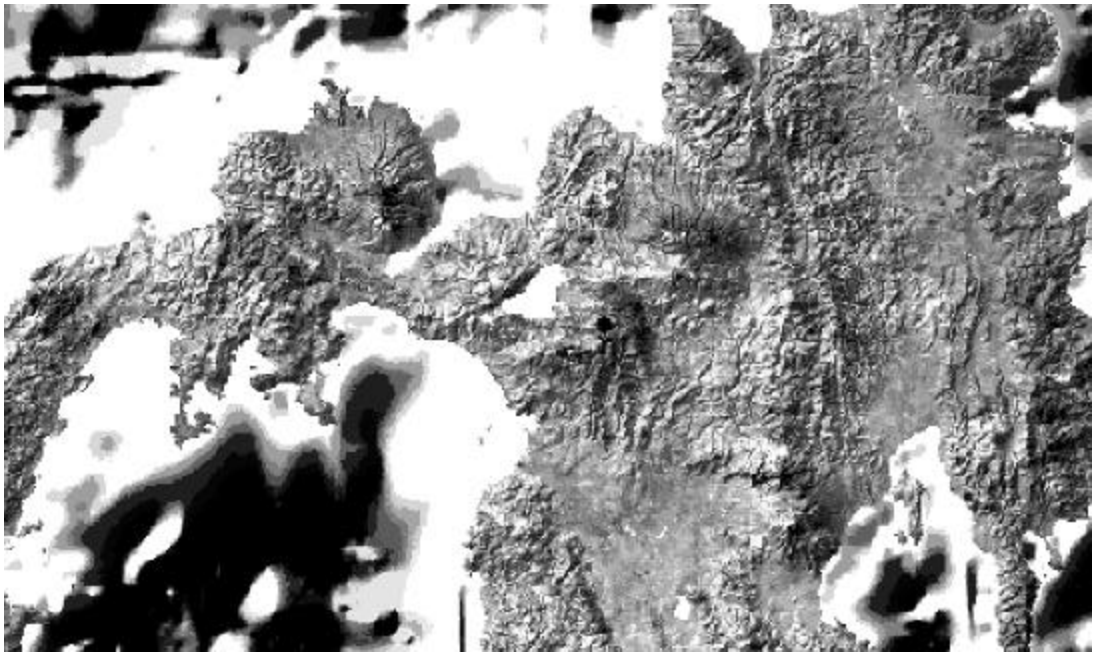


Table 1.2: Population and Land Use in Mindanao

	Western	Northern	Southern	Central	ARMM	Carga	
Population	3.09	2.75	5.19	2.60	2.41	2.095	million
Household Size	5.18	5.06	4.86	5.16	6.13	5.32	people/household
Pop Density	193	196	263	179	211	111	per sq km
Land Classification							
Total Area	1,600	1,403	2,714	1,437	1,161	1,885	mn ha
Forest	837	746	1,637	890	618	1,342	mn ha
Dsiposable	763	657	1,080	547	543	542	mn ha

Source : NSO

Figure 1.12: Topographical Map of Mindanao



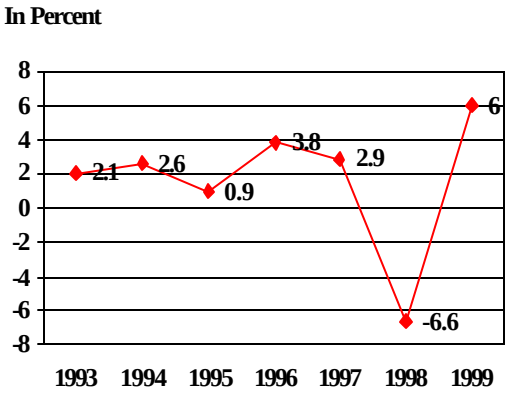
Chapter 2

AGRICULTURE[6]

NATIONAL PRODUCTION

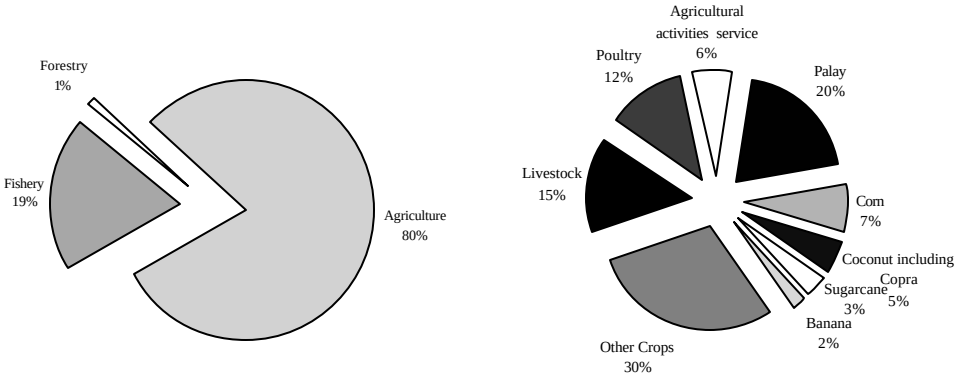
Philippine agriculture sustains the growth and stability of the economy. It contributed around 19 percent to the country's GDP and more than 20 percent of total export earnings in 2000. It employed 40 percent of the total labor force. It is estimated that two thirds of rural population depends on agriculture. A majority of the country's poor live on subsistence agriculture and fisheries.

Figure 2.1. Growth in Gross Value Added Agricultural, Fishery and Forestry: 1993-1999



In 2000, the gross value of agricultural production was estimated at ₱574.9 billion in current prices, a 2.2 percent increase from 1999. The GVA (Gross Value Added) from agriculture declined sharply in 1998 but recovered in 1999, overall growth has averaged 2 percent in constant prices (Figure 2.1**).** Within the broad agriculture sector, forestry contributes about 20 percent of the GVA while fisheries less than 1 percent. About 66 percent of the value added in the agricultural sub-sector derives from crop production and a little more than 25 percent from livestock as shown in Figure 2.21.

Figure 2.2 Average Share of GVA in Agriculture Sector and Subsector, 1993-1999



Aggregate production in the crops sub-sector was valued at ₱305.7 billion in current prices for 2000, down by 2.1 percent from the previous year due to decreasing prices. This sub-sector has grown slowly and unevenly at an annual average rate of 1.6 percent between 1995 and 1999.

Total crop production in the year 2000 reached 67.7 million metric tons (Table 2.1). Gross value of agricultural production was estimated at P574.9 billion in current prices, a 2.2 percent increase over 1999. Rice and corn are the major food crops. Coconut, sugarcane, banana, pineapple, mango, tobacco and abaca are the major commercial crops. The principal export crops are sugarcane and coconut. While the production of coconut-based exports has increased in the last few years, sugar-related exports have declined. In 2001, approximately 2¼ million tons of coconut products worth $532 million were exported along with 225 thousand tons of sugar and molasses valued at about $32 million.

Table 2.1. Agricultural Production by Crop

Sub- Sector	In thousand Metric Tons		
	1998	1999	2000
Major Crops			
Palay	8,555	11,787	12,389
Corn	3,823	4,585	4,511
Coconut	11,598	11,118	12,733
Sugarcane	17,333	22,337	21,711
Banana	3,493	3,869	4,156
Pineapple	1,489	1,530	1,524
Coffee	109	119	117
Mango	865	803	781
Tobacco	62	57	49
Abaca	71	73	76
Other Crops			
Peanut	25	26	26
Mongo	28	29	27
Cassava	1,734	1,890	1,771
Camote	555	557	554
Tomato	133	145	148
Garlic	13	9	14
Onion	87	85	84
Cabbage	86	87	88
Eggplant	164	160	166
Calamansi	42	62	70
Rubber	223	215	188
Cotton	3	3	5
Other Fibercrops	4	3	3
Others	7,747	7,909	8,084

Source: Bureau of Agricultural Statistics

Rice

National palay production grew by an annual average growth of 2.9 percent during the period 1990 to 2000 from 9.3 million tons to 12.4 million tons. The increase in production over the last decade has been concentrated in irrigated rice (Figure 2.3). The amount of irrigated land planted in rice has increased at about 2.5 percent annually, or about 50 thousand hectares per year over the last two decades (Figure 2.4).

There are about 2.1 million rice farmers in the Philippines; an average farmer owns and tills about 1.5 hectares of rice land. About 40 percent of palay is harvested from March to April and the remainder from October to December. Due to frequent droughts and decline in investments in irrigation, the rate of growth in production has declined in the past years. In 1998 there was an 18 percent reduction in area harvested and 24 percent, decline in production to 8.6 million tons as a result of El Nino and La Nina weather phenomena. The resulting rice shortage was eased by rice imports from Vietnam and Thailand. Thereafter production returned to its growth path.

[6] The information on agricultural production and pricing for the major crops was obtained from "CGPRT Cross in the Philippines, A Statistical Profile, 1990-1999" M. Chowdhury and M. Araf, UN Escap, 2001

Figure 2.3:

Production of Major Crops

Average for Philippines

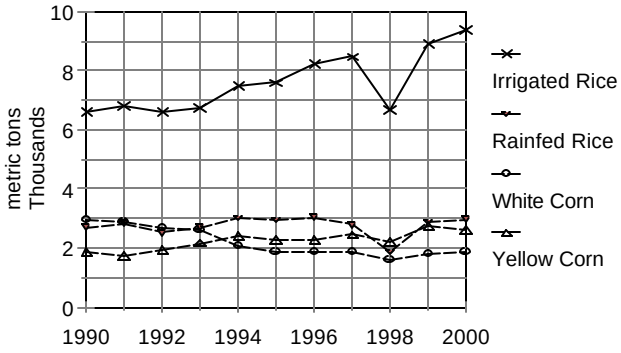
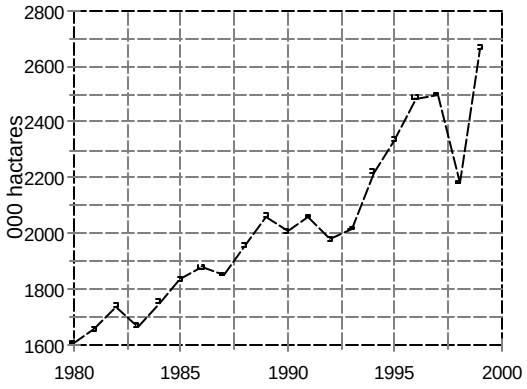


Figure 2.4:

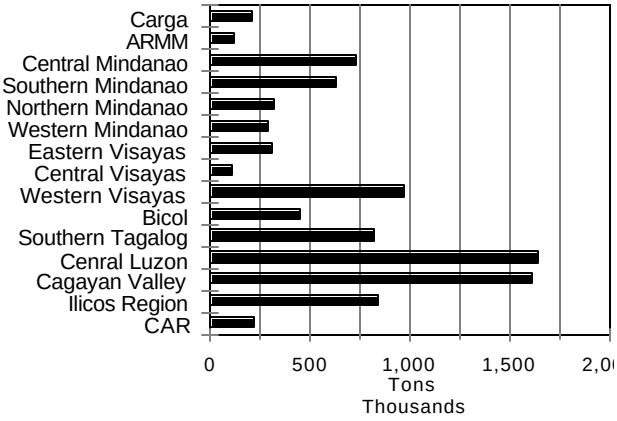
Irrigated Paddy Area in Philippine



The major growing regions for irrigated rice are Cagayan Valley, Central Luzon, Ilicos, and Western Visayas. Each of the first two had more than 400 thousand hectares producing in excess of 1.5 million tons. Illicos and Western Visayas together produce another 1.5 million tons on a little over 400 thousand hectares. Mindanao has a total area of about 700 thousand hectares producing 2.4 million tons with the largest growing areas in Central and Southern Mindanao (Figures 2.5).

Figure 2.5

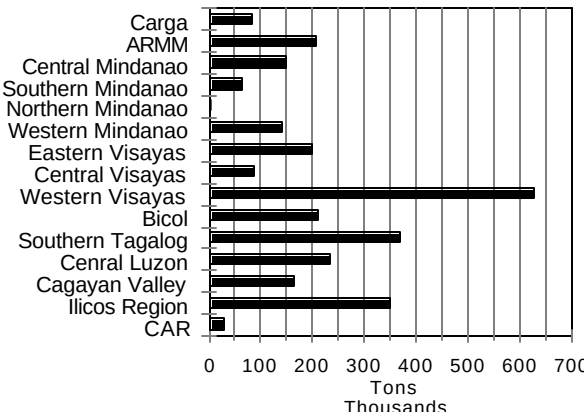
Production of Irrigated Paddy 2000



Most of the rainfed rice is grown in three regions, Western Visayas, Southern Tagalog and Ilicos. The yields are much lower than for irrigated rice. Together they produce about 1.35 million tons on approximately 575 thousand hectares. Total production for Mindanao is only 670 thousand tons on 300 thousand hectares. (Figures 2.6)

Figure 2.6

Production of Rainfed Paddy 2000



Central Luzon has consistently contributed about 15 percent of the total rice production folllowed by Cagayan Valley and Western Visayas. The major rice surplus area are Cagayan Valley, Ilicos, Central Luzon, Western Visayas and Central Mindanao as shown in Tables 2.2 The main deficit areas other than Metro Manila, which required an average supply of 897 thousand tons during the period 1999–2000, are Southern Tagalog, Bicol, Central Visayas, Eastern Visayas, and

Southern Mindanao, each requiring more than 120 thousand tons of rice a year. As a result, there is considerable internal trade in rice. Cagayan Valley and Ilicos provide rice to the capital region. The Central Region in Mindanao ships its surpluses to other parts of Mindanao. In the Visayas, there is trade between the Western Region and the Eastern and Central Regions.

The average yields for Palay have remained steady since 1990 (Figure 2.7). Northern Mindanao registered the highest yield of about 3.34 mt per hectare followed by Central Mindanao at 3.25 mt per hectare.

Within Mindanao, the area planted under rice has been increasing slowly. Central Mindanao is the largest producer of irrigated rice and a significant producer of the other three crops (Figure 2.8). The production of rice in both Southern and Central Mindanao has been increasing rapidly over the last decade even though yields have been declining. ARMM is the largest producer of rain-fed rice in Mindanao followed by Southern and Eastern Mindanao but yields have been relatively flat.

Rice is the main staple food for more than 70 million consumers with a daily demand for about 32 thousand tons. Southern Tagalog is the largest rice-consuming region accounting for about 14 percent of the national consumption. Central Luzon (11 percent), the National Capital Region (10 percent) and Western Visayas (10 percent) are the other major rice consumption areas. The Department of Agriculture has projected demand to grow at about 3 percent per year based on the population growth of 2.3 percent.

Rice accounts for about 12 percent of the household spending and 25 percent of the food basket of household food budget. Any increase in the price of rice has a significant effect on household income. Rice farmers and their families are disadvantaged because they sell most of their rice at harvest time when they need the cash and do not normally have enough storage space to store rice for their consumption for the rest of the year.[7]

Table 2.2: Per Capita Production

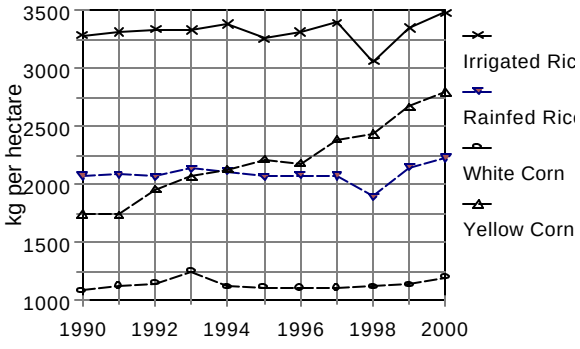
	Rice	White Corn
Luzon		
Ilicos Region	**288**	10
Cagayan Valley	**635**	18
Cenral Luzon	**235**	1
Southern Tagalog	*102*	1
Bicol	*144*	4
Visayas		
Western	**259**	6
Central	*38*	23
Eastern	*143*	12
Mindanao		
Western	*145*	40
Northern	*122*	55
Southern	*137*	69
Central	**341**	150
ARMM	*142*	184
Carga	*147*	31
Total Area	*162*	25

Surplus areas in bold, deficit in Italics

Figure 2.7

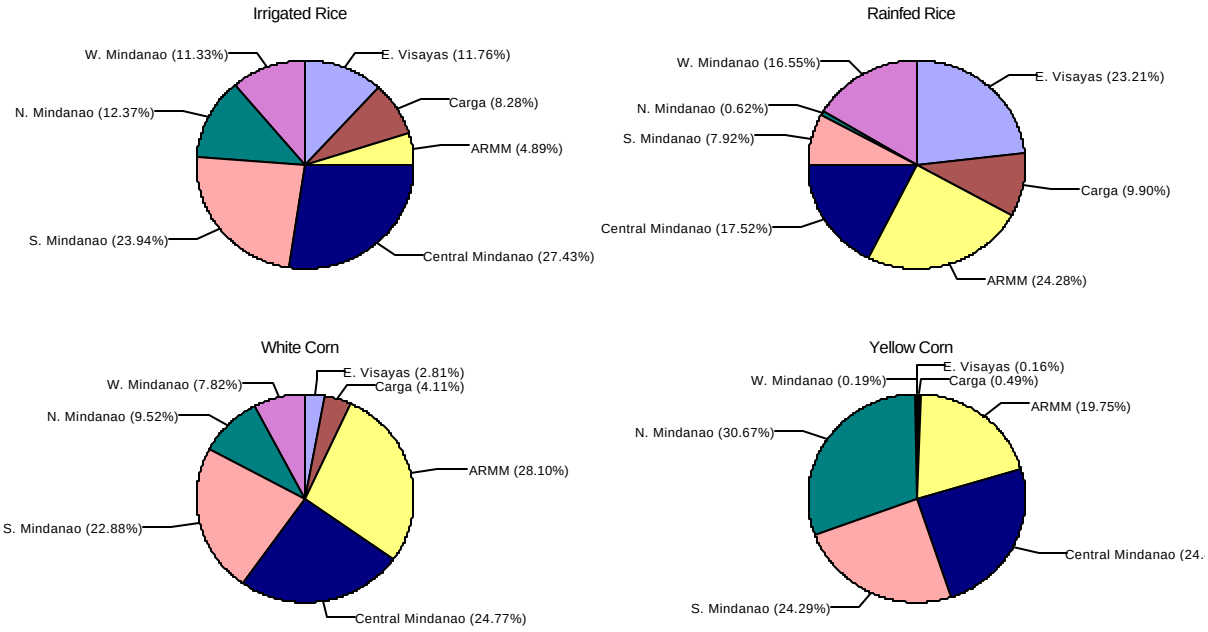
Yield for Major Crops

Average for Philippines



[7] Recent surveys of the Social Weather Stations (SWS) indicate that 85% of Filipinos and 78% of rural households source their household rice from the open market. This indicates that the proportion of households benefiting from rice sold at subsidized (relative to domestic) prices by the NFA is only a small portion of the total population.

Figure 2.8 : Distribution of Production of Four Major Crops in Mindanao



Filipino consumers pay two to three times higher a price for rice, than Thai or Vietnamese households.[8] The higher price is due to the high costs of production and distribution.[9] It is for this reason that rice imports have become a cheaper alternative to locally produced rice. The relatively high prices of rice contributed to low average levels of consumption and the consequent worsening of nutritional status, especially among the very young. Thus, NFA has had to resort to selling rice in half-kilo bags in order that the very poor can afford to pay cash. Even the cheapest rice in the Philippine market, the regular-milled rice sold at ₱14.00 per kilo by the National Food Authority in its "rolling stores" located in the depressed areas, is too expensive for the very poor[10].

Over the years Philippines has adopted rice production policies aimed at self-sufficiency. Current production is about 162 kg per capita. This is less than the requirement for pure rice-based consumption (180-200 kg per capita) but when supplemented with other grains should be sufficient. Nevertheless, from 1990 to 1999 the country imported rice from Thailand and

[8] In August 2001, the retail price of regular-milled rice in major Manila wet markets was ₱ 16.73 per kilo (DA-BAS) and in peso terms for the same quality of rice, Vietnamese households pay only ₱ 6.06 per kilo while Thai households pay ₱ 7.64 per kilo. Referecne PIDs study, July-August 2001, B.J. Tolentino and E. Noveno,

[9] The study indicated that the on the average, it costs Filipino farmers ₱7.45 (all types irrigated and rainfed) to produce a kilo of palay (unhusked rice). In mid-1990s, Filipino farmers spent ₱ 5.71 to produce a kilo of palay while Vietnamese farmers spent only ₱ 2.33 per kilo and Thai farmers ₱ 4.30 per kilo.

[10] Cross-country evidence shows that Filipinos eat relatively little rice with 95 kilos of rice per capita per year which amounts to about 3 cups of milled rice per day or a cup of milled rice per meal. Compared to other Asians, this consumption is low – Vietnamese consume up to 165 kilos of rice per capita per year, Myanmar citizens eat as much as 213 kilos of rice per capita per year. (Rice Facts Index: www.riceweb.org)

Vietnam (Table 2.3), much of it through informal trade since imports are subject to a 50 percent tariff. By law, it is only the NFA[11] that may import rice or license such imports into the country. In fact, smuggling is rampant as a result of price differentials relative to Thai and Vietnamese rice as well as spotty enforcement and the archipelagic nature of the country. [12]

Table 2.3: Philippine Rice Imports and Exports 1990 to 1999

Year	Imports		Exports	
	Volume (metric tons)	Value (Mn. US$)	Volume (metric tons)	Value (Mn. US$)
1990	620,794	123		
1991	-	-	10,000.00 [1]	2.34
1992	-	-	29,672.33 [1]	6.91
1993	209,994	38		
1994	-	-		
1995	257,263	76		
1996	892,943	278		
1997	720,210	231		
1998	2,136,161	624		
1999	781,716	221		

Note: Details may not add up to totals due to rounding
1 - Loan Payment to Indonesia
Source: National Food Authority

CORN

White corn is grown for household consumption. It accounts for 1.2 percent of the market basket and 2.4 percent of the food basket of the Filipino. Yellow corn is grown primarily for livestock feed. Local corn production has decreased by an average of about 3 percent per year during the past 10 years. In 1990, 4.9 million metric tons was produced on 3.8 million hectares. Since then the area planted declined at about 6 percent annually to 2.50 million hectares in 2000. The production of white corn has declined over the last decade (Figure 2.3) but yields have remained relatively constant. Meanwhile, production of yellow corn has increased as a result of improved yields.

In 2001, Mindanao produced 61 percent of total corn grown in the Philippines. This includes 80 percent of the white corn, approximately 1.5 million tons produced on about 1.15 million hectares (Figure 2.9). Mindanao also produces about half of the yellow corn grown for livestock feed, about 1.3 million tons on 460 thousand hectares (Figure 2.10). However, yellow corn production is not increasing except in ARMM. Cagayan Valley produces another 900 thousand tons but the yields are much higher so that only 260 thousand hectares were planted. Bukidnon

[11] PL480 grain is supplied to the Department of Agriculture , which transfers it to the NFA for distribution.

[12] Economists estimated that from 1996 to 1998, total cost to Philippine society of the policy of rice price interventions implemented by NFA averaged about ₱ 26 billion a year.

accounted for 96 percent of Northern Mindanao's yellow corn production and 62 percent of its white corn. (Table 2.4.)

Table 2.4 Northern Mindanao Yellow and White Corn Production, 2001
Region 10-Northern Mindanao, 2001

	Northern Mindanao	Bukidnon
	2001	2001
Production (MT)	505,938	434,540
White	149,172	91,755
Yellow	356,766	342,785
Area Harvested (Ha)	320,888	155,618
White	120,845	50,862
Yellow	110,043	104,756
Yield/ Hectare	4.47	5.07
White	1.23	1.80
Yellow	3.24	3.27

Source: DA-BAS, Cagayan de Oro

The major demand for corn is as livestock feed. The principal consuming areas are Southern Tagalog (12.2 percent), Central Visayas (11.6 percent), Southern Mindanao (11.1 percent) and Central Luzon (10.1 percent). The Department of Agriculture estimates that the national daily requirement for corn is 14,600 mt or an annual requirement of about 5 million metric tons. Demand for livestock feed has exceeded production, resulting in deficits that reached 1 million metric tons in recent years. Corn imports amount to only .56 million metric tons since the livestock and poultry industries use less expensive corn substitutes particularly bran/pollard a by-product of wheat.

Figure 2.9

Production of White Corn 2000

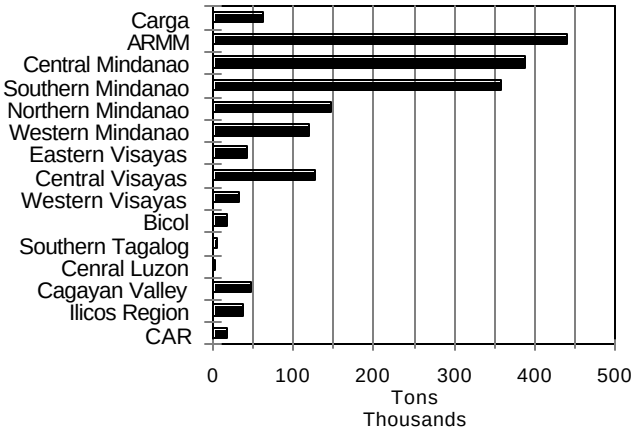
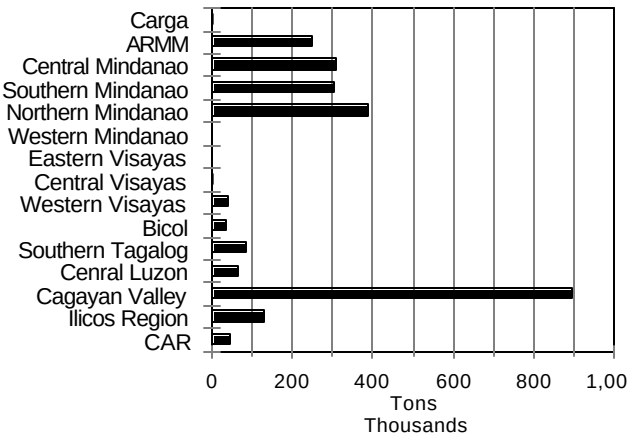


Figure 2.10

Production of Yellow Corn 2000



Substantial imports of corn and feed substitutes are sourced from the United States, Thailand, China and, recently, Argentina, but only the United States and Argentina are considered to be

stable sources of imported corn. Total imports in 2000 were 0.51 million metric tons versus only 0,2 million in 1999. There is now a shift in production from corn to vegetables and other higher value crops in Northern Mindanao including vegetables for domestic markets. This will cause an increase in imports of livestock feed. Locally grown yellow corn is protected from direct competition by tariffs of 35 percent-65 percent. However, it competes with lower value livestock feed, e.g. wheat, barley and sorghum, which are imported under much lower, 7 percent-10 percent, tariffs.

OTHER CROPS

The most important export crops for Mindanao are fruits, specifically pineapples and bananas. Mindanao produces nearly all of the country's pineapples, 70 percent of its bananas, about 65 percent of its coffee, cassava and corn and about 60 percent of its coconut crop. The pineapples are grown on plantations managed by the large companies, while bananas are grown on small farms or on land leased to farmers by the large corporations. The fruits are processed to produce juices, pineapple chunks and fruit cocktails for both domestic shipments and exports. Increasingly, the large plantation companies are moving out of production and focusing on food processing, logistics and marketing.

The large companies responsible for the export of these crops include Dole, Delmonte, and Marsman. Delmonte grows pineapples in Bukidnon and ships them out as fresh fruit and processed food to the US and East Asia through Cagayan D'Oro. It also grows bananas in Southern Mindanao, which are shipped out of Davao to Japan and China. Dole grows pineapples in ARMM and ships them out of Cotabato.

There is also an increasing production of vegetables including potatoes, tomatoes, lettuce, carrots, and peppers. At present about 60 thousand hectares in Northern Mindanao are planted in vegetables, primarily in Bukidnon where the climate and soil permit a year-round growing season. The vegetables can be shipped competitively to Luzon during its rainy season. They are sold through central markets where buyers from Luzon purchase them for shipment to the retail markets. Palm oil is also produced and shipped via barge to the markets in Luzon.

Potatoes: The largest crop by volume is potato. The sizes of potato tubers include small, medium and large.[13] The most common form of potatoes grown for commercial purposes is the Atlantic variety, which is used for potato chips. Their yield is 2.0- 2.5 tons per ha. Other varieties yield about 12.3 tons.

Bananas: The fresh banana industry supports some 5.9 million farms and farm households. Exports of fresh bananas accounted for 32 percent of fruit exports in 2000 and 22 percent in 2001 Banana is harvested year round and plants bear fruits within 10 to 12 months. There are four common varieties, Saba, Lakatan, Latundan and Cavendish. Saba is generally processed into banana chips. Lakatan and Latundan are table fruits. Cavendish is mainly for export. Banana production increased by 2 percent annually from about 3 million mt in 1990 to about 3.8 mt in 2000. Southern Mindanao contributes 50 percent of total production followed by Central Mindanao (9 percent), CARAGA (6 percent) and Western Visayas (7 percent).

[13] ***One hectare produces 2.5 tons (16-18 pieces per kilo or 20-30 pcs per kilo depending on the size.***

Central Mindanao registered the highest yield in 1997 at 37.5 mt/ha about 4 times the national average. The area planted in bananas increased from 300 thousand in 1990 to 328 thousand in 1997 in 2000. Except for the large corporate/commercial planters in Southern Mindanao (Davao), banana production is predominantly a small family activity. The typical size of a planting is ¼ ha. or less. Banana is also inter-cropped with coconut usually on one-hectare farms.

Fresh bananas are exported primarily to Japan, which accounted for 61 percent of total export volume. Other markets include China, United Arab Emirates, Taiwan and Korea. Philippines exports account for about 80 percent of the Asian trade and about 10 percent of the world trade. The per capita domestic consumption of fresh banana in 2000 was about 17.9 kg.

Pineapples: Pineapple is the second most important fruit in terms of quantity and area planted. It provides livelihood to about 420,000 farmers nationwide. The Philippines is the third largest producer of pineapple, after Thailand and Brazil.[14] Production consistently increased from 1993 to 1997, but dropped in 1998 (due to weather disturbances). In 1999, the total value was US$22.5 million, which increased to US$24.6 million in 2000. Preserved pineapple juices accounted for 12 percent in 2000 and 20.3 percent in 2001. The principal destinations include Japan, Korea, China, Hong Kong, New Zealand, Taiwan, United Arab Emirates, Indonesia and Singapore.

Yield levels of pineapple farms have improved at a rate of 5 percent per year but output at only 3 percent. Commercial production is concentrated in Northern and Southern regions of Mindanao with over 90 percent of domestic production. The biggest processing companies, e.g. Del Monte and Dole are also located in this region.[15] They produce year-round by leasing the farms from employee owners and farmers.

PRICES FOR AGRICULTURAL COMMODITIES

The distance of production areas to consumer markets affects the prices in different regions. Surplus regions located far from the major markets generally receive lower farm prices because of the high cost of transportation, transit losses and limited number of buyers. Similarly retail prices in deficit regions are higher due to the cost of transport from surplus regions.

Central Luzon, although a surplus region for rice, had the highest farm price because it is closest to the Metro Manila market. Retail prices in deficit regions like Northern Mindanao and Central Visayas exceed the Manila price. The historical price of rice for wholesale, retail and farm gate prices are presented in Table 2.6.

[14] Up to 1998, Philippines, Thailand and Brazil accounted for about 45 percent of the world production of pineapple. Other producers are India, China, Nigeria, Indonesia, Colombia, United States and Mexico.

[15] In Luzon, the Southern Tagalog and the Bicol regions significantly produce pineapple and sold as fresh produce to Metro Manila consumers.

Table 2.6 National Yearly Average Prices of Cereals

1990-2001 (P/Kg)

Year	Palay	Rice-Special		White Corn		Yellow Corn	
	Farmgate	Wholesale	Retail	Farm	Wholesale	Farm	Wholesale
1990	4.74	8.77	9.44	4.24	4.70	4.26	4.81
1991	4.77	9.08	9.97	3.76	4.23	3.68	4.40
1992	4.82	9.48	10.43	4.56	5.29	4.99	5.99
1993	5.40	10.78	11.83	4.63	5.03	4.62	5.60
1994	5.90	12.11	13.29	5.27	5.95	4.98	6.20
1995	7.24	15.04	16.32	6.47	7.08	6.28	7.46
1996	8.13	17.39	19.00	6.78	7.89	6.16	7.68
1997	7.92	16.88	18.55	6.17	7.09	5.97	7.63
1998	8.11	17.39	19.02	5.62	7.13	5.65	8.32
1999	7.87	17.45	19.15	6.32	7.10	5.39	8.47
2000	8.70	17.77	19.45	7.01	7.91	6.50	9.20
2001	8.69	17.34	19.04	7.94	9.11	7.25	9.62

Source: National Food Authority

Under the current system, the prices paid to the farmer for both rice and corn are relatively low. The farmers do not have storage facilities and must sell their crops during harvest. There is no future's market so they are subject to the price prevailing at the time of harvest (April/May and November/December). Farm gate prices for the major crops typically fluctuate in a $\pm$15 percent range during the year as shown in Figure 2.11. There are similar fluctuations in the price at the wholesale level allowing for a lag between the times of harvest and milling. In Mindanao, these are less severe for rice (Figures 2.12) than for corn (Figure 2.13 and 2.14).

Figure 2.11:

Farmgate Price for Major Crops
1998-1999

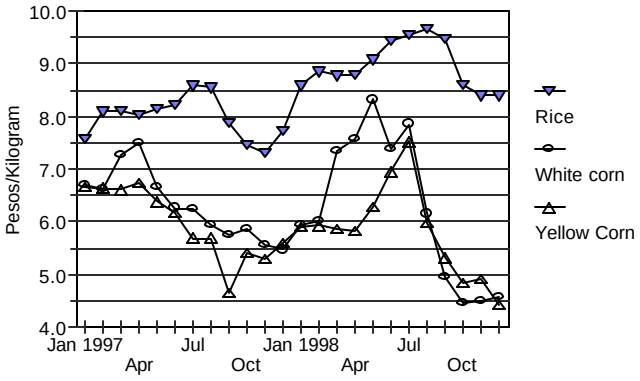


Figure 2.15 shows the seasonal price variation of ex-farm (palay) and well-milled rice for the Philippines and Metro Manila. In 2001, Metro Manila Well-Milled Rice (WMR) was about 13.5 percent higher than the average Philippine price of rice, 17 percent higher than wholesale price and more than double the price for palay. When milled, there is a 40 percent-50 percent reduction in weight. The wholesale price of rice ranges from ₱14.80 to ₱19.60 depending on rice variety and milling quality. Retail price of rice is about 10-15 percent higher than wholesale price of rice.

Figure 2.12:

Wholesale Price for Special Rice

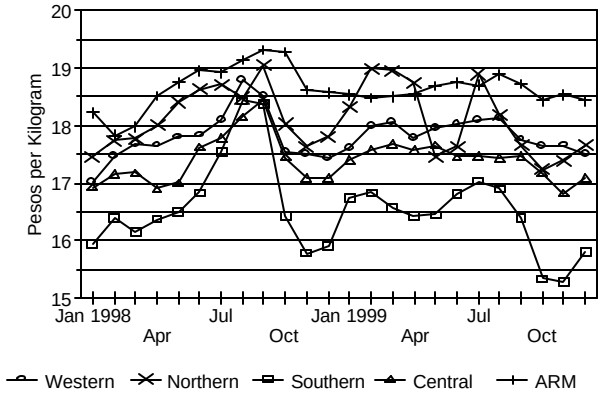


Figure 2.13:

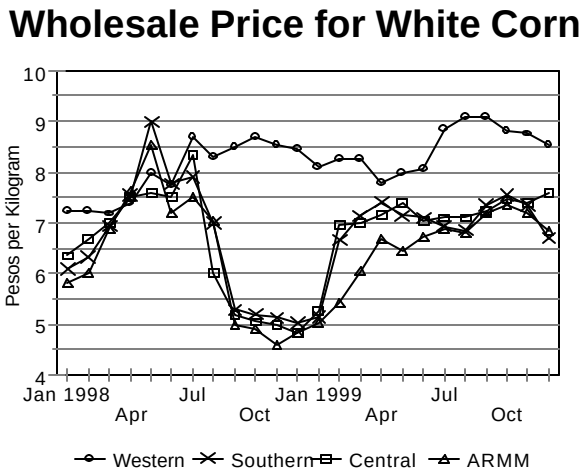
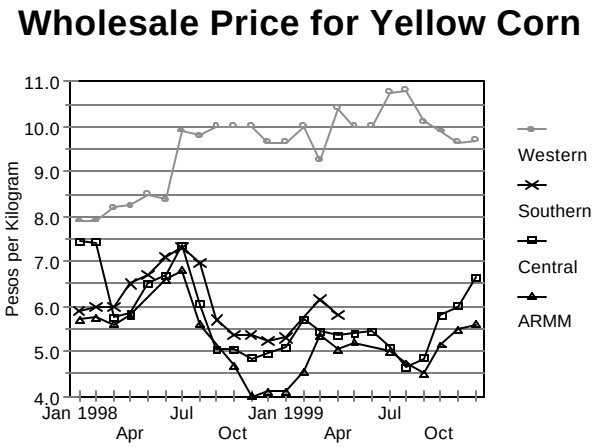


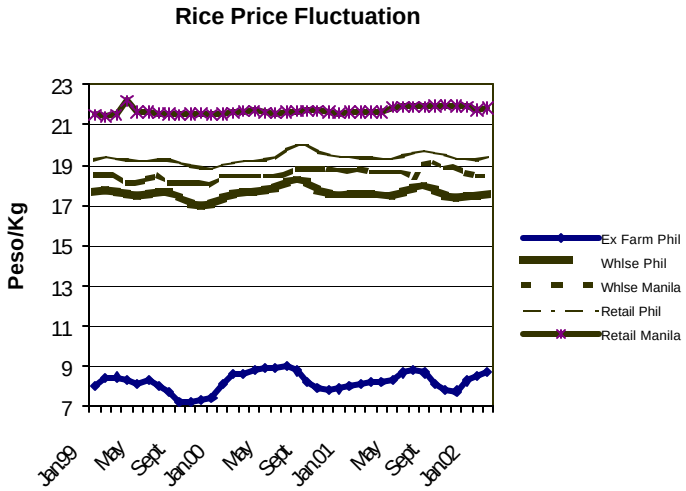
Figure 2.14:



Data came from DA-BAS Northern Mindanao.

There are also regional differences in the farm-gate, wholesale and retail price of rice within Mindanao (Annex B). Palay farm gate prices are much lower in CARAGA, Southern Mindanao (Davao City) and Western Mindanao due to the distance from market centers. Northern Mindanao farmers receive relatively better palay price in most cases due to better road access and condition.

Figure 2.15



The prices for crops are highly volatile on a year-to-year basis as show in Table D.5. In 2000, coconut farmers experienced a 45 percent price drop. Coffee and banana experienced reductions of 27 percent and 21 percent, respectively while sugarcane and mango dropped by about 18 percent. Prices paid to tobacco growers were down by 11 percent but rubber and cotton were 39 percent and 19 percent, respectively. Calamansi, peanut and cassava enjoyed price increments ranging from 6 percent to 13 percent. Onion and garlic prices depreciated by as much as 589 percent and 27 percent, respectively. Less dramatic declines were observed in the price for mango, tomato and eggplant.

FERTILIZER

The fertilizer industry in the Philippines plays a key role in increasing crop production. It contributed to the improvement in crop yields over the last four decades, especially in the 1970's when the country became a net exporter of rice. Rice accounts for 53 percent of total fertilizer consumption, while corn accounts for about 10-15 percent, and vegetable and other crops about

35 percent. The level of use of inorganic fertilizers in the Philippines has increased (Figure 2.16) due primarily to the increase in the area of irrigated crop production. The average application rate has changed little over the last decade (Figure 2.17).

Figure 2.16:

Fertilizer Consumption in Philippines

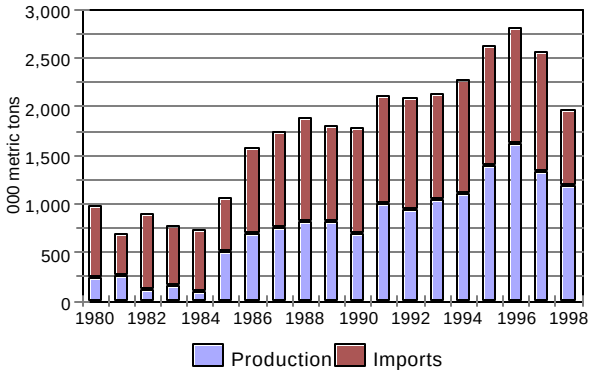
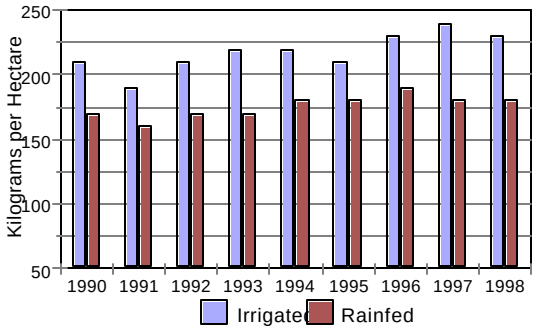


Figure 2.17:

Use of Inorganic Fertilizers

For Rice Cultivation



With the deregulation of the Fertilizer Industry in 1986, the patterns of fertilizer marketing and distribution have changed markedly. Both the production and importation of fertilizer is done through the private sector. At present, there are four domestic producers of compound phosphate fertilizers with annual capacities as shown in Table 2.7:

Table 2.7: Fertilizer Producers in Philippines

Name of Manufacturer	Location	Capacity (MTPY)	% Share
Phil. Phosphate Fertilizer Corp	Isabel, Leyte	1,170,000	69.2
AFC Fertilizers & Chemicals Inc.	Toledo City, Cebu	320,000	18.9
Soiltech Agricultural Products	Poro Point, La Union	100,000	5.9
Farmix Fertilizer Corporation	Batangas City	100,000	5.9

Raw material inputs including rock phosphate, anhydrous ammonia, sulfuric acid, muriate of potash (KCI), and ammonium chloride are imported. Only a portion of the sulfuric acid is locally sourced.

The annual level of fertilizer imports has been relatively steady over the last decade at about 1.1 million tons. Most of the increase in consumption has been met through local production. Imports include urea and potash as well as some ammonium sulfate. The country exports locally-produced fertilizers to other countries in the region as shown in Table 2.8 The volumes produced, imported and consumed for the period 1991 to 2000 are shown in Tables B.1. through B.6.

Table 2.8: Types and Destinations of Fertilizer Exports

NP/NPK Fertilizer:	Diammonium Phosphate (DAP):	Merchant Grade Phosphoric Acid (MGPA):	Gypsum (by-product):
Thailand	China	Indonesia	Japan
China	Thailand	Australia	Indonesia
Kampuchea	Vietnam	Taiwan	Malaysia
Nepal	Indonesia	China	Vietnam
Indonesia	Iran	India	Taiwan
Vietnam			
Myanmar			
Malaysia			

ROLE OF NATIONAL FOOD AUTHORITY

The National Food Authority (NFA) is the lead government agency responsible for the stabilization of supply and prices of grains particularly rice and corn. The NFA's mandates are:

- Food security in the staple cereals in times and places of calamity or emergency, both natural and man-made.

- Stabilization of supply and prices of staple cereals both at the farm-gate and consumer levels. Farm-gate price levels should enable farmers to derive reasonable returns on their production investment.

NFA is engaged in palay procurement, drying, milling and distribution. It has exclusive authority to import rice and can allocate import quotas to local importers in cases of production shortfalls (Agricultural Tariffication Act of March 1996).

NFA sells rice at below market price to the poor sector of the society. It intervenes directly and indirectly in the rice and corn market. The timing and intensity of its intervention depend on the dictates of the domestic and/or global market. Figure 2.18 presents the volume of palay and corn procured by NFA from 1974 to 2000. Figure 2.19 shows the quantities distributed (sales) by NFA over the same period. These indicate that NFA is a major player in the rice industry but not in the trade for white and yellow corn where the private sector is more actively involved. Tables C.3, C.6, and C.7 show the importation of corn by NFA and the private sector.

PROBLEMS OF LOW PRODUCTIVITY

Low productivity remains the key challenge confronting the agricultural sector. The primary reason for low productivity (and associated low profitability) is the inadequacy of rural infrastructure, particularly rural roads and irrigation. Another problem is the absence of an adequate policy framework and institutional arrangements to resolve the highly distorted pricing system (e.g. food price support and consumer subsidies). Other factors include:

- The downward trend in prices for traditional export crops
- Deterioration of intersectoral trade
- Natural calamities
- Lack of internal markets
- High transport costs.

Figure 2.18

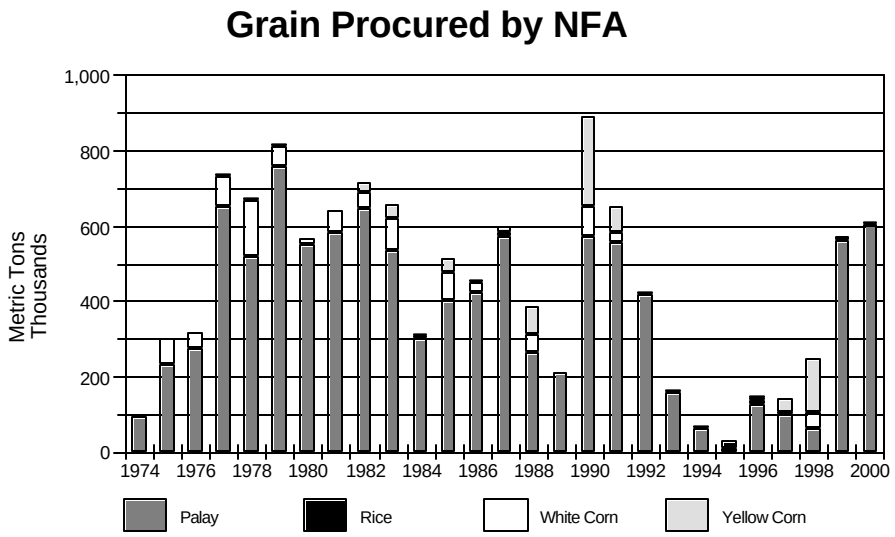
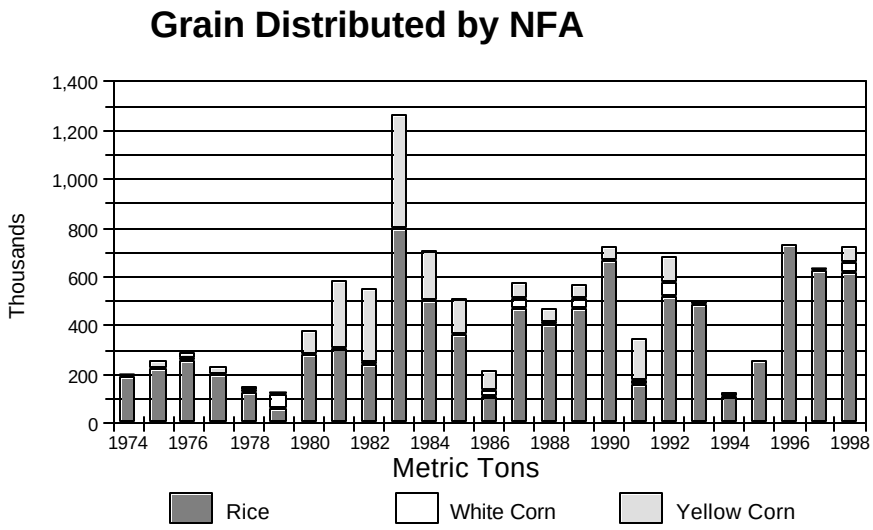


Figure 2.19



The inadequacy of rural infrastructure, together with low rates of growth in the agriculture sector, have limited the growth of farm and non-farm employment opportunities in the rural areas and increased the incidence of rural poverty. In order to address the above-mentioned concerns, Congress passed the Agriculture and Fisheries Modernization Act (AFMA) in January 1998. The Act provides programs to be implemented from 1999 to 2004 covering:

- Irrigation
- Post-harvest facilities
- Other infrastructure
- Credit and financing
- Information and marketing assistance
- Product standardization and consumer safety
- Human resource development
- Extension services
- Rural non-farm employment
- Trade and fiscal incentives.

The Act also provides for the identification of Strategic Agricultural and Fisheries Development Zones (SAFDZs) that will serve as centers for development, and for the formulation of medium-and-long term comprehensive Agriculture and Fisheries Modernization Act (AFMA). The AFMA includes commitment to poverty alleviation and social equity as guiding principles of the country' agricultural development.

TARIFFS, QUOTAS AND OTHER RESTRICTIONS

Liberalization of agricultural trade is required under WTO agreements. The Agricultural Tariffication Act (RA 8178), signed into law in March 1996, repealed various laws that imposed quantitative restrictions on imports of sensitive agricultural products such as:

- Live poultry, hog, sheep and goat and bovine animals
- Beef, pork, poultry and goat meat
- Cabbage, onion, potatoes, garlic
- Coffee
- Corn and corn substitute
- Sugar.

In its place were introduced a differentiated tariff and a minimum access volume (MAV) that determines the quantity of an agricultural product that may be imported at the favorable (in-quota) tariff rate. Executive Order 313 stipulated that the MAV and rates were to be applied for rice and 14 other products from 1996 to 2000. These are consistent with the rates committed to the WTO, as shown in Tables A.4 and A.5.

CHAPTER 3

SUPPLY CHAIN: CORN IN NORTHERN MINDANAO

SUPPLY OF FERTILIZER

Corn farmers are provided fertilizer and other inputs, e.g. pesticides/fungicide, by traders and dealers on credit and are charged against their crop upon harvest (at prevailing prices). Fertilizers are imported from countries such as Indonesia. The importers/ distributors receive fertilizer shipments at the port of Cagayan de Oro and distribute them to the agricultural production areas. Table 3.1 presents the sea freight of fertilizer destined to Bacolod, Batangas, Dumaguete and Iloilo from Cagayan de Oro.

Table 3.1 shows the share of the different components of the sea freight charges in door-to-door costs. Sea freight is higher in longer distance routes such as Manila, where it is 63 percent of the total transport charge. Handling costs in Cagayan de Oro (CDO) range from 6 percent to 10 percent of the total door-to-door cost. Trucking at CDO comprises about 30 percent of the door-to-door cost for 10-foot vans and 22 percent-28 percent for 20-foot vans.

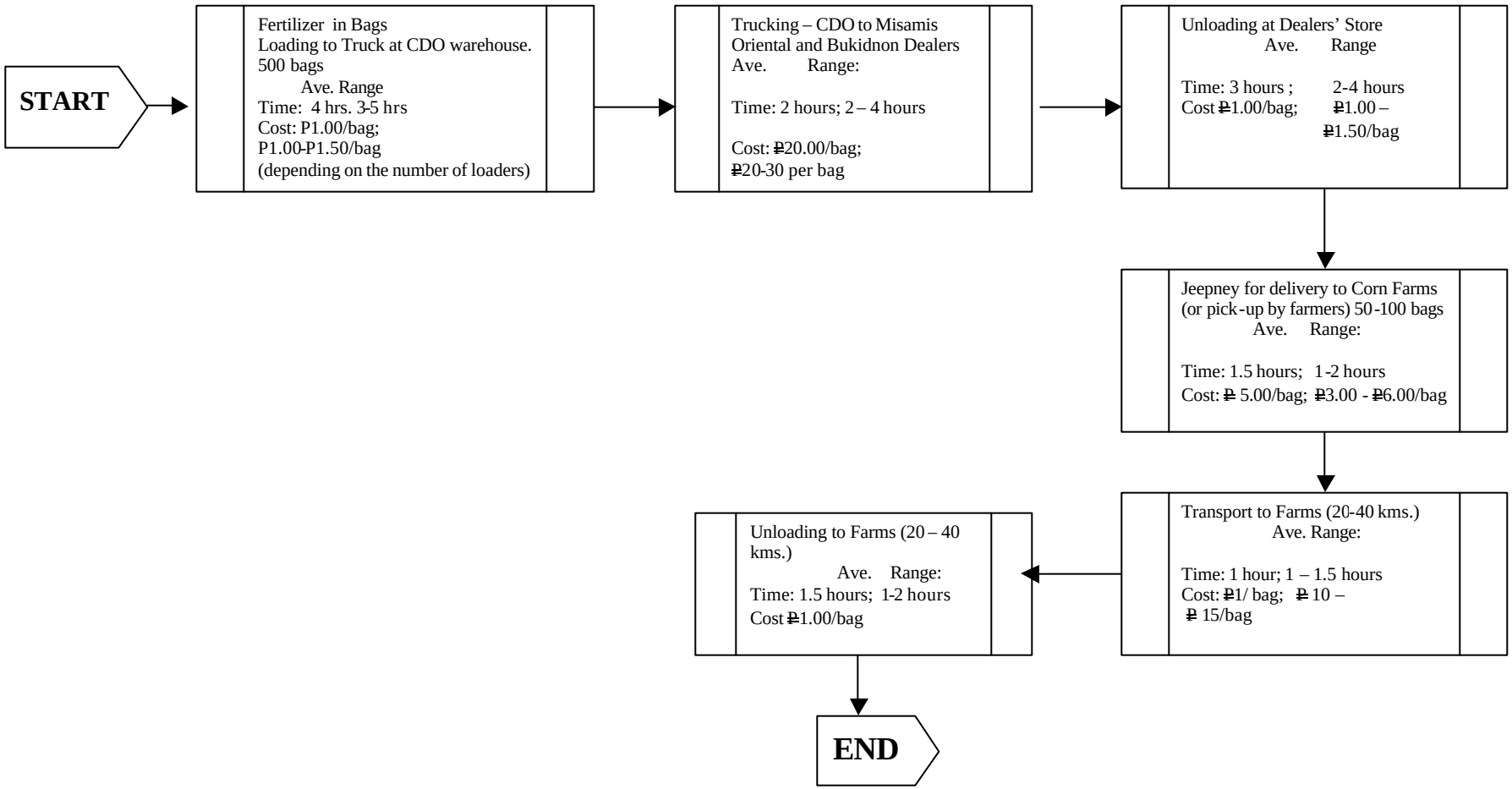
Table 3.1: Freight Rates for TEU of Fertilizer Shipped from Manila to CDO

	₱ /TEU	%
Per CBM (Inclusive Of VAT)	850.6	
Per CBM (Exclusive Of VAT)	773.27	
Freight	15,310.74	69.1
Stamp	10	.1
Wharfage (CDO)	69	.3
Wharfage (Destination)	69	.3
Handling (CDO)	596.75	2.7
Handling (Destination)	823.35	3.7
Weighing	33	.2
Trucking (CDO)	1,713.00	7.7
Trucking (Destination)	3,540.00	16.0
Door To Door	22,164.84	100.0
Door To Pier	18,624.84	84.0
Pier To Door	20,451.84	92.3
Pier To Pier	16,911.84	76.3
Pier To Pier Origin Charges	16,809.84	75.8
Note: In Bags/Barrel		

Figure 3.1 illustrates how fertilizer is delivered to farmers. Farmers order from dealers prior to planting season. The dealers then order from the CDO-based importers/distributors, normally on a "suki" or "long-term" arrangement for which they are given volume discounts. Distributors at CDO deliver the "order" against a down payment with the balance due in 60 days. Farmers' cooperatives also order from distributors directly. The dealers normally hire a truck for "pooled" order to minimize trucking cost. A truck typically has 5 to 10 tons in 50 kgs. bags. The cost for transport is about ₱20.00/bag and is paid by local dealers. Travel takes about 2 hours depending on distance, traffic and road conditions. The fertilizer is unloaded and transferred to dealers' storage area (near his store) in pallets. This requires 3 to 4 persons and takes 2 to 3 hours at a cost of ₱1.00 per bag.

Dealers prepare smaller consignments, 10-20 bags to a maximum of 60 bags, for sale to farmers' groups, who hire a jeepney to pick up the consignment (about ₱ 5.0 bag). Transport time is about 1 hour. The unloading cost at the farm is ₱0.50 to ₱1.0 per bag, depending on distance of farmers' bodega or warehouse.

Figure 3.1 Fertilizer Supply chain for Fertilizer Shipped from CDO



MARKETING AND DISTRIBUTION

Yellow corn is grown as a commercial crop and sold by the farmer to local agents who, in turn sell it to larger traders or the buyers for the mills. Local grain traders buy from corn farmers and sell to the integrator/ miller in Cagayan de Oro and Cebu. The mills grind the corn and sell the feed to dealers (wholesaler/retailer) who sell directly to hog and poultry raisers based in Cagayan de Oro and Cebu. The mills sell the grain to distributors who sell it to the livestock farms. Figure 3.2 shows the flow of corn from Bukidnon to Cagayan de Oro, the inter-relationships of traders with livestock raisers, feed millers and corn oil manufacturers for yellow and white corn grain, grits and corn by products.

Alternatively, corn is consolidated and shipped in bags or in bulk to Luzon where it is milled into feed. The bulk consignments are loaded at facilities in Cagayan D'Oro and General Santos and off-loaded at bulk terminals along the Pasig River. Since there is little reduction in volume as a result of the milling, there is no advantage to locating the mills closer to the farms. Furthermore, it is easier to prepare and sell feed mixes when located closer to the market.

A flow chart showing the participants in this chain is presented in Figure 3.3. The participants include

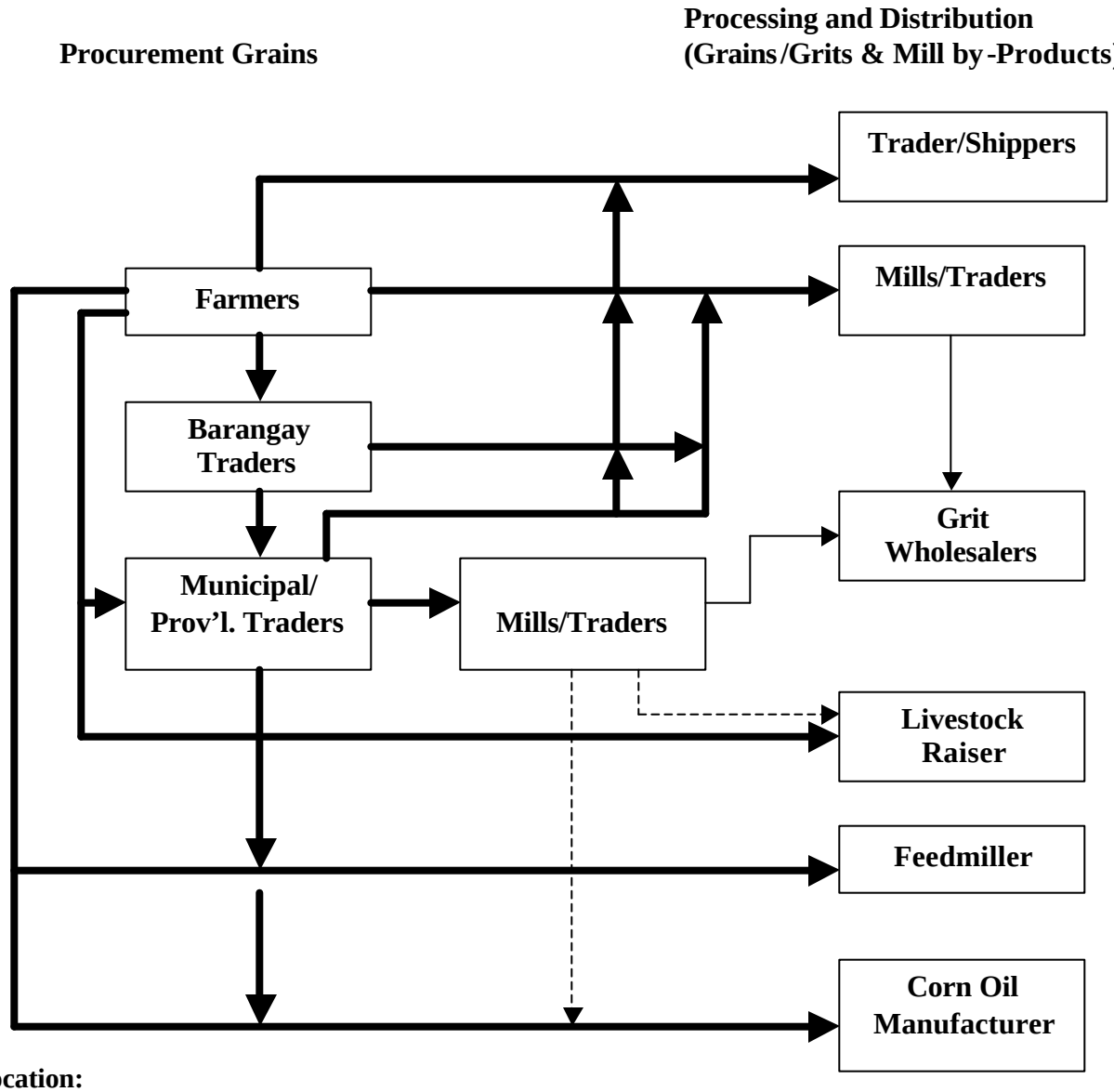
- Grain traders –small, medium, and large scale traders who deal with farmers and other traders in the locality (barangay, municipal and provincial)
- Integrator/feed millers – who manufacture feeds for commercial and non-commercial sale.[16]
- Corn Millers – who mill both white and yellow corn grits and sell these to wholesalers and manufacturers of corn starch (mainly based in Cebu) and corn snack foods (Cebu and Manila).
- Commission agents/ Canvassers
- Wholesalers/ shippers/ truckers – who distribute corn grits to wholesalers/retailers within and outside the province
- Wholesalers/ retailers
- Feed Dealers
- Retailers

In Southern Mindanao, especially South Cotabato, more than 150 wholesalers/millers and the National Food Authority (limited scale) are involved in corn marketing. These interact either directly with farmers or indirectly with smaller traders or commission agents/canvassers based in General Santos City, Marbel and other corn-producing municipalities.

The corn brought by traders from South Cotabato is transported and unloaded at an informal trading center in General Santos where millers, large traders and agents negotiate the price. These traders/agents already have purchase orders from customers based in Cebu and Manila

[16] Commercial feed millers manufacture feeds for sale to backyard and commercial hog and poultry raisers (eg. Lim Ket Kai) and non-commercial or independent feedmillers process feeds mainly for their own consumption/ utilization. Some large feedmillers produce primarily to support their integrated hog and poultry business operations. SMC, Vitarich, RFM, GMC, URC and Purefoods (acquired by SMC) are integrators

Figure 3.2 Flow of Corn from Bukidnon to Cagayan de Oro



Location:

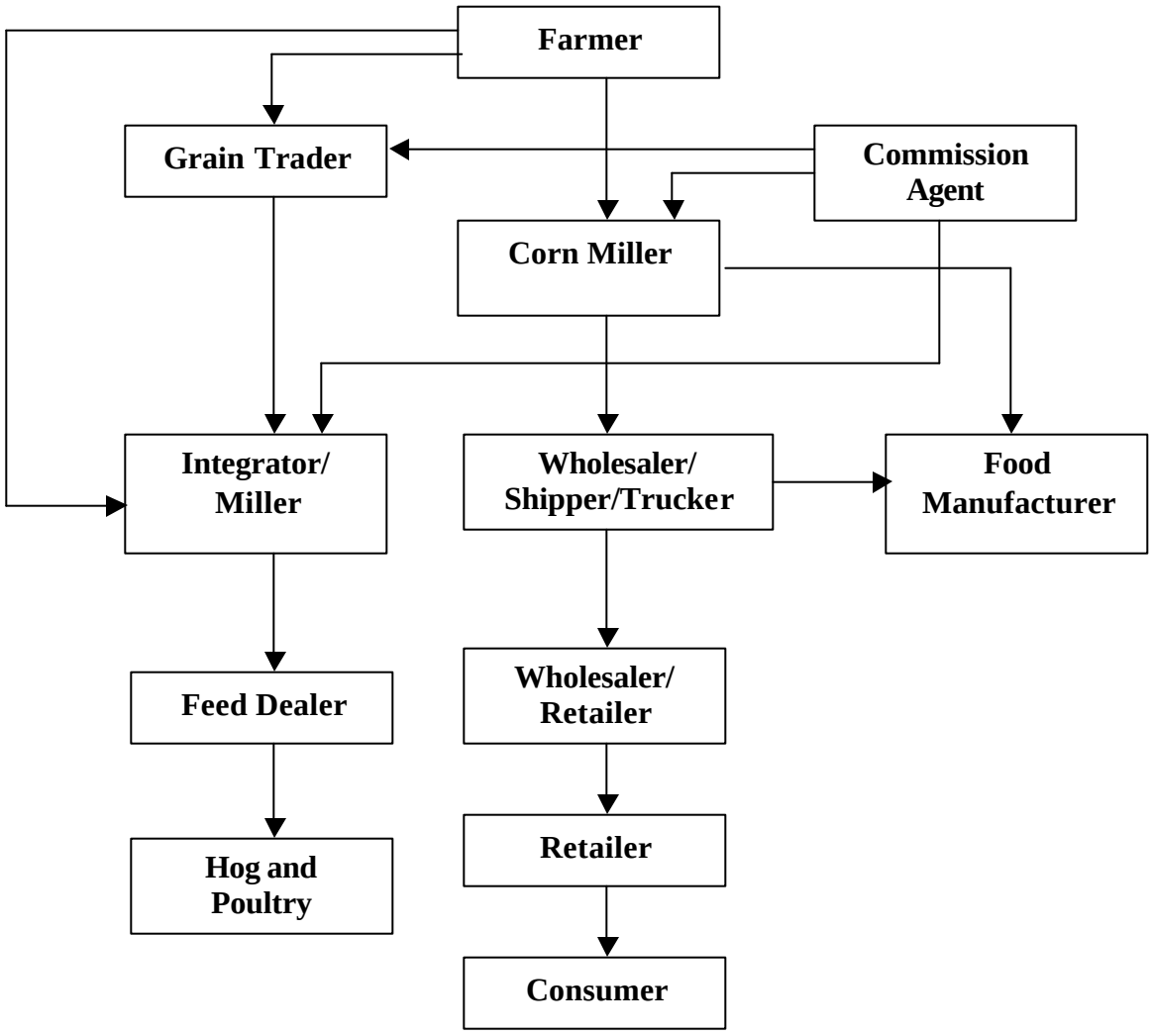
	Cagayan de Oro
Municipalities of Bukidnon:	Misamis Oriental
	Gingoog, Misamis Oriental
Malaybalay and Don Carlos	Manolo Fortich
	Bukidnon

Legend:

Yellow & White Corn Grain
Corn Grits
Mill by-products (tik-tik, corn bran, etc.)

Source: Interviews of farmers, traders and corn millers.

FIGURE 3.3 PRIVATE MARKETING CHANNELS



Source: Interview with Traders

The large-scale corn traders have about 60 percent market share; the small-to-medium scale traders about 30 percent. Corn is brought to the warehouse of large millers/traders or to the pier for transshipment. The rest is split between small-scale, barangay-based traders and the NFA. The yellow corn logistics are summarized in Figure 3.4 indicating the cost and time for the different marketing and distribution activities.

TRANSPORT

Normally the corn is shipped in 50 kg. bags from the farm to the final destination. Bulk transport is used only in situations when:

- the end-user in Manila can handle bulk corn
- tramp vessels are available
- the shipper has sufficient volume.

Even then the bagged corn is loaded manually on to the ship by emptying the bags into the hatches of the tramp vessel in General Santos.

The corn is transported from the farm in trucks although there are still cases where corn is transported using tricycles, carabao and horse-driven carts or jeepneys (depending on the condition of the farm-to-market road and the season). Transit time is a minimum of 5 hours for 100 sacks. Figure 3.5 shows the distances and modes of transport between the corn producing areas in Bukidnon and Cagayan de Oro. After the corn is harvested, it is dried, shelled and then sold to traders/millers who have buying stations in the locality. The traders use their own trucks to transport corn from farms/ buying stations to their warehouses and from warehouses to the pier or wholesalers/ retailers. The trucks used are mostly reconditioned 6, 10, and 12 wheeler open trucks with 150 to 500 sack capacity. Tarpaulin sheets are used to protect the bagged corn piled from pilferage and adverse weather conditions. From Bukidnon, the trucking rate ranges from ₱20-₱ 30 per sack to Cagayan de Oro (about 2 to 5 hours) depending on the location of the farm, traffic and the road condition.

Sea transport from Mindanao to Manila requires at least 2 days and is normally done using liner vessels and 20 foot containers. The 50-kg. sacks are manually loaded in containers either at the wharf or the shipper's premises. At Manila North Harbor, the containers are loaded on to trucks. At least 5 hours is required to clear the cargo. The corn is then transported to the consignee's premise. The trip time depends on traffic conditions and the location of the warehouse, but requires a minimum of 5 hours. At the warehouse, the bagged corn is taken out of containers and the empty containers are returned to the shipping line within 8 hours. The freight rate for corn in containers shipped from CDO is shown in Table 3.2 Comparative freight rates for corn and other feed moving in containers on shorter distance routes, such as CDO-Iloilo and CDO-Dumaguete are lower but the handling costs are higher as shown in Tables C.8 and C.9.

Table 3.2: Freight Costs for Corn Shipped
Cagayan D'Oro (CDO) to Manila

	10 Foot	20 Foot
Freight	6,922	13,845
Stamp	10	10
Wharfage (CDO)	34	69
Wharfage (Destination)	34	69
Handling (CDO)	298	597
Handling (Destination)	411	823
Weighing	22	33
Trucking (CDO)	1,201	1,713
Trucking (Destination)	2,480	3,540
Door to Door	11,413	20,699
Door to Pier	8,933	17,159

In Northern Mindanao, the corn traders noted that the price of corn in Mindanao is higher, ₱ 8.00 per kilo, than in Manila, ₱ 7.40, so the farmers prefer to sell their produce to integrators and traders in Cagayan de Oro and no longer ship them out to Manila. Manila-based feed millers/integrators are importing yellow corn substitutes, which costs less than the locally produced corn.[17]

[17] In Mariveles, Bataan, the Asian Terminals Inc.owns and operates an integrated bulk handling and storage facility for grains. Large foreign vessels carrying imported feedgrains (mostly corn and soybean meal) in bulk are unloaded, moved by conveyors and stored in bulk in silos. These are then loaded unto barges (bulk) for transport to major users in Manila or bagged and transported in trucks to medium and small users in neighboring provinces.
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Figure 3.4 Yellow Corn Logistics

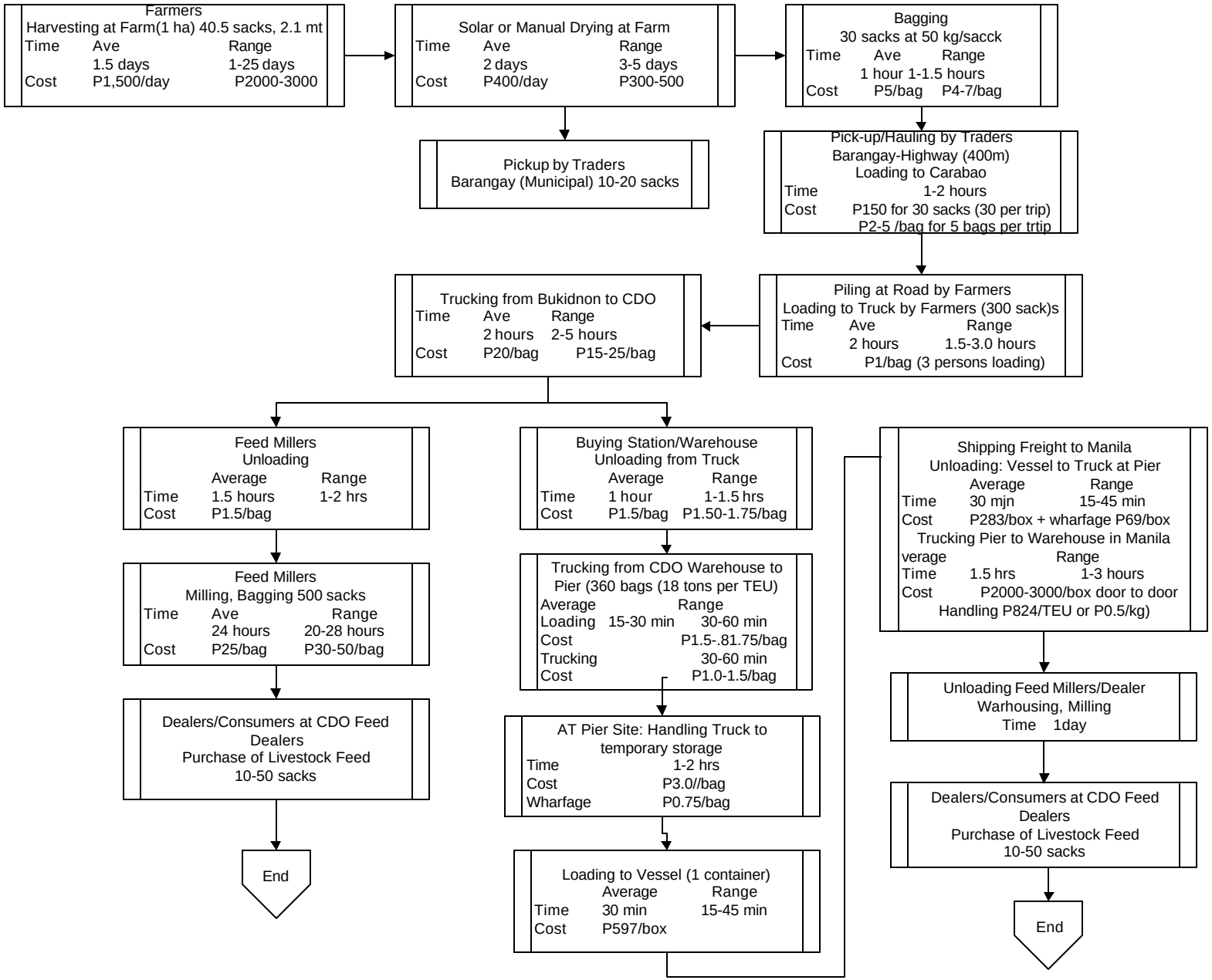
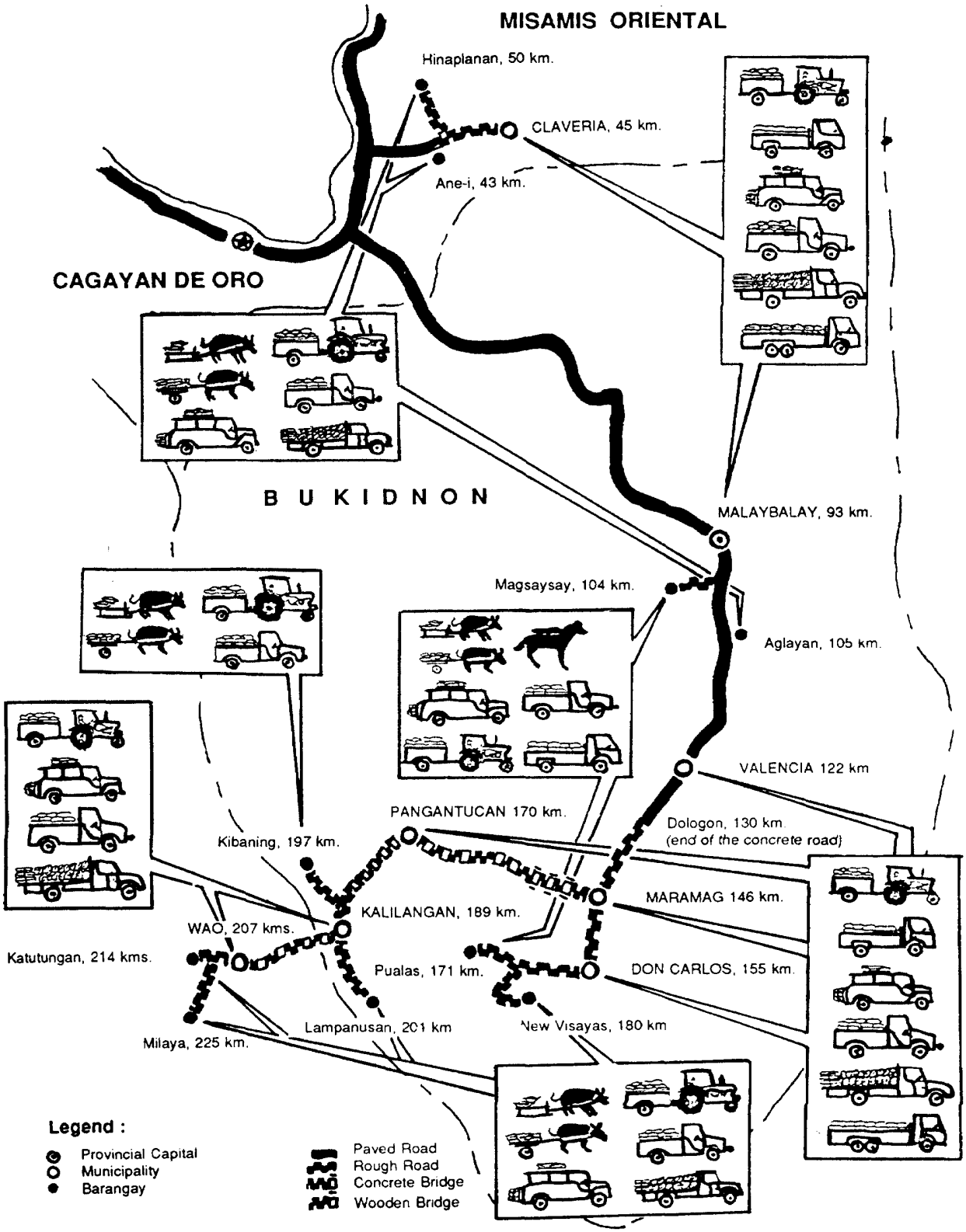


Figure 3.5 Distances from Cagayan de Oro and Mode of Transportation Within Corn Producing Areas



With break-bulk shipments, the transport costs comprise about 20 percent of the wholesale price of corn. The freight cost increases as a result of prolonged loading and unloading, traffic congestion during transport, unnecessary transport of damaged grains and impurities, avoidable handling (e.g. re-bagging due to poor condition of bags) and quantity losses from spillages, pilferage and quality deterioration. Speed money is sometimes paid on the road.

PACKAGING AND HANDLING[18]

Corn is transported using 50-kg. plastic polypropylene bags. These are re-used 4 to 5 times, or for a period of up to 2 years.[19] The bag costs ₱12.00 to ₱15.00 each. The bags are handled by laborers using pushcarts, gangplanks, nets and slings (attached to the vessel winches in the piers). These involve multiple movements**.** For example, at the mill, there are five moves.:

- Truck -> weighing scale
- Scale -> pile
- Pile -> mill
- Re-piling
- Re-bagging

Labor is paid per bag per movement (average about ₱1.50 per move). The damages, spillages and other losses average 1 percent-2 percent but vary depending on the weather condition, distance between pile and points of loading and unloading, height of the pile at the warehouse, condition of the bags/sacks used, number of movements, and undue pressure when the bags are dropped onto the floor.

The NFA has directed all businessmen dealing in grains to comply with a set of industry packaging and labeling standards.[20] The packing type dictates the type of handling, transport and storage system and the extent of product losses and damages. Packaging cost is about 0.5-0.9 percent of total logistics cost, [21] which accounts for about 25 percent of the wholesale cost. If losses from spillage, pilferage and quality deterioration are added then logistics cost will be about 35 – 40 percent of the wholesale cost.

[18] At the port, the arrastre and stevedoring services are provided by private cargo handling company (ies) franchised by PPA and they vary accordingly to handling capability and in most cases, provide only labor with no mechanized facilities.

[19] The old bags could no longer hold 50-kg. and substantial quantities are spilled during handling and transport.

[20] For corn the following specifications of packaging have been recommended: the size is 100 x 60 cm, weight is 110 grams, bursting strength is 1,725 kPa, breaking load is 393 and warp filing is 344, thread count is 12, warp filing is 11, seaming (mm) turned edges is 25 and number of stitches is 12, seamed and must not be glossy. It was able to enforce millers to comply with the packaging standards but not farmers and traders.

[21] Logistics cost include packaging (sack depreciation and plastic containers), handling (physical handling of bagged products from point to point, including stevedoring and arrastre charges in the case of sea movements), transport (trucking, sea freight and wharfage in the case of sea transport) and warehousing (storage costs at different point in the market).

Handling costs include labor for moving products within the storage areas and to/from the transport vehicles. It also includes cargo-handling labor in the ports. For corn transported by land and sea, the handling cost is only about 3 percent of wholesale cost due to low labor costs. However, the labor is inefficient and the handling creates damages with the result that the total cost of handling is much higher. Use of mechanized handling facilities increases the direct costs but lowers the complementary costs.

The shippers interviewed, including NFA, noted that the manual handling and use of second hand plastic bags in the movement and storage of corn have contributed to the increase in costs and product losses. Quantity losses are due to spillage and pilferage during handling and storage as well as quality deterioration. Lack of quality control at each supply chain level has resulted in lower commodity price, and thus reduction in income.

STORAGE AND WAREHOUSING

Prior to storage, the farmers and traders have to ensure that the moisture levels are low. Most farmers rely on solar drying due to inadequate number of mechanical dryers. This technology does not provide adequate quality control, especially during peak production and the rainy months. Added to this are losses during unbagging and re-bagging for drying, cleaning, shelling.

Only 3.8 percent of the grain storage facilities are bulk storage. Most are conventional warehouses in which bagged corn is stacked. These have capacities of 200-1000 bags with the height of the pile varying, depending on the warehouse layout. Wooden pallets are used where the area is prone to flooding or when the corn stocks are to be stored longer than the normal time. About 90 percent of the total warehousing capacity of 6.3 million metric tons is owned by the private sector. The NFA leases warehouse space. The small farmers do not have storage facilities but rather store corn stocks in their houses (for about 4-6 weeks).

Since the corn products are shipped from the farm in break-bulk form and sold to the consumer in bags, it is more convenient to transport bagged cargoes assuming manual handling throughout the supply chain. Only the large feed mill operations, such as San Miguel Corporation, Universal Robina, and Purefoods, have bulk handling and storage facilities, which they use to meet their own requirements. Grain traders do not invest in bulk grain handling system despite the availability of technology and the continued operations of grain terminals by feed millers and flour millers.[22]

CONCLUSION

The problems with corn grain logistics are high cost, inefficiency and poor service. In General Santos, the cost of transporting grains to Manila is about 25 percent of the wholesale price due to: a multi-layered distribution channel, inefficient regional product sourcing, poor packaging, inadequate and inefficient port and shipping facilities and services, poor land infrastructure, and inappropriate technology. The use of less efficient break-bulk transport is due to a variety of causes including the small scale of mills and trading operations, the lack of common-user, bulk-handling facilities, and the limited volumes being shipped. The only bulk facilities are those owned by the large feed millers who use them for their own cargo. Investments in bulk logistics

[22] NFA bulk systems suffered from poor management and losses, but private facilities in General Santos and Northern Mindanao are being efficiently utilized.

systems have been hampered by a lack of consistent government policy for agricultural development and government control over port infrastructure to the detriment of the private sector users. There is also the problem of poor road infrastructure and the limited road connections between the corn production areas and the national road network.

CHAPTER 4

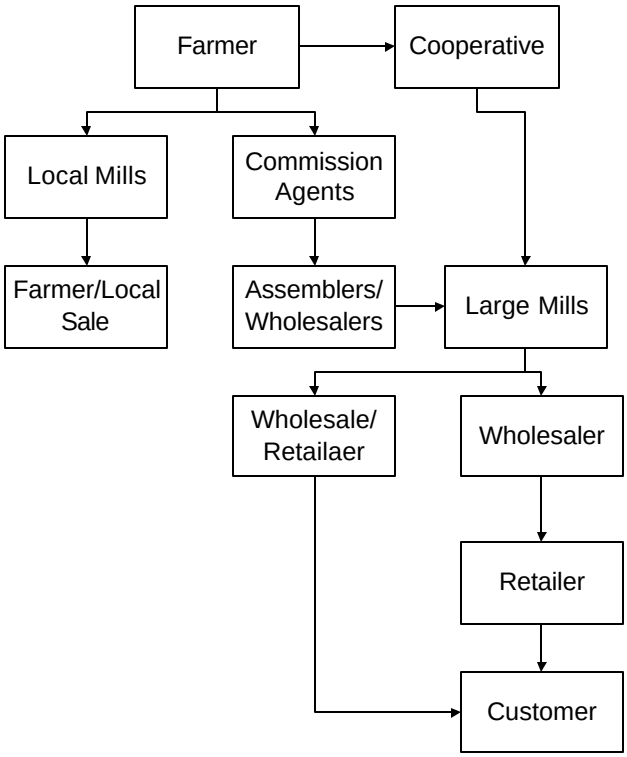
SUPPLY CHAIN: SMALL-SCALE RICE PRODUCTION

SUPPLY CHAIN FOR PALAY TO RICE TO RETAIL MARKET

The logistics for rice differs significantly from corn. The inbound logistics for fertilizer are similar but the outbound logistics are different as most of the rice is grown for household consumption. About six intermediaries are involved in the rice distribution and marketing channels: assembler-wholesalers, commission agents, millers-wholesalers, wholesalers, wholesaler-retailers and retailers.

In general, Palay passes from producers to the rice millers through middlemen such as assembler-wholesalers and commission agents (Figure 4.1). Small farmers who have limited marketable surplus prefer to sell to local buyers or nearby millers. Substantial portion of their harvest is custom-milled for home consumption. Local commission agents buy from farmers and sell directly to the mills or to traders, who sell it to the mills. There are relatively few cooperatives selling direct to the mill. Assemblers/wholesalers may opt to sell rice to wholesalers-retailers after having it custom-milled. In some cases, farmers follow a more direct route wherein Palay is given to wholesalers-retailers and retailers directly (as loan repayment). Thus, Palay and rice can change ownership several times during the marketing process.

Figure 4.1 Outbound Supply chain for Rice



The palay is transported in bags and kept in large warehouses owned by the traders or the mills. There are both small mills, which provide rice for regional consumption, and larger mills, which provide rice for shipment to Manila. Most of this activity is under the control of the private sector. The grain millers are organized under the Confederation of Grain Millers. The seven largest millers control about 50 percent of the rice trade. Since most of the rice is double cropped, the mills must have storage facilities for at least six months production.
The supply chain for rice sold in Mindanao markets is shown in Figure 4.2

The government, acting through the National Foodgrain Agency, operates Rice Processing Centers. These centers were set up to provide food security but because of budget limitations the

Agency handles a relatively small share of the rice production.[23] Milling is performed throughout the year.

Milled rice is sold to consolidators such as San Miguel and Phari or to other wholesalers who transport it to the market and sell it to retailers. The size of the consignments and bags decrease as it moves down the supply chain. The wholesaler typically buys in truckloads (35 tons, 50 kg. sacks), and then sells in smaller amounts in 25 kg sacks.

The rice is shipped from Mindanao either as large break-bulk consignments or in containers. The major gateways are Davao and Zamboanga. The consignment sizes are limited by the production capacity of the mills and the limited coordination between mills. As a result, most shipments are partial loads. Even full vessel loads rarely exceed a few thousand tons.[24] Smaller consignments are often shipped in containers in order to ensure timely transport. These consignments are shipped directly to the retailer.

Bukidnon produces about 74 percent of the rice shipped out of CDO port.[25] The largest shipments are in the months of June through August (Table 4.1**)**. Sample data from CDO port shows major outflows to Bacolod (38 percent), Cebu (26 percent), Jagna, Bohol (24 percent) and Manila (10 percent). Average consignment is about 10 tons in 50 kgs. plastic sacks.

Table 4.1
Commodity Flow Of Rice Exit Cagayan De Oro Port
February To August 2001 (000s Tons)

Destination Markets	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**Total**
Bacolod	-	0.5	0.7	1.1	47.0	0.7	1.1	51.1
Cebu	14.5	0.4	3.6	0.8	0.5	0.3	14.9	35.0
Iloilo	-	-	0.3	0.1	-	0.3	-	0.7
Jagna	-	-	-	10.0	10.0	12.5	-	32.5
Manila	1.0	0.1	0.1	0.1	12.0	0.2	0.5	14.0
Tagbilaran	0.3	0.1	-	0.3	-	-	0.1	0.8
Total	15.8	1.1	4.7	12.4	69.5	14.0	16.6	134.1
Percentage	11.7	0.8	3.4	9.3	51.9	10.4	12.3	

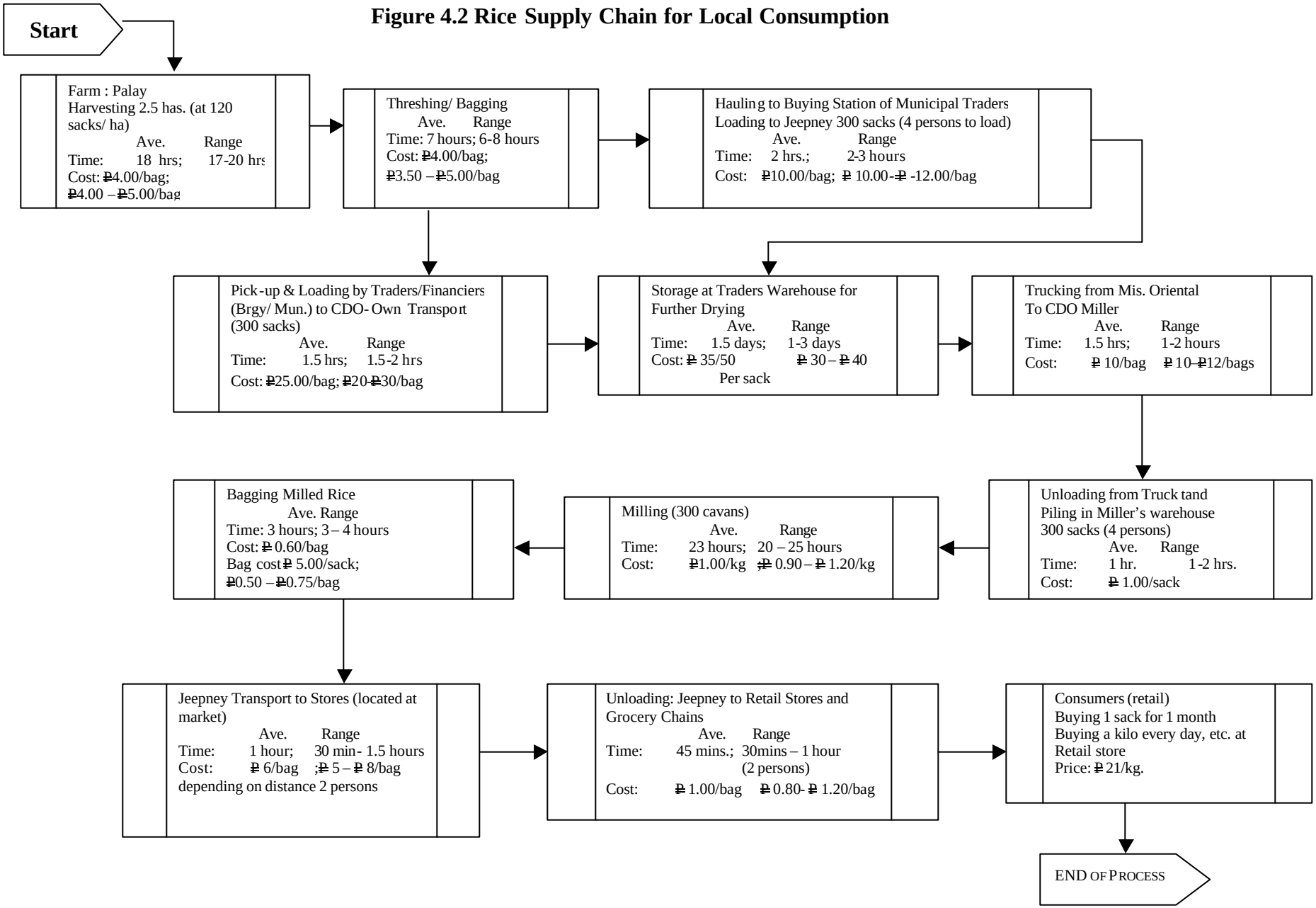
Source: Cagayan de Oro, PPA

[23] The NFA was originally intended to be a buyer of last resort for the farmers and to use its purchasing power to maintain a floor price for palay. However, limitations on budget and storage prevented it from having a significant role in the market place. Instead, it acts as the sole importer of rice and uses the profits from this activity to fund purchases of domestic rice. The domestic rice was formerly milled by NFA at its Batangas facility but this has been sold and they now sell the palay directly to the private mills.

[24] The other reason for limited consignments is the slow handling rate at the Philippine ports. Given the short voyage time, larger vessels would not offer a competitive advantage since most of their time would be spent in port loading and unloading the grain.

[25] Cagayan de Oro is the major trading center with four major markets: Agora, Cogon, Carmen and Puerto. Agora was originally established for fish trading; across the facility are private stalls which undertake fruits and vegetables trading. There is limited space allotted for wholesaling and "bagsakan" and a lack of storage facilities.

Figure 4.2 Rice Supply Chain for Local Consumption



PACKAGING, STORAGE AND HANDLING.

Prior to milling, the rice farmers and traders have to ensure that the moisture levels are low. Most farmers, in the absence of mechanical dryers, use solar drying. This limits the quality especially during peak production and rainy months. Bagging and re-bagging of rice reduces both quality and quantity. Typical rice warehouses store only about 50 tons of bagged rice neatly piled. In the case of small farmers, there are no storage facilities and rice stocks are stored in their houses (for about 4 weeks storage period).

Rice is traded in break-bulk form since the retailer and consumer sector require product delivery in bags. The bags are handled manually by laborers who are paid about ₱1.50 per bag-movement (this is the average per move). Losses due to damage, spillage and other factors are estimated to average 1 percent

Logistics costs are high due to, traffic congestion, prolonged loading and unloading, speed money, damaged grains and impurities, double handling (e.g. re-bagging due to poor condition of bags), quantity losses from spillages, pilferage and quality deterioration. When all these factors are considered, the total logistic cost is about 40 percent of the wholesale cost of rice.

CONCLUSION

The major logistics problems in rice transport are a multi-layered distribution channel; poor post-harvest processing and packaging; inadequate and inefficient port and shipping facilities and services; and poor land infrastructure. The marketing and distribution channels cause deterioration and unnecessary transport and handling cost.

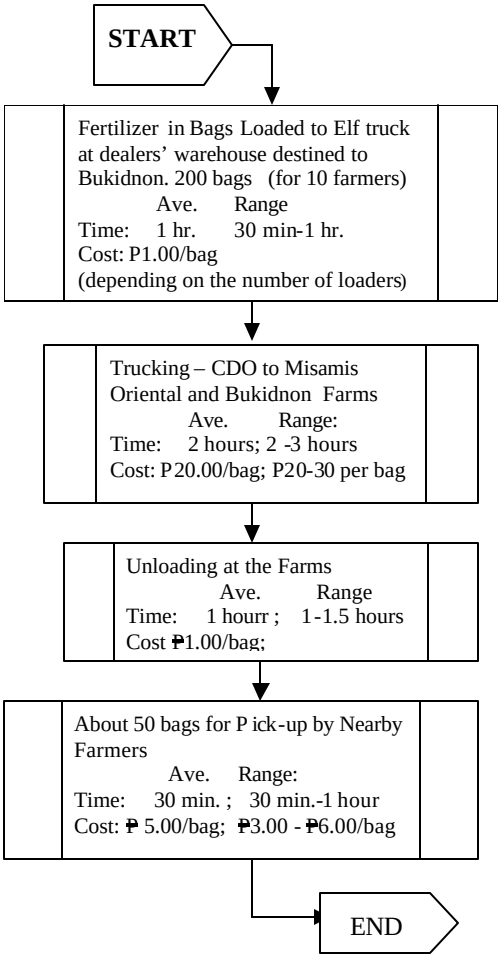
CHAPTER 5

SUPPLY CHAIN: NORTHERN MINDANAO VEGETABLES

SUPPLY CHAIN FOR FERTILIZER AND AGRIC-CHEMICALS

The logistics chain for vegetables comprises fertilizer input to vegetables production and sale of production to regional markets. Tomatoes and potatoes were selected for analysis of the downstream supply chain. The supply chain for fertilizer supplied to vegetable farms is similar to that for rice and corn. However, most farmers get their inputs not from fertilizer dealers but more from traders/financiers based in Cagayan de Oro. They provide fertilizer and other inputs to the small farmers, with only 1 ha. or less, after the planting season (about 8 bags per farmer per week) on a credit basis. These traders purchase fertilizer from dealers and charge the farmer ₱520 per bag, which includes transport and handling cost added to the dealers' price of ₱490 per bag. The Department of Agriculture in Northern Mindanao estimated that the average cost of organic fertilizer per hectare is ₱6,000 and inorganic fertilizer is ₱ 2,300. An illustration of the supply chain is shown in Figure 5.1.[26]

Figure 5.1 Fertilizer Logistics for Tomato Growers



SUPPLY CHAIN: FARM TO MARKET

The parties involved in marketing vegetables include:

- Farmer-traders
- Contract buyers
- Financier-wholesalers
- Assembler-wholesalers
- Wholesalers
- Wholesalers-retailers
- Retailers.[27]

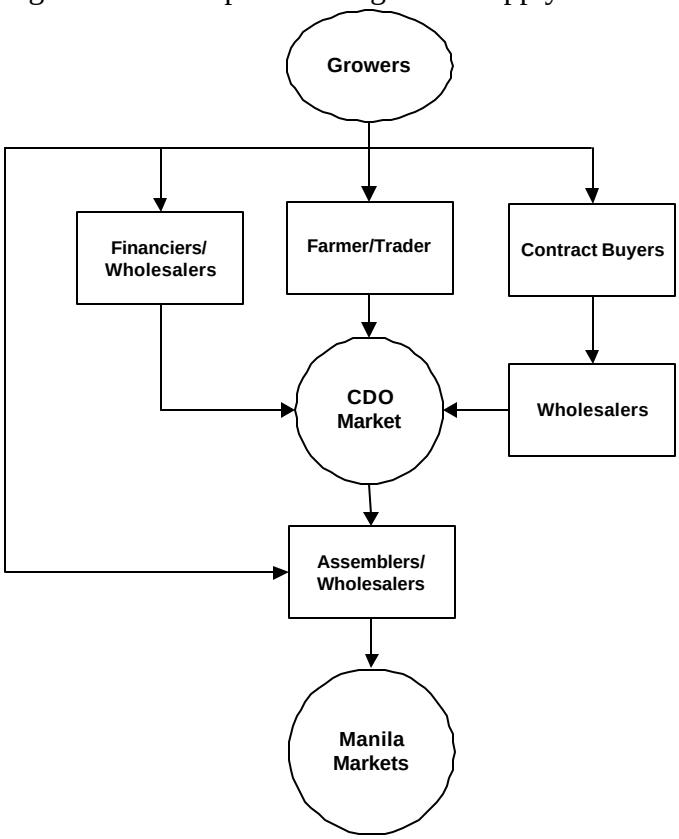
Farmer-traders based in the barangays finance the production of smaller farmers and bring the vegetables to Agora Market in Cagayan de Oro.

[26] Fertilizer per bag costs ₱550 delivered in remote farms. CDO price ranges from ₱ 480-500 per bag.

[27] Survey interviews in CDO with vegetable traders and producers in March 2002.

Alternatively, the vegetables are procured by the contract buyers at agreed price for the entire production volume ("pakyaw"). Two common financing schemes are (1) full finance (i.e. all inputs-seeds, pesticides and fertilizer are advanced) and (2) partial finance (only specific inputs are financed). The farmer-traders buy vegetables at discounted prices and deduct the cost of inputs advanced to the farmers. The contract buyers may initially finance the farmers' production activities in terms of the imported seeds and other inputs to assure the supply particularly during peak selling periods. These buyers also supply packaging materials and storage facilities. The financier-wholesalers or "bodegeros" provide capital to buyers to procure from farmers. Assembler-wholesalers known as "viajeros" have the financial and logistics capability to procure vegetables directly from farmers/producers and traders. They transport vegetables to major demand centers such as CDO, Cebu City and Davao City. They have private trading stalls and either own or rent "bodegas." In Misamis Oriental, the vegetable growers prefer selling to assemblers-wholesalers (75 percent) in Cagayan de Oro who then ship the major volumes to assemblers-wholesalers and wholesalers in Divisoria trading market and other major markets in Metro Manila. The relationship between the various parties involved in this supply chain is shown in Figure 5.2.

Figure 5.2 Participants in Vegetable Supply Chain



Potatoes: Potato farmers/growers use 40-63 sacks of fertilizer per ha. at a cost of ₱ 550 per bag. The seeds cost about ₱ 60,000 and overall production costs are about ₱80-90 thousand per hectare. The seeds are imported from Colorado, USA, shipped to Cagayan de Oro and trucked to Bukidnon[28] in 40 foot containers with 25 tons maximum weight. Okijo ships 200 tons of imported seeds to farmers. They also provide farmers with fertilizer inputs.

The growing season is June to July. Potatoes are harvested 90 days after planting. Prior to harvesting, potato tubers are "hardened" in the soil. About 20 percent are left in the soil. Labor cost is ₱ 50-90 per person per day to harvest and requires 40-60 person-days per hectare. The contracted farm gate price is ₱ 14.35 per kilogram, a margin of 26 percent over the production cost, The harvested potatoes are placed in 33 kg. plastic sacks. The farmers usually encounter difficulty in bringing the produce from farm-gate to barangay road. Hauling cost by carabao/cow from farm to main road is ₱ 2.00 per bag for a 300-400 m distance. The farmers

[28] Department of Trade and Industry approves importation.

generally transport only 5-8 bags, which may take up to one hour. The cost of filling a sack with potatoes is ₱1.0 per sack. It takes 10 minutes to fill a sack, including separating undersized and regular size potatoes.

At the road, the potatoes are sold to traders, who trim, repack, and weigh the potatoes for shipment to the market. The sacks are then loaded (at ₱ 1.00 per sack) on to trucks destined for the warehouse of the vegetable buyer in CDO. The trucks used are 8 and 15 tons. The cost for transports to CDO is ₱0.30 - ₱1.00 per kilo depending on the distance. Loading takes one hour or less. Trucking to Baloi takes 2 hours with a charge of ₱.30-.50 per kg. For double the distance, travel takes 4 to 5 hours and trucking cost increases to ₱1.00 per kilo. Losses due to damage during handling are reported to be 10 percent.

Part of the harvest is sold under contract to URC in Impasugong, Bukidnon where it has a bodega beside the main highway. The rest is sold in the Agora market to processors and to CDO wholesalers who in turn sell to Iloilo and Bacolod wholesalers. Buying agents from the provinces of Zamboanga del Norte, Zamboanga del Sur, Lanao del Sur and Lanao del Norte also buy potatoes in the wholesale markets in CDO.

At CDO, the sacks are unloaded at a cost of ₱ 7.00 per sack, and sorted prior to shipment to Manila. The sorted potatoes are then placed in 10 and 20-foot ventilated vans depending on the size of orders from Manila buyers. The smaller vans hold 8 tons while larger hold 16-17 tons. These are then transported to the port, a distance of about 7-8 kms distance. The sea freight to Manila for vans is ₱ 9,000 and ₱ 16,000-17,000, for 10 and 20-foot vans, respectively. For break-bulk, the consignment size ranges from 250-300 bags and the freight rate is ₱1.50-2.00 per bag of 30 kgs. For container vans, the rate is ₱3.00 per bag.

Tomatoes: For tomato growers, fertilizer inputs cost ₱8,600 per ha., pesticides ₱7,600 and transport of inputs ₱1,000. The resulting ₱5.27 production cost per kilogram is 70 percent of the farm gate price of ₱7.53 per kg. The yield per hectare is 9,201 kgs. Total cost of production is about ₱49,000 to ₱50,000 with net returns of ₱21,000 per hectare.

Post-harvest treatment by growers includes cleaning, sorting, and packing. If cleaning is necessary, the common practice is to wash the fruit with water. Growers harvest the tomatoes by carefully handpicking the mature ones and then separating good quality fruits from those with visible defects. This process not only improves price and shelf life but also facilitates packing, handling, and selling.

Packaging is done using bamboo baskets (*kaing*). The *Kaing* has become the de facto unit of measure in the sale of tomatoes to traders (wholesalers, viajeros, agents, retailers, etc.) Each fully loaded *kaing* weighs about 35 kg. Because of the decreasing supply of bamboo, these baskets have become expensive. Fully-ripe tomatoes are packed in separate containers meant for retailers who prefer tomatoes for immediate consumption. Tomatoes at similar stages of ripeness are placed in a container. The ripest ones are placed on upper layers to minimize compression. Traders generally rely on the growers to clean, sort, and pack the tomatoes in order to avoid frequent handling. They then wash the fruit with water to remove soil particles and insecticide and improve appearance and then re-sort them to remove rejects and to select those that suit buyers' requirements.

Growers do not store tomatoes because the produce is sold immediately after harvest. They may store the tomatoes at home for a few days until market day or until traders-buyers come to pick up their produce. Agora-based traders send jeepneys or small trucks to pick up the produce or may use area-based vehicles and pay the necessary charges. They bring the vegetables to Agora market where trading takes place.

The bagsakan area at Agora public markets serves as the major trading center. Traders with market stalls or bodegas temporarily store tomatoes awaiting buyers. Neither growers nor traders are familiar with modern packaging, storage and transport using cold chain logistics.

For shipment to market, the tomatoes are mixed with other vegetables but packaged separately prior to trucking to Agora market. They are placed in crates of 15 kgs prior to sorting in the wholesaler's stall (Figure 5.3). The wealthier farmer-traders supply vehicles to haul vegetables to the wholesale market in CDO. They charge P12-P15 per crate from barangays near to Cagayan de Oro and P25 or more for greater distances. These vehicles include jeepneys (60 crates), single-tire Elf (150 crates), double-tire Elf (180 crates) and Forward trucks (300 crates).

Figure 5.3. Carrots at Bagsakan Area

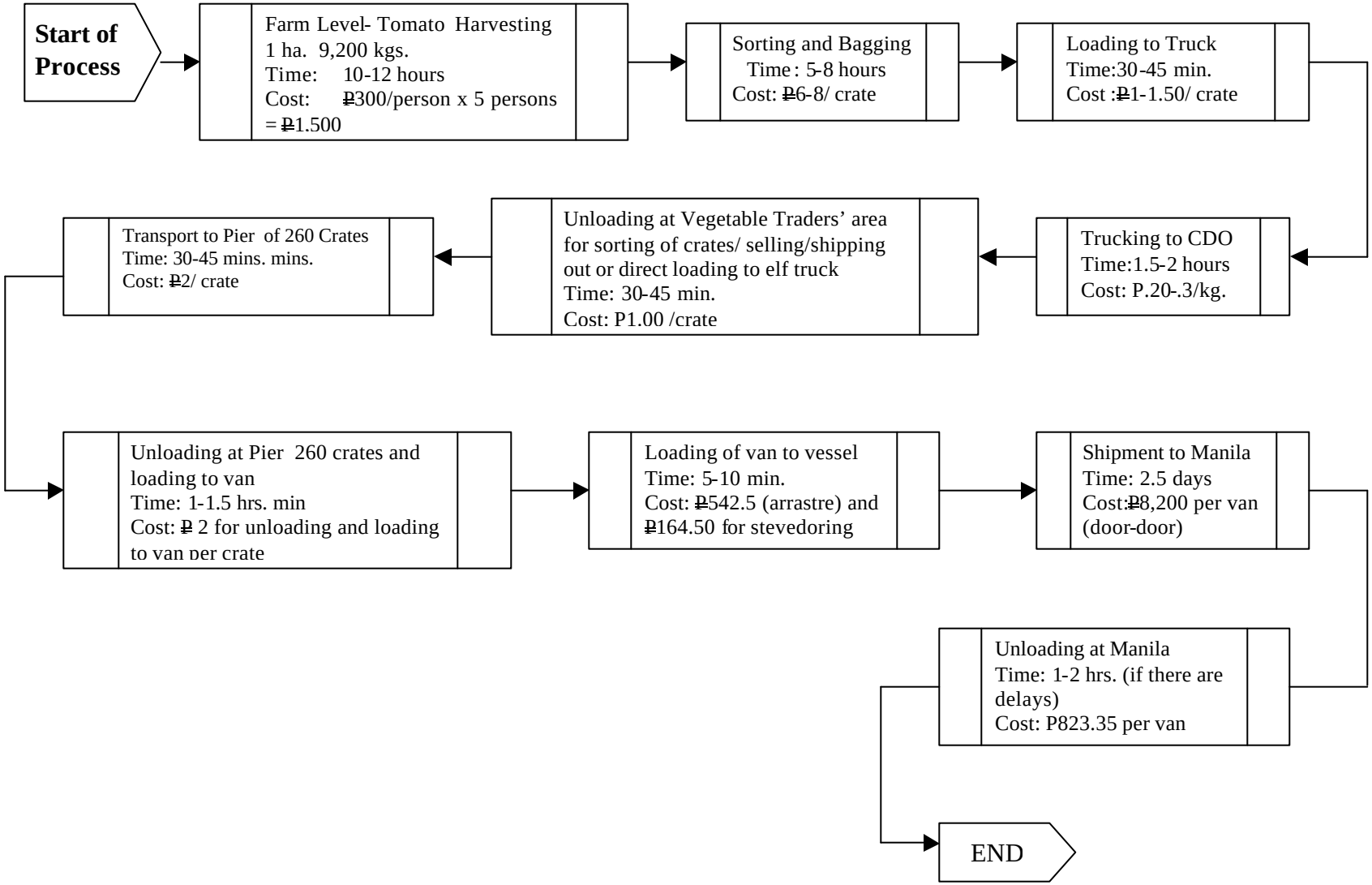
Trucking cost ranges from ₱0.30 - ₱0.50 per kg. The break-even price for wholesalers is ₱140-150 per crate (farm-gate price ranges from ₱5-7 per kilo). They hire jeepneys for ₱400 to transport from Agora market to airport. If they own the jeepney, they spend ₱200- ₱ 250 for the gasoline and about ₱100 for driver. Labor cost is ₱2.00 per crate to load to jeepneys and unload at the airport. There are viajeros that buy vegetables in Cagayan de Oro and ship them to Iloilo, Bacolod and Samar. A supply chain for shipment of tomatoes to Manila is shown in Figure 5.4.

The tomatoes are sorted into small, medium and large sizes at Agora market for shipment to Manila. Quality control is strict with the slightest bruise causing rejection. Final inspection is done by random sampling at the pier before the tomatoes are loaded into container vans for shipment to Manila. The peak harvest is July through September since Luzon tomatoes start arriving at the Manila markets in October. Buying agents/shippers pay ₱300 per crate for airfreight during these months.

Growers can enter into marketing agreements with agribusiness firms such as Eden Corporation[29], which provide cash advances and guarantee a floor buying-price. The growers are offered guaranteed buying prices. Eden Corporation advances the cost of crates and trucking from the farms to Cagayan de Oro. The prices are based on wholesale prices in Manila with the fixed margin of Eden and the cost of transport factored into the buying price. Tomatoes are inspected by Eden at the farms before they are brought to Cagayan de Oro pier. Eden contracts with tomato growers from July to the end of November or December depending on wholesale prices.

[29] Eden Corporation is a Mindanao-based agribusiness firm engaged in the production, shipping and trading of various agricultural commodities, offers marketing agreements to selected tomato growers.

Figure 5.4 Tomato Supply Chain for Shipment to Luzon



During June to December, the weekly volume of tomatoes shipped to Manila is 50 to 70 thousand crates. Shipments from Cagayan de Oro to Manila take 2 days in an enclosed van of 10 tons. Shippers report a 1 percent spoilage rate if there are no delays but this can reach 15 percent when cargo is shut out. There is little damage reported for other vegetables mixed with tomatoes (in separate cartons). Traders suggest that there is a need to establish a vegetable landing post similar to that in Baguio City in a 5-ha. area. This would be managed by a private sector cooperative.[30]

If tomatoes are shipped by sea transport, shippers/traders pay ₱20 per crate sea freight, and ₱ 2.00 per crate for loading and unloading at the port (₱1.00 per move). The door-to-port rate per container van, which holds 258-260 crates, is ₱8,200 from Cagayan de Oro to Manila. Tomatoes are also shipped by air in consignments of 5-10 tons daily from June to December. Vegetable growers such as Vava Veggie ship by air to institutional buyers in Metro Manila with shipments based on specifications for size and color of tomatoes from MacDonalds, Wendy's etc. Airfreight forwarders such as Airfreight 2100 (a licensee of Federal Express) provide the following door-to-door rates based on the total weight of all packages on one air waybill. The origins and destinations are classified into zones as shown in Table 5.1.

Table 5.1 Rate Scale (₱)

Classification	**Weight**	**1**	**2**	**3**
Minimum	1 kg	70	80	90
Add-on per kg	> 1 kg	35	40	50

Scale	O-D Pair
1	A-A,B-B,C-C
2	A-B,B-C
3	A-C

Zone A (NCR, NCL and Calabarzon), Zone B (South Luzon and Visayas) and Zone C (Mindanao

The cargo airlines offer discounts to shippers (20-30 percent) depending on the volumes shipped and the established customer relationship. The cargo airlines require that shippers pay in cash prior to shipment. They no longer allow "credit" since a substantial number of vegetable shippers defaulted on their airfreight bills.

There is seasonality in the shipment of vegetables from Cagayan de Oro to major regional markets and peak months are June through August. The volumes in June, about 12.5 thousand tons are about 10 times the February volumes. The major destinations are shown in Table 5.2

Table 5.2 Volumes by Destination

Destination Markets	Feb-Aug 2001 Volume (000 ton)	% share
Manila	35.5	82.01
Bacolod	2.45	5.65
Cebu	1.2	2.77
Iloilo	3.2	7.30
Jagna	.12	0.27
Tagbilaran	.87	2.01

There are farmers that lease out their farms rather than plant the vegetables themselves. If they lease it to Dole for banana, they are paid ₱12 thousand per ha. per year. Del Monte pays ₱5thousand per ha. for pineapples, and ₱3-5 thousand per ha. for vegetables. Low prices and the high cost of inputs have

[30] In Singapore a vegetable trading post is located in an 11 ha. Property and paying lease to the government.

discouraged many farmers from planting. Most farmers therefore lease out their farms rather than plant the vegetables themselves because of the low prices and the high cost of inputs.[31] Some farmer-financiers finance small farmers fully or partially.

The quality of the vegetables suffers from heat in transit, although most shippers limit this by shipping shortly after harvest. Some of the larger companies employ a cold chain system for the perishable crops but this has yet to be widely adopted. One provider of this service, Mincool, is financing farmers in Bukidnon to generate sufficient volumes for cold storage. Vegetable traders are more concerned about establishing a large trading area classified according to type of vegetables with reefer trucks to transport the produce to airport where these are shipped. Even with the cold storage facilities, the cold chain is not complete, since the portion from harvest to the wholesaler is not covered. Figure 5.5 shows the trucks that transport vegetables from Bukidnon Misamis Oriental provinces to Cagayan de Oro wholesale market.

Conclusions

A number of conclusions can be drawn as to the effect of logistics on the growth in vegetable production in Mindanao. Deterioration of vegetables such as tomatoes can reach about 50 percent particularly if there are cargo shutouts. A combination of factors contribute to this situation: (a) multi-layered distribution channel; (b) inefficient regional product sourcing; (c) poor packaging practices; (d) inefficient port and shipping facilities and services; (e) inappropriate technology which results in product deterioration. Some of the issues that need to be addressed in the outbound logistics for vegetables are:

- The complex marketing and distribution channels of major agricultural products that result in unnecessary transport, multiple handlings, and high transaction and handling costs.

- Use of modern technology in packaging, handling, storage and transport is lacking[32], and lack of consideration for preserving product quality.

- Trading posts such as the so-called "bagsakan areas" are not spacious enough to accommodate peak unloading of agricultural products. Figure 5.5 shows trucks that are being used to transport vegetables

- Vegetable farmers are mostly small, unorganized, and controlled by traders. They cannot take advantage of improved logistics due to lack of financial capability. Cooperatives are more focused on production rather than marketing. Traders would not want to invest in better

Figure 5.5 Trucks that Transport Vegetables

[31] Annual land lease rates in nearer barangays average from ₱10-
remote barangay.

[32] Plastic crates are not being used which are stackable.

transport and storage facilities since they get relatively "good profits".[33]*:*

- Production constraints affecting production of small farmers include high cost of inputs, lack of post harvest technology for highly perishable crops, quality of seed, and inadequate location-specific production technology.

- Alternative technology is being promoted[34] including crop diversification, pressure and gravity irrigation systems, greenhouse farming, low input production technology such as mulching (use of indigenous materials/ plastic), organic fertilization and organic pesticide.

- A lack of industry standards or practices concerning product quality, product grades, packaging, storage/ transport conditions that affect temperature and humidity as well as compatibility of mix loads.

- The absence of modern technology in packaging, handling, storage and transport[35,] and lack of attention to preserving product quality.

Specific problems for farmers/growers include: low prices set by traders operating in the local public market; high price for packing materials; short shelf life, long transport times. Specific problems for Traders/ Wholesalers/ Retailers include: lack of national standards for sorting and grading of tomatoes, expensive *kaing* due to limited/ decreasing supply of bamboo, short shelf life, limited cold chain practice in Northern Mindanao.

[33] Traders do not see the need to invest in new ways of handling the products since they do not realize the potential for additional margins from improved logistics efficiencies.

[34] Discussed in the Fourth Mindanao Food Congress.

[35] Plastic crates are not being used which are stackable.

CHAPTER 6

SUPPLY CHAIN: PROCESSED FRUITS EXPORTS

OVERVIEW OF THE PROCESSED FRUIT AND FOOD INDUSTRY

Fruit processing for export was developed in 1998. In 2000, the total export earnings were US$ 83.0 million and in 2001 US$ 80.6 million. The most commonly processed fruits are pineapples, mangoes, bananas, calamansi, tamarind, passion fruits, papayas, oranges, guavas and sour soup. These are exported as

- Fruit mixed with water, sugar and other materials for fruit and fruit-based juice drinks, purees, concentrates, flavoring and ingredients for processed food products such as ice cream and bakery products.
- Dried and dehydrated fruits used as ingredients in bakery and confectionary products, such as ice cream and bakery products, breakfast cereals and snack packs
- Preserved fruits used in salad preparations, mixed with other fruits, spreads, packed in brine, made into sauce or pasta, pulped, pickled and quick frozen.

The majority of these exports are shipped in bulk or containers. (catering to regular markets in the US, Japan, Europe and Hong Kong). Retail packages are also sold in the domestic markets such as Manila, Cebu and major tourist centers.

Region IV and XI are coconut producing regions and process desiccated coconut, coconut chips, coconut water, coconut milk (liquid/powder) and copra meal, cake and pellets as animal feeds. Rice and corn are processed into snack food, cereals, noodles and pasta products and as ingredient of sauces, dry soup mixtures, bakery products and confectionery products. Cacao and cocoa powder are processed into bakery products (e.g. cookies, biscuits, etc.) breakfast cocoa, confectioneries, (e.g. candies and chocolate bars) and tonic drinks. Coffee beans are processed into coffee and coffee mixtures. Cattle milk is processed into milk, cottage cheese, cream, butter and margarine. Fresh milk from carabao, cows and goats are used as raw materials in cheese processing, confectionery, milk drinks and bakery products.

Fruit production is centered in the rural areas but the fruit processing plants are located in urban centers such as Metro Manila, Cebu and Davao. Mango processing is concentrated in Cebu, with small operations in Davao and Iloilo. Banana chips production is concentrated in Mindanao and Visayas.

There were about 380 exporters of processed fruits and vegetables in 2000 of which 80 percent are based in Metro Manila. However, the pineapple processors Dole Philippines and Del Monte Philippines, which dominate the fruit processing industry, are based in Region X or Northern Mindanao and have the largest impact on regional investments and employment.

Processed fruits are exported through the international ports of Manila South Harbor, MICT and regional ports such as Cagayan de Oro and Del Monte port of Bogo, Misamis Oriental. Available statistics on direct exports are in FOB US$ value. The top five importing countries for

Philippine processed fruits were USA, Japan, Singapore, Korea and Malaysia, which accounted for US$ 53.68 million of the export earnings of US$ 80.6 million in 2001. Prepared and preserved fruits accounted for about 51 percent of the exports and fruit juices 48 percent while dried fruits took up less than 1.15 percent of total exports for the same period.

Philippine fruit processing companies are mostly small to medium sized enterprises. Their output can vary depending on availability of raw material and on market demand. The relatively low capital requirement for producing the products contributes to the flexibility in production capacity. As of 2000, the rated capacities of BOI-registered fruit processing companies excluding Del Monte Philippines and Dole Philippines were as shown in Table 6.1

Table 6.1

Product Line	Rates Capacities (MT per year)	No. of Firms
Dehydrated fruits	40,274	26
Preserved Fruits	149,785	56
Fruit Purees	173,814	16
Juices and Concentrates	22,016.622	11
Coconut water and cream	85.5 mn liters	15

Multinational companies such as Dole Philippines and Del Monte Philippines produce the principal exports of processed food. Del Monte exports were discussed in the previous chapter. The estimated production capacities for other companies, that were granted incentives by the Board of Investments, are presented in Table 6.2.

Most production units are locally designed and fabricated. They are primarily cottage and small-scale enterprises with very little capital, simple technology and low capacity utilization rates since raw materials supply usually follows seasonality. Automated assembly-line production system is seldom applied except in the production of dried mango, fruit purees, fruit cocktails, mixed fruits, pineapple products and fruit juices. Tropical fruits such as mangoes, papayas and pineapple are dehydrated using tunnel or drum drying with sugar concentration or pureeing. Vacuum drying is used for banana chips and on a limited scale for jackfruit and mangoes.

Table 6.2: Exports of Processed Food Products by Country of Destination, 1996 – 2000 (FOB Value in US$'mn)

	1996	1997	1998	1999	2000	% Share 1999	Ave. Growth
Total	632	590	520	492	513	100.00	-4.94
USA	307	248	225	214	212	41.36	-8.58
Japan	44	43	36	40	37	7.24	-3.98
Korea	25	34	34	26	26	5.02	-2.39
Hongkong	25	27	24	18	26	4.99	3.64
Canada	15	16	14	15	24	4.66	14.80
Taiwan	12	24	22	22	22	4.32	21.82
Indonesia	4	9	7	5	21	4.15	98.94
Others	199	189	158	152	145	28.26	-7.52

The small to medium (SMEs) export-based fruit processing enterprises use manual or semi-mechanized systems. Del Monte, previously a fully owned multinational company, is wholly automated in order to minimize contamination and waste as well as reduce labor. Semi-automated processing is used by other firms to limit investment in capital equipment and take advantage of the relatively cheap skilled labor force.

Production of preserved fruits, especially bottled ones, also employs low technology with manual sorting, syrup preparation, bottling and packaging. Mangoes are dried using an oven but the

other fruits are sun-dried. Most banana chips produced by subcontractors are fry-dried, cooked in coconut and sugar. Pureeing is mechanically done although there are two plants that use automatic pureeing machines for pineapple and mango. Preserving and bottling fruits are essentially manual operations that involve sorting, cooking, syrup preparation, bottling and packing. Hence, fruit processing is more labor intensive than capital intensive. Mechanical equipment is used only for pureeing, oven drying and product testing and evaluation.

The SMEs employ food technologists to ensure the product quality. Cottage-based firms are supervised by the companies that do subcontracting. The SME's, as well as government agencies (DA, DOST, DTI, NGOs and local governments), conduct their own training for food processing, packaging, labeling, marketing, laws and regulation, and quality standards, among others.

The Department of Trade and Industry (DTI) assists the fruit processing industry through:

- Market development by managing accreditation of subcontractors;
- Trade facilitation - market matching, promoting bulk buying and strengthening trade houses, and product promotion by exposing manufacturers to various markets, trade fairs at the provincial, regional and national levels and
- Trade missions

Other agencies are also active in the promotion of the processing of fruits and vegetables.[36]

Inputs to fruit processing include sugar and packaging materials that are locally available. However the cost of fruit and other inputs has increased due to post harvest losses and transport costs. Packaging materials include glass bottles, metal closures, tin cans, corrugated crates, tetra bricks, flexible plastics, paper and aluminum aseptic containers. These containers are locally produced but more expensive if sourced from the domestic market[37].

Bananas: The Philippine exports of banana chips increased steadily from 1993 to 1997 then dropped in 1998. The average annual export value is about US$19 million. It had been growing at 6 percent p.a. with top markets such as Hong Kong (20 percent), United States (18 percent), United Kingdom (14 percent), Germany (11 percent) and Japan (10 percent). The Philippines exporters supply 59 percent of total trade in banana chips followed by Thailand (23 percent), Indonesia (15 percent) and China (3 percent). Data on Philippine supply and utilization of all banana varieties showed that about one-third of total banana supply was exported. The processing of Saba banana increased at 2 percent per year from 1993 to 1998. The demand from

[36] Fruits and vegetables are included the Department of Agriculture Medium Term Agricultural Development Plan (MTADP) and the Department of Science and Technology Agenda for National Development (STAND). Fruits and vegetables are also priority products in the Agricultural and Fisheries Modernization Act (AFMA), which is implemented by DA. The Food Development Center (FDC) also provides technical assistance to the sector..A Congressional Commission on Agricultural Modernization was recently established to improve agriculture, agribusiness and related industries and formulate reforms in agricultural development and public expenditure policy and strategy.

[37] The minimum order requirement set by local suppliers limit the ability of manufacturers to develop new packaging materials. In July 1998, the tariff on imported packaging materials were reduced from 25% to 15% and in 2000, to 10%. As amended by EO 465 effective 22 January 1999.

banana processors rose from 562 thousand tons in 1993 to 606 thousand in 1998. The demand for banana chips is expected to continue growing with Philippines dominating the export market.

Pineapples: Philippines is the second largest supplier of canned pineapple products in the world, next to Thailand.[38] It is a major supplier of fresh, dried and canned pineapple to United States and Canada. Canned pineapple exports to Hong Kong grew by almost 50 percent from 1994 to 1996. These are concentrated in the period from February to August and amount to about US$ 5.9 million annually. Japan is another major market. Philippines supplies 83 percent of their fresh pineapples. The remaining 17 percent are processed into juice and preserves throughout the year.[39] The major buyers of dried pineapple are Australia, United States, Hong Kong and Germany.

The major markets for pineapple juice are Japan, Netherlands, US, Singapore and Canada. These products are in cartons of 16 to 24 cans, 50 to 100 grams each depending on the orders of the importer. Packaging material is P27 per carton. . The average consignment ranges up to 500 tons. The FOB value is US$350-400 per ton on the average and sea freight ranges from US$80-US$120 per ton depending on the destination for direct shipments of canned products from Cagayan de Oro Misamis Oriental (mainly Del Monte pier at Bogo port). .

International vessels of about 10000 DWT are used to carry shipment two to four times per month depending on the volume of orders. The vessel first loads fresh pineapples in Davao[40] then goes to Bogo port where Del Monte cannery is located. Del Monte sells 40 percent of its canned pineapple in the domestic market because of strong competition with other countries. The canned pineapple products are shipped in orders of 10 to 15 20' containers. If the order is small, they store the fresh pineapple and the inventory stocks are sold in the domestic market. [41]

The current rates being charged for sea transport of processed food exports including processed fruits, destined to Europe, Asia and the United States are quoted in FOB US$ (Valid until 20 June 2002) and paid by the consignee. These rates are subject to a bunker adjustment fee of US$37/TEU. They are also subject to standard local charges as follows which the Philippine exporter is required to pay.

- FCL: Terminal Handling Cost - $104/20-footer and $138/40-footer
- LCL: LCL Charge - $8.50/cbm;
- Arrastre/Wharfage – P150/cbm; and
- Docs Fee - $20/B

Shown in Figure 6.1 is the procedure for export of processed fruit exports such as Del Monte products**.** The general flow of export procedures that are followed by processed fruit exporters are presented in Annex G. The exporters pay the following fees:

[38] According to DTI

[39] Taiwan can only supply 6 months of the year while Thailand only 3 months.

[40] The pineapple fresh fruits are trucked to Davao for sorting and packaging for exports.

[41] Del Monte did not provide specific details of their shipments, freight and order cycle.

- Bank commission 0.25 percent or minimum of P500
- Handling fee 0.25 percent and correspondent bank charges;
- Advising fee of P600,
- Amendment fee of P400 and
- Documentary stamp of P0.30 per P200.

Source: Philippine Food Exports Association (PHILFOODEX) of canned processed foods and processed meat.

The average consignment is a 20' container load, shipped weekly. Production cycle is about 2 weeks allowing for an order cycle time of 4-8 weeks depending on destination. The following is a summary of the charges paid for exports and imports of cargoes to different service providers:

Table 6.3: General List Of Charges By Service Providers For Import And Export Cargoes

Shipping Line's Fees	Forwarder's Fees	Brokerage's Fees	On-Dock CY/ CFS Operator	Off-Dock CFS Operator's Fees
LCL Charge	Terminal Handling Charge	Documentary Stamps	Arrastre	Stripping Charge 1/
Terminal Handling Charge	Turn-over Fee 1/	Brokerage Fee	Wharfage	Storage Charge 1/
Documentation Fee	Collect Fee 1/	Trucking Charge	Stuffing 2/	Arrastre 1/
Container Cleaning	Manifest Fee 1/	Value-added tax	Stripping Charge 1/	Wharfage 1/
Container Deposit	Bill of Lading Fee	Delivery or Releasing 1/	Storage Charge 1/	Insurance 1/
Telex Release 1/	LCL Charge	Documentation Fee		Documentation 1/
Freight-related surcharges (Bunker Adj. Factor, Peak season surcharge, Currency Adj. Factor)	Export Declaration Documentation	International Cocoa Organization or CCD 2/		Dangerous Cargo Charge 1/
	Other Clearance Charges (Cert. Of Origin, Phytosanitary, Fumigation, etc) 2/	Handling Charge 1/		On-Line release System Handling 1/; Value-added Tax; Forklift Charge

1/ For import cargoes 2/ For export cargoes
Source: Philexport and Philippine Shippers' Bureau survey of importers and exporters

Figure 6.1 Processed Fruit Exports Procedures

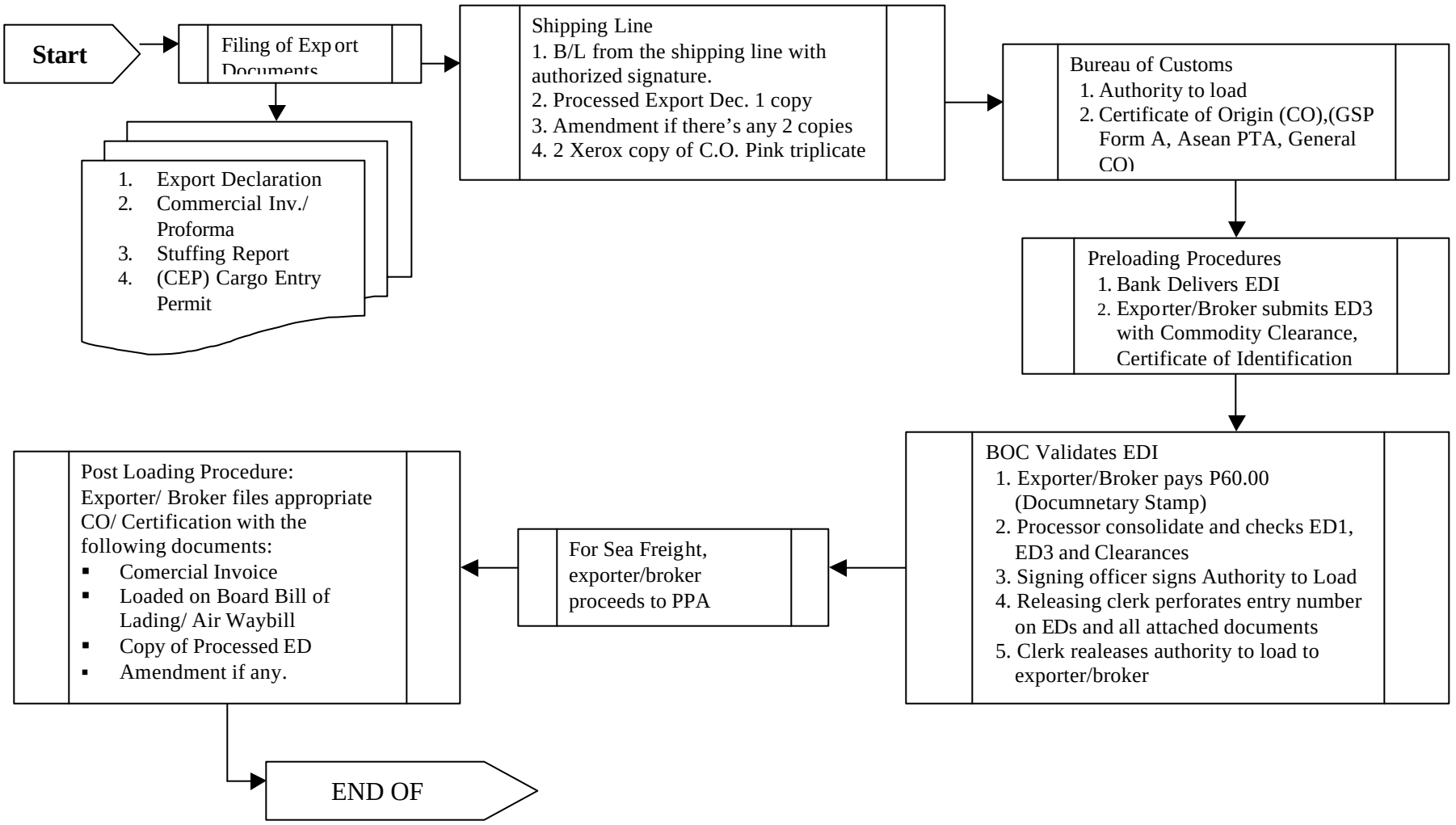
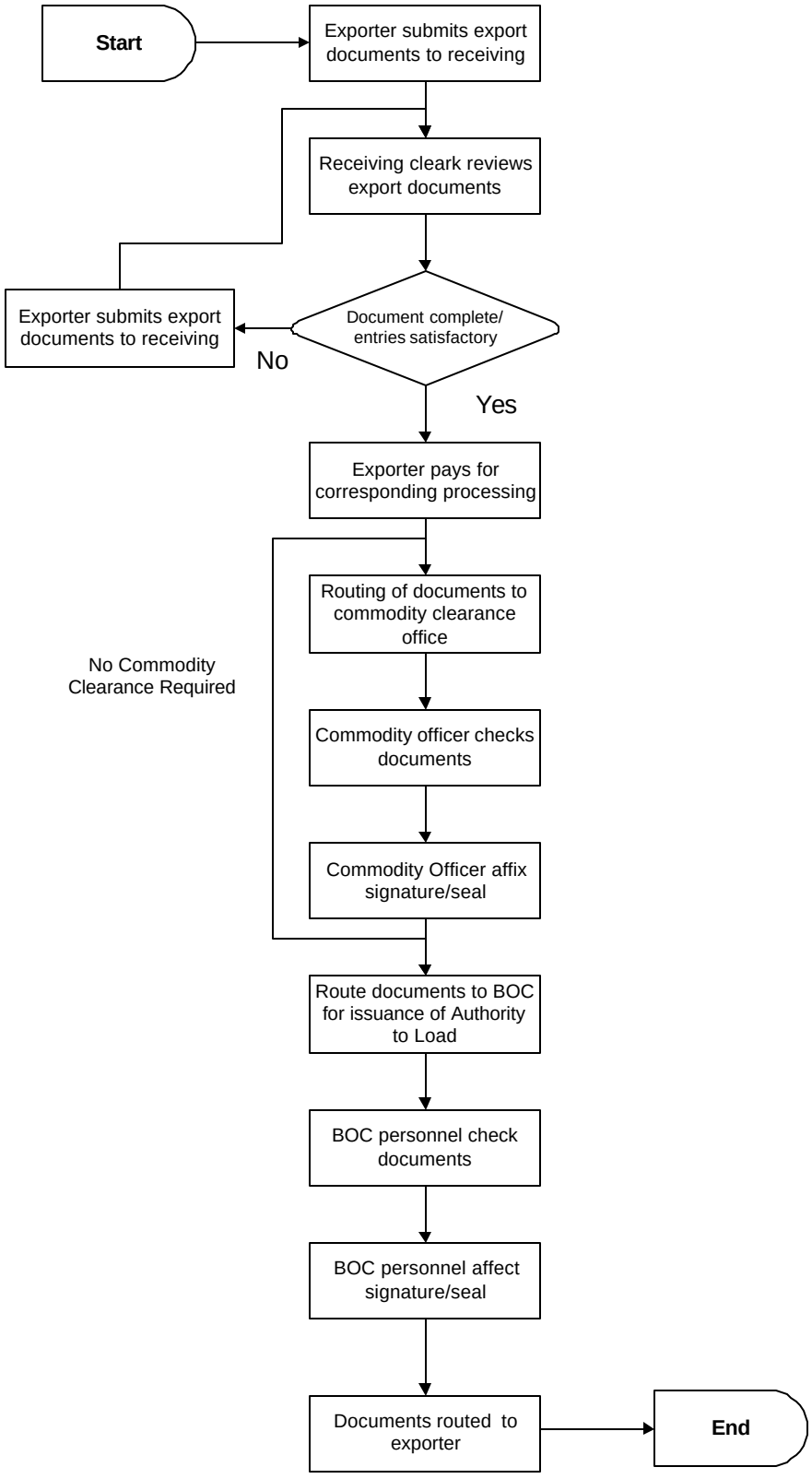


Figure 6.2 Export Processing Flow



CHAPTER 7

SUPPLY CHAIN: DISTRIBUTION OF PROCESSED FOOD

Processed food accounted for about 40 percent of total food imports in 2000. Its aggregate value was US$ 151 million in 2000 and increased to US$165.8 million in 2001. The largest component was oil cake and other solid residues valued at US$32.4 million in 2001. Wheat products accounted for US$31.1million and dairy products US$26.3 (Table 7.1)

Table 7.1 Processed Food Imports, 2000 and 2001
In FOB US$ million

Product	2000	2001
Other wheat including spelt	26.9	31.1
Milk in solid form, etc	24.1	12.3
Oil cake & other solid residues	8.8	32.4
Meat of bovine animals	7.6	6.8
Milk and cream, solid form	6.9	7.0
Preparations for complete feeds	4.9	
Rice semi-wholly milled	4.6	
Preparations for manuf of lemonade	3.8	3.5
Milk & cream, solid form	3.5	6.95
Fresh apples	3.0	2.9
Others	57.0	60.0
TOTAL	151.2	165.8

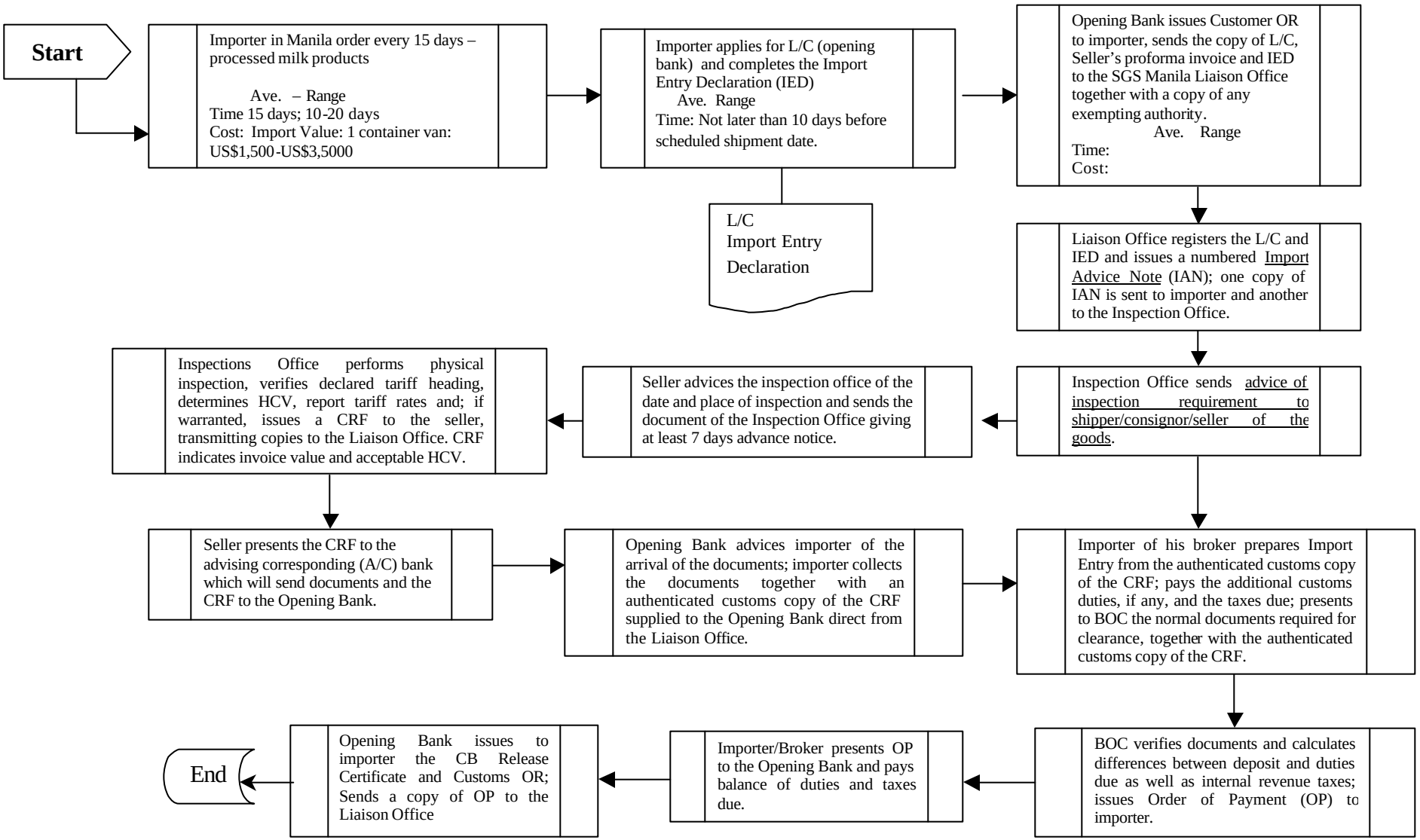
The major sources of these imports are USA (29 percent), Australia (20 percent) and New Zealand (8 percent). Other countries, including Canada, India, China, Thailand, New Zealand, Netherlands, Australia and the United States provide dry skimmed milk and other materials for dairy processing. Butterfat also known as anhydrous milk-fat is imported from the United Kingdom, Northern Ireland, Belgium, Australia, and New Zealand.

The imported processed foods are packaged in glass, bottles, metal closures, tin cans, corrugated boxes, tetra bricks, flexible plastic, aluminum aseptic containers, paper e.g. glassine, grease-proof and parchment

The food importers pay the following fees for foreign L/C with terms that can be 30, 45 or 60 days.

- Import fee of 1/8 of 1 percent per month or minimum P500;
- Cable charges of P500; advising fee is $50
- Confirmation fee is 1/8 of 1 percent of the value of L/C and correspondent bank charges of import bills; documentary stamp is P0.30 / 200 or fraction thereof.

Figure 7.1 Imported Processed Food to Manila Wholesaler to Local Market



CHAPTER 8

SUPPLY CHAIN: EXPORTS OF ELECTRONIC PRODUCTS

The Philippine electronics industry began in the mid-1970s when the industrialized nations relocated their production facilities to the third world countries to reduce production costs and avail government incentives. There are approximately 588 electronic companies, mostly export-oriented and registered with the Board of Investments (BOI) and the Philippine Economic Zone Authority (PEZA). Majority of these companies are located in Metro Manila and the CALABARZON areas. Other locations are Baguio City and Mactan, Cebu. More recently, companies have relocated to Subic Bay Freeport and Clark Special Economic Zones due to established infrastructure and facilities. About 42 percent of the companies belong to the semiconductor/ components. Another 25 percent belong to the Allied industries.

Philippines provides a liberalized investment climate for these industries:

(1) Foreign investors may be allowed up to 100 percent ownership in all areas of investments except financial institutions and those included in the Foreign Investments Negative list.

(2) 100 percent ownership is allowed for investments located in the economic zones under PEZA, special economic zones and free ports such as Subic, Clark, etc.

(3) Certain benefits are provided in preferred areas as listed in the Investment Priorities Plan (IPP). For areas not listed in the IPP, a firm is entitled to incentives if it has the capability to export at least 50 percent of its output, if Filipino-owned, and at least 70 percent if foreign-owned. .

Major incentives are:

- tax exemptions and concessions
- 100 percent ownership in all areas of investments except financial institutions and those included in the Foreign Investments Negative list
- income tax holiday for BOI-registered companies (projects with pioneer status are exempted from payment of income taxes for 6 years, others for 4 years)
- off-zone infrastructure facilities
- simplified import, export and sub-contracting procedures and maintaining a high level service orientation.

Electronic firms are predominantly multinationals, engaged in labor-intensive back-end assembly operations. Filipino-owned companies are primarily involved in third party subcontracting work and account for 31 percent of the total number of firms. Leading IC assemblers are Ionics Circuits and Fairchild Semiconductors. Japanese firms account for about 33 percent followed by

South Korea, United States and Taiwan with 11 percent, 8 percent and 5 percent shares, respectively.[42]

Major players in the Philippine electronics industry are subsidiaries of world's biggest semiconductor companies such as Intel, Motorola, Texas Instruments, Philips, etc. Leading companies are able to assemble integrated circuits with pin counts ranging from 64 to more than 1000 using the latest packaging technology.
Cypress and Fairchild Semiconductor have started sophisticated back-end wafer fabrication processes. Filipino-owned companies are engaged in Printed Circuit Board (PCB) assemblies and module sub-assemblies for computer hardware. Leading local companies are IMI, a unit of the conglomerate Ayala Corporation that assembles magnetic heads for Japanese companies and lonics Circuits, which began notebook PC assembly for IBM Corporation.

Major investments include: Intel Corporation's US$550 million over 3 years for a Pentium micro processor assembly and test factory; Fujitsu Ltd. US$124 million investment in plant and equipment to assemble hard drives and optical drivers; NEC Corporation's US$63 million investment in a new plant to make 4-layer printed circuit boards; and Amkor Anam's US$126 million investment in one of the first facilities in the world to produce ball grid array (BGA) IC's.

The electronics industry has remained the country's top exporter, and accounted for about 68 percent of the Philippine exports in 2001. Exports have grown more than 35 percent annually since 1990 and totaled US$21.9 billion in 2001. Largest markets include US, Japan, Netherlands, Singapore and Taiwan. Shown below is the industry's share in total exports of the country:

Table 8.1 Electronic Exports, 1994 to 2001 (billion US$)

Year	Philippine Exports	Electronic Exports	% share to total exports
1994	13.4	4.9	36.5
1995	16.0	7.4	46.1
1996	18.7	9.7	51.9
1997	25.3	15.0	59.3
1998	29.5	20.0	67.4
1999	35.0	25.4	72.6
2000	38.1	27.2	71.4
2001	32.2	21.9	68.0

Sources :Philippine Statistical Yearbook,1994-1998 National Statistics Office 1999-2001.

A road map[43] for the future of the electronics industry was drawn up in order to sustain an average annual growth of 30 percent per year, improve the value added of the industry by a factor of two and make the Philippine electronics industry world-class. It includes a portfolio of niche products that would be attractive to investors and would capitalize on the existing industry and infrastructure capabilities in the Philippines. These products are mainly computing and communication products related to the new multi-media, digital and networking. Although these

.[42]Department of Trade and Industry, Bureau of Export Trade Promotion and PEZA.

[43] It was identified that a wafer fabrication facility can be established to feed the existing back-end assembly operations of Philippine-based IC manufacturers. This will improve the value added of the electronics sector where most of the materials are imported. Advantages are: savings in foreign exchange with the reduction of importation of raw materials and acceleration of technology transfer with the training of Filipino engineers in the operation of the state-of-the-art equipment and systems.

products represent a move to more advanced production technology, they also target products with limited technological life. Many of the products and markets are already mature or in decline.

Exports generated from the 68 operating PEZA economic zones in year 2000 totaled US$20.0 billion, which is 26.7 percent higher than the US$ 15.8 billion exports in 1999 and represents about 52.6 percent of the total export earnings of US$38 billion in year 2000.

The existing capabilities of the Philippine electronics industry that caters to export markets include Packaging of Integrated Circuits (Ics) and Special Products, simple chips, and product assembly (Annex E). The production capacity of electronics industry is measured in terms of the production floor space and the number of units produced per week. However, due to lack of data, it is difficult to measure the industry's capacity because of the different devices and lead counts being handled by each company. It is reported that the utilization of capacity for the electronics industry is between 75 percent to 80 percent. For its raw material inputs, the electronics firms source their inputs both locally and overseas.

In 1999, the electronics industry employed nearly 280,000 persons of which approximately 98,000 people are employed in semiconductor manufacturing. The components sector employ 70 percent followed by the EDP industry (17 percent) and consumer electronics (8 percent).

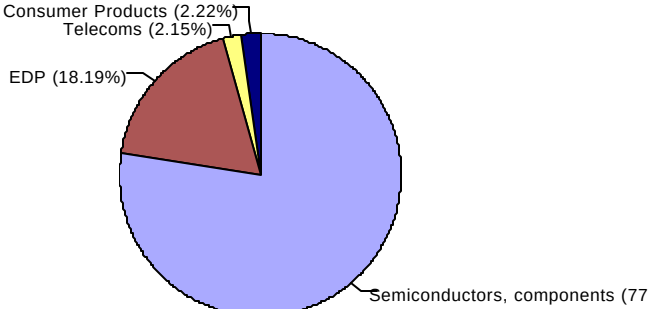
Major markets for semi-conductors include Taiwan, Germany, Honking, Japan, Korea, Malaysia and Netherlands. Consignment volumes of various types are within the range of ½ - 1 ton shipped on a weekly basis. Value of consignment ranges from US$100 to US$2,500 per kilogram and the freight ranges from US$2 per kilo (Singapore) to US$ 26 per kg. (France).

EXPORTS

Electronic exports more than doubled from US$ 10.6 billion in 1996 to US$ 27.2 billion in 2000. Its share of total export value has risen from 51.7 percent in 1996 to 71.3 percent in 2000. Average growth of electronics exports is much higher at 27.2 percent as compared to the average growth of the aggregate total merchandise exports of the Philippines of 16.8 percent from 1996 to 2000. Of the electronic exports, semi-conductors and components accounted for 55 percent of total exports or 71.3 percent of total electronic exports valued at US$ 21 million in year 2000 (almost 3 times the value of 1996 exports). Figure 8.1 displays the electronics exports by product while Figure 8.2 shows exports by destination. The top 10 importing countries experienced 37 percent growth in imports of electronics from the Philippines.

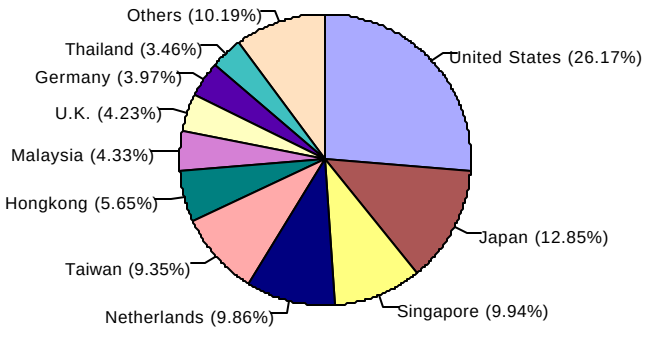
Figure

Electronic Exports by Product



Figure

Electronic Exports by Destination



IMPORTS

Among imports[44] of electronic products, parts for electronic integrated circuits comprise the major imports with FOB value of US$ 198.334 million in 2001, which is 20.7 percent higher than the 2000 FOB value of US$164.1 million. Parts of semi-conductors comprise 80.7 percent of total imports of electronic products (valued at US$ 245.89 million). Electronics manufacturers hire customs brokers for imports of electronic parts and products, and pay the following charges (customs clearance/ brokerage fee per Customs Administrative Order[45]) for airfreight:

- Processing fee – ₱ 850/ AWB.
- Handling fee – ₱ 300.00 and
- Documentation - ₱500
- Customs stamps and entry - ₱ 305.00
- Notary fee - ₱ 100
- Delivery charges within Metro Manila – pick-up close van ₱ 1,500, 6-wheeler truck ₱ 2,000 and 10-wheeler ₱ 2,500.00).

This does not include storage, consolidation and bank charges.

For sea transport, the fees are as follows:

- Processing fee – ₱1,200 / 20' container. ₱500 for succeeding container per BL.
- Handling fee – ₱500.00 and
- Documentation - ₱500
- Notary fee - ₱100
- Delivery charges within Metro Manila – 1 x 20 ft. (₱3,500).

In addition, there are handling and wharfage charges of ₱2,328.70 and ₱2519.35, respectively.

The customs brokers[46] indicated that each step requires an authorized payment. The major difficulty in clearing and processing imports is mis-declarations of the invoice value, BL and permit/s (if any) given by the importer to the broker. Delivery of cargo by airfreight is 1 to 2 days, sea freight 1 to 2 days (as long as stripping is done) and containerized – 1 to 2 days.

[44] On imports, the importer must classify the commodity or item that he intends to import based on the following classification of imports: (a) liberalized (b) regulated and (c) prohibited items Application for Importation. An importer can apply for its importation through Letter of Credit and Non-L/C Import Arrangement, namely: Open Account (OA), Documents Against Acceptance (D/A), Documents Against Payment (D/P), Direct Remittance (D/R), Self-Funded (S/F), No-Dollar Import Arrangement and Importations on Consignment Basis. The release of shipment at the Bureau of Customs.

[45] Interview with broker.

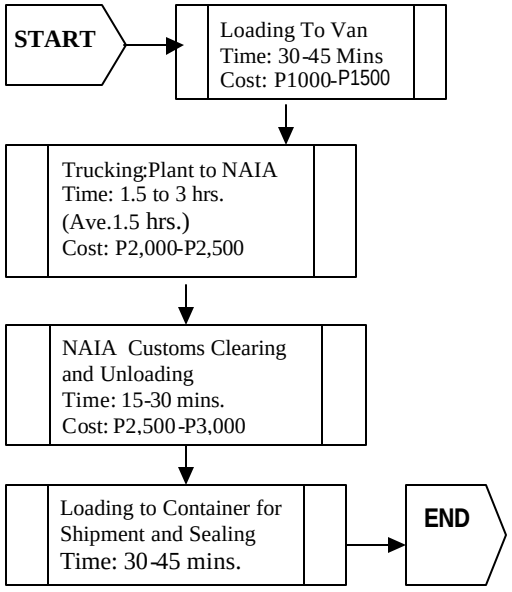
[46] Customs brokers are required to be accredited by the Civil Aeronautics Board of the Philippines, Philippine Shippers' Bureau, Philippine Ports Authority and Seafreight Forwarders Association. Once the forwarder and broker are accredited, this will ensure that the shipment is in good hand and guaranty a good and quality services.

SUPPLY CHAIN FOR ELECTRONIC EXPORTS

Semi-conductor manufacturers are subcontractors to foreign companies based in United States, Japan, Taiwan and other countries. They are based in technoparks in Laguna. The minimum value of consignment is about US$ 100,000 and considering the high value of their export shipments, they have their own logistics company to ship out the electronic products via NAIA.[47] They have a regular weekly schedule of shipments.

The semi-conductors are packed in cartons or plastic shipping tubes based on the specifications given by the mother company. Prior to the government road improvement projects in Laguna and Cavite, it took about 2.5 hours to 3 hours to reach NAIA. Following the rehabilitation of critical sections, the travel time was reduced to 1.5 hours. The manufacturers have formed a Federation of Manufacturers to lobby for major infrastructure improvements in these areas to support the technoparks.[48] The supply chain of electronic exports (semi-conductors) is shown in Figure 8.3. Shipments are made weekly based on scheduled production and shipment. Order cycle times are longer as they require a change in the production scheduling.

Figure 8.3. Supply chain of Electronic Exports/Semi-Conductors



Manufacturers use their own vans with a capacity of about 2 tons and shipment volume ranges from 0.5 – 1.5 tons. The shipment is escorted to prevent "hijacking" since it is a high value shipment. Philippine Airlines carried a substantial portion of exports in 2001, about 2.1 million kgs of semi-conductors, mostly to the United States. Based on National Statistics Office (NSO) statistics, the total value of the shipments carried by Philippine Airlines was US$165 million. Other airlines that carry semi-conductors are Air France, Cathay Pacific, Singapore Airlines and Northwest Airlines.

The exporters arrange their own finance and prepare their export documents, which include the export declaration, pro forma commercial invoice, stuffing report and Cargo Entry Permit. The Banker submits the ED1, export declaration and the exporter or his broker submits the ED3 form together with a certificate of identification and commodity clearance. The Bureau of Customs (BOC) validates the export declarations prior to loading and sealing the container. A new BOC-

[47] Data on logistics such as costs and time are highly confidential.

[48] There are two options to reach NAIA: (1) Carmona-South Super Hi-way route and (2) Palapala, Aguinaldo to NAIA.

PEZA Import Cargo Transfer System[49] has replaced the PEZA Police Transshipment Services with the posting of Surety bonds to cover import duties and taxes due on import shipments of economic zone locator enterprises during the transshipment period. This new system will be implemented only for import shipments of economic zone locator enterprises in the semi-conductors and electronics product sectors entering the country through the Ninoy Aquino International Airport (Customs Collection District 3). The legally binding full declaration (i.e. import entry and internal revenue declaration transit document (IEIRD-TD) was converted to the UNCTAD's Customs Automation System (ASYCUDA) -Transit document

[49] Authorized representatives of the economic zone locator enterprises are fully responsible for the security of the import cargoes during the transshipment process from the ports of entry/discharge to economic zones. They will officially acknowledge receipt of import cargoes from the CPCO and ensure their safe and speedy/ timely delivery to the premises of the economic zone locator enterprises.

CHAPTER 9

PORTS AND SHIPPING

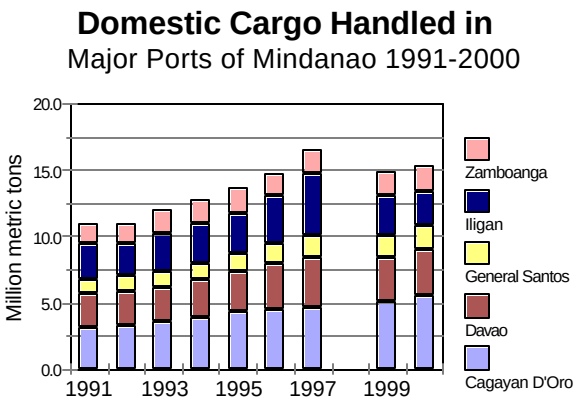
The principal public ports operated by the PPA in Mindanao are Cagayan D'Oro, Davao, General Santos and Zamboanga. The volume of imports and exports transferred through these ports decreased dramatically from 1995 to 1998 as shown in Table 9.1, but has since stabilized. At the same time the volume of domestic cargoes continued to grow strongly through 1997. Despite a drop of about 25 percent in volume in 1998, it has resumed growing, albeit slowly as shown in Figure 9.1.

Table 9.1 Mindanao's Port Foreign Traffic

	Exports	Imports
1995	8.52	3.42
1996	6.69	2.57
1997	5.71	2.46
1998	4.43	2.49

The berth performance for these four ports in the years 1999-2000 is summarized in Table 9.2 (details in Annex F). In Northern Mindanao, the public port of Cagayan D'Oro handles primarily domestic shipping serving Luzon and Visayas. Throughput averaged about 2.2 million tons of domestic cargo, primarily containerized, and 475 thousand tons of foreign cargo, approximately equal portions of bulk, break-bulk and containers. During 1999-2000, the number of vessel calls decreased by 30 percent offset by a 66 percent increase in the average size of the vessels calling the port to an average deadweight of 2650. This increased the average turnaround time to 28 hours in 2000. The largest private ports are Del Monte, which handles an average of 225 thousand tons, and Alsons, which averages 1.7 million tons. The former serves primarily foreign vessels, averaging 9700 DWT, loading containerized fruit and offloading input materials both in containers and break-bulk. These are turned around in about 26 hours. In contrast, Alsons serves mostly small domestic vessels, GRT less than 1000, that stay an average of three days in port transferring primarily bulk cargo.

Figure 9.1



In Southern Mindanao, Davao handles about 2.1 million tons per year. About half this amount is containerized domestic cargo and another 16 percent is foreign containerized cargo. Average vessel size is a little over 4300 DWT, and time in port averages about 40 hours. The three large private ports are DUCC, Tefasco and Tedeco. The first two are bulk ports. The third handles a mix of foreign break-bulk cargo and domestic containers. They handled 0.75, 0.47, and 1.42 million tons, respectively, in 2000. DUCC serves mostly small domestic vessels, about 750 GRT, that average 4 ½ days in port. Tefasco serves larger vessels, averaging 6400 GRT, turning them around in just under 3 days. In Tedeco, the vessels average about 5000 GRT and remain an average of 2 ½ days in port.

Table 9.2 Port Performance Statistics for Base Ports (excl Anchorage)

	N. & S. Harbor Manila		Cagayan D'Oro		Davao		General Santos	
	2000	1999	2000	1999	2000	1999	2000	1999
Number of Vessels								
Domestic	5,908	6,279	2,347	3,336	583	705	998	1,050
Foreign	1,889	2,136	188	185	240	225	161	207
Average DWT								
Domestic			2,645	1,659	4,351	4,219	4,030	5,293
Foreign			12,070	12,875	11,427	12,104	4,748	3,956
Cargo Handled (000s tons)								
Imports	3,959	4,263	334	393	557	373	145	167
Exports	416	410	119	104	204	193	50	26
Domestic Unloaded	6,998	8,118	983	931	891	852	562	525
Domestic Loaded	8,601	15,273	1,210	1,263	512	598	824	704
Time at Berth (hours)								
Domestic	51	51.2	28	23	34	35	41	40
Foreign	34.4	32.5	39	40	61	50	40	58
Berth Productivity (tons per berth hour)								
Domestic	52.0	72.8	33.1	28.5	71.2	59.0	33.8	29.5
Foreign			61.7	66.9	52.2	50.4	30.6	16.1

General Santos handles primarily domestic cargo. The total tonnage handled was 1.6 million tons in 2000 of which about 66 percent was containerized. The vessels average 4000 GRT and stay 1½ to 2 days in port. The private ports serving this region include Cargill's bulk terminal, which handled a little more than ¼ million tons in 2000, and Dole Philippines, which also handled about ¼ million tons but mostly exports, with equal portions of containers and break bulk cargo.

The average cargo handling productivity for these ports is shown in Table 9.2. These rates are comparable to the break-bulk productivity in Southeast Asian ports during the 1970's and 80's. The relatively small size of the vessels, the small amount transferred per vessel call and the limited cargo-handling technology reduce the berth productivity but this does not explain why productivity is so low, since many of the vessels are handling containers, RoRo and bulk cargoes. Foreign vessels generally perform better than the domestic because of the larger volumes handled per call and better on-board equipment. In Davao, the rates are higher because vessels handle 2-3 thousand tons on average and there is a high level of containerization.

Mindanao is a net exporter of agricultural commodities. About 3 million tons are loaded at the ports of Davao, General Santos, and Cagayan D'Oro for both domestic and foreign destinations. Their shares are 55 percent, 22 percent and 23 percent, respectively (Table 9.3). These ports also offload between ¼ and ½ million tons of rice and other agricultural commodities, both imported and domestic.

For Davao, about 80 percent of the outbound cargo is fruit, mostly bananas. About 80 percent are exported, primarily to Japan, South Korea and Middle East. The rest are shipped to Cebu and Manila. In General Santos, about half of the agricultural commodities loaded were fruits and vegetables produced by the larger plantations. About 60 percent were for export and the remaining 40 percent for domestic markets. Most of the remainder was yellow corn shipped to Luzon.

Table 9.3: Total Shipments of Agricultural Products from Major Mindanao Ports 1998-1999 (000 tons)

	Davao	General Santos	Cagayan D'Oro
Domestic	442.6	452.8	494.5
Inbound	16,955	9,041	38,333
Rice	49%	17%	33%
Outbound	425.7	443.8	456.2
Rice	6%	10%	7%
Corn	35%	62%	64%
Fruits, Vegetables	59%	27%	29%
Foreign	1,347.5	262.2	253.7
Inbound	73,986	77,658	113,284
Rice	94%	82%	84%
Outbound	1,273.5	184.5	140.4
Fruits, Vegetables	100%	98%	100%
	1,790.2	715.0	748.2

Source : PPA - as reported in "Further Deregulation of Freight Rates for Non-Containerized Basic Commodities" GEM Program 2001

The extent of containerization of these commodities was relatively high in General Santos (63 percent) and Cagayan D'Oro (59 percent) but more modest in Davao (29 percent). A large amount of corn and rice is transported in containers but fruits are shipped primarily in boxes and crates, even for exports that are transported in special purpose vessels. Bulk shipments are negligible for Cagayan D'Oro and Davao but account for about 25 percent of the cargo handled in General Santos, primarily through private facilities.

The majority of the containers handled in the Mindanao ports are domestic. The average weight per container is 10.7 tons. The heaviest are export containers from General Santos and outbound domestic containers from Cagayan D'Oro, both carrying agricultural products, and inbound domestic containers to Davao carrying consumer goods. The lightest are imports to Cagayan D'Oro and Davao, which have a high proportion of empties (Table 9.4).

Table 9.4: Container Statistics for Mindanao Ports

	Philippines		Cagayan de Oro		Davao (Sasa)		General Santos	
	2000	1999	2000	1999	2000	1999	2000	1999
No. of Containers (000 TEU)	2,994	2,813	148	140	145	130	115	104
Domestic	1,395	1,359	140	131	88	87	111	101
Foreign	1,599	1,456	8.5	8.8	58	42	4.6	3.7
Cargo (000 M.T.)	34,500	33,001	1,744	1,563	1,553	1,441	1,069	911
Domestic	20,507	20,014	1,664	1,490	1,144	1,125	1,002	864
Foreign	13,993	12,986	79	72	409	316	67	47
Cargo (M.T./TEU)	All Base Ports		Cagayan de Oro		Davao (Sasa)		General Santos	
Domestic Inbound	13.7	13.9	9.8	9.4	15.6	15.2	5.8	5.8
Domestic Outbound	15.7	15.6	14.0	13.4	10.4	10.6	12.2	11.5
Imports	11.4	11.7	6.5	5.1	7.3	6.8	13.1	14.2
Exports	6.0	6.1	12.1	11.3	6.9	8.1	15.5	11.8

REGULATION

The domestic freight rates were deregulated under an Executive Order during the Ramos Administration[50] with the exception of Class C non-containerized, non-unitized essential cargoes. Since their rates are extremely low, the shipping lines shut out the cargoes during the peak season in favor of higher rated cargo. Due to the high rate of containerization, only about 1/6 of the basic commodities shipped from these ports qualify for regulated rates. Also regulated are the freight rates on those routes served by monopolies or cartels. MARINA, the maritime regulatory agency, continues to publish rates for all major routes but has simplified the procedure for filing new rates so that rate changes can be made within a two week period and addressed through a legal hearing procedure. The Authority allows the lines to quote rates within a +10 percent to –15 percent band and provides an automatic bunker adjustment factor. Because of the current surplus capacity, the lines have had to offer discounts in excess of that permitted. The shipping companies continue to be restricted to a 12 percent rate of return on capital,[51] forcing them to manipulate their accounts in order to continue in business.

VESSELS

The types of vessels operating on the inter-island trade can be determined from the domestic vessels calling at North Harbor, in Manila. Their average sizes are shown in Table 9.5. The largest vessels are the passenger cum cargo super ferries that provide a regularly scheduled inter-island service. The larger vessels include both the passenger and container vessels. The smallest

[50] There remains some confusion as to whether the order contracts the Public Service Act which includes trucking and ocean shipping. Efforts to revise the Public Services Act are before the legislature but have have not been acted upon in the last three years.

[51] Although the prime rate is 14% and loans for the industry are at 16%

	GRT			DWT		
Type	Avg	Min	Max	Avg	Min	Max
Tankers	532	117	1,363	753	300	1,840
Passenger/Cargo	5,889	69	15,223	3,215	95	21,643
Container	2,610	243	4,938	3,878	346	8,518
General Cargo	1,567	30	8,343	2,528	45	12,478
LCT	866	123	2,252	2,135	150	5,000
Barge	956	213	1,915	1,386	400	2,975

vessels are product tankers which provide fuel and other oil products for local markets Two thirds of the inter-island vessels are operated by the five major shipping lines as shown in Figure 9.2. The smaller lines tend to serve lower density routes.

FREIGHT RATES

The rates for container movements between Manila and Mindanao are relatively high as shown in Tables 9.6. The rates for container per TEU are about 25 times the rate per MT for general cargo. The rates per TEU-nautical mile vary between ₱ 26 ½ and ₱ 30½. Cebu is higher because of the shorter distance to Manila and Davao lower because of the longer distance.

Table 9.6 :Freight Rates for Domestic Container Movements (₱ per TEU)

Manila to	Freight	Per naut. mile
Cebu	12,546	32.0
Cagayan D'Oro	15,409	30.6
Zamboanga	15,615	30.5
General Santos	21,007	29.1
Davao	23,716	26.6

Source : Domestic Shipowners Assoc. 2001,
Note : excludes VAT

A survey in late 2000 of container rates for bananas and corn shipments indicated an average freight rate from Mindanao to Manila of about ₱ 18.5 thousand per TEU or ₱ 500 per cubic meter. The high cost of corn transport is due to the small size of the consignments, and also because traders do not co-mingle their products.

The sea freight between Davao and Manila, including the fuel adjustment factor but excluding VAT, accounted for almost 80 percent of the port-to-port charges (Figure 9.4) or ₱ 13 per TEU-nautical mile). This is exclusive of the port charges for wharf handling, storage or stuffing/unstuffing and any extra payments required to ensure safe and efficient transport of the goods. For imports, there are also payments to customs officials to clear the cargo. However, these have declined in recent years as a result of the customs reform.

Figure 9.3

Container Freight Rate
Davao-Manila 2000

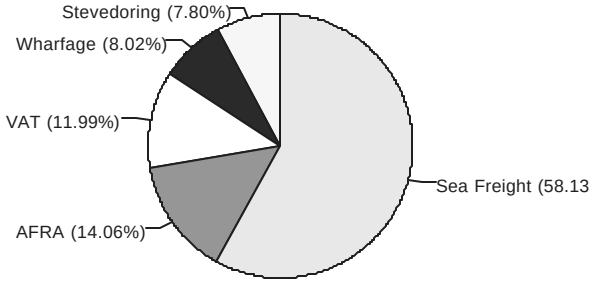
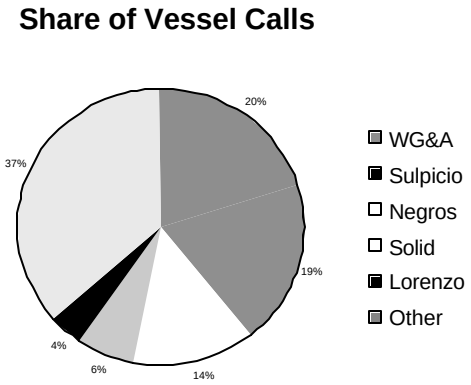


Figure 9.2 :
North Harbor Vessel Calls By Line



Among the factors that lead to high inter-island freight rates is the oligopolistic pricing of wharf handling services in PPA ports. As a result, the rates for arrastre services (wharf handling), are differentiated while those for stevedoring are not. Another factor is the restriction on the shipping lines that can provide inter-island services. For export containers, there is a box re-positioning charge to Mindanao of about $150. When export/import containers are transshipped through Manila, there is the $50 per box charge for moving the container from North Harbor to South Harbor.

Some of the factors leading to high costs of shipping are:

- 10 percent VAT
- 34 percent income tax
- high interest rates relative to rest of region
- high fuel costs
- inefficient use of vessels due to long port turnaround times relative to travel times
- restrictions on domestic freight rates

The liner operators have relatively old fleets with the result that their operating costs include relatively little depreciation as shown in Figure 9.4. Because these vessels have relatively old technology and carry a mix of cargo and passengers, the crew sizes are relatively large, and account for over 33 percent of total operating costs. Port charges paid by the vessel are a relatively small part of liner operating costs but a relatively large proportion of the costs for shippers as shown in Table 9.8.

Table 9.7 : Annual Frequency of Vessel Calls by Type for Vessels Traveling between Mindanoa and North Harbor

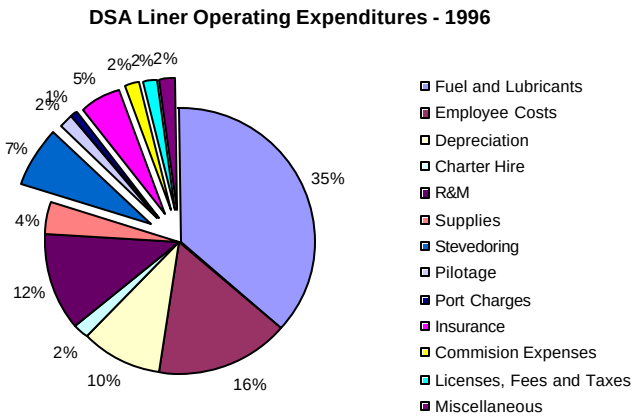
	Passenger/ Cargo	Container*	General Cargo
Cagayan D'Oro ?	16	7	105
CDO? CDO	21	2	86
? Cagayan D'Oro	13	4	68
Davao?	12	1	17
Davao? Davao	2	20	134
? Davao	16		47
Gen. Santos?	8	9	102
Gen. Santos? Gen Santos	1	7	54
? Gen. Santos	3		23
Zamboanga?	41	4	15
Zamboanga? Zamboanga	8		21
? Zamboanga	29	1	18

Note: Distinction between Containers, General Cargo and

REGULATORY REFORM

The issue of improving inter-island shipping and national port services has been a concern of government for the last decade as the quality of service provided deteriorated and the costs increased. Route licensing was introduced in 1972 to reduce over-tonnage on the main routes and divert tonnage to inadequately served routes. Each vessel is issued a Certificate of Public Convenience specifying the exact route and schedule that it will operate. Under the current system, the application of a new entrant (an applicant for route that has no existing franchise) is considered if demand warrants additional capacity but priority is given to capacity provided by existing operators. In contrast an existing operator may add 50 percent to his capacity every three years.

Figure 9.4:



In 1989, the Presidential Task Force on Inter-island Shipping recommended deregulating entry into inter-island shipping, de-monopolizing port cargo handling services and deregulating the fares and freight rates. In the same year, MARINA abolished *ad valorem* rates and reclassified agricultural commodities into Class C cargo. It also widened the range in which tariffs could vary from +10 percent to –15 percent. In 1993, MARINA simplified the procedures for granting route franchises. In 1994, Executive Order 185 required at least two operators per shipping route but gave priority to incumbent carriers.

Table 9.8 Port-to-Port Rates for General Cargo (₱ per MT)

		Cargo Handling		Freight	Total	% Handling
		Origin	Destination			
Cagayan D'Oro	Cebu	51.3	59.2	306	416.5	27%
	Manila	51.3	92.6	603	746.9	19%
Zamboanga	Cebu	62.1	59.2	448	569.3	21%
	Manila	62.1	92.6	689	843.7	18%
Cotabato	Cebu	75.5	59.2	549	683.7	20%
	Manila	75.5	92.6	842	1,010.1	17%
Davao	Cebu	75.5	59.2	595	729.7	18%
	Manila	75.5	92.6	929	1,097.1	15%

Source: Ted Gambito

In 2000, the implementing guidelines of Executive Order 185 were revised to allow easier entry of new operators on any route that has been served by any operator for at least five years. However, entry is restricted if it would create "ruinous competition", which is defined as

requiring the existing operators to continue carrying less than the average annual breakeven load factor.

Table 9.9 Cagayan D'Oro Charges for Arrastre and Stevedoring

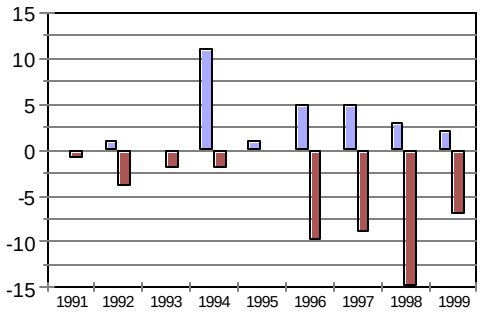
		loose		pallets	
Prime Commodites-break bulk		min	max	min	max
Domestic	Rev ton	56.6	85.3	43.1	65.5
Imp/Exp	Rev ton	91		68	
Container FCL		loaded	empty		
Domestic	20'	707	381		
	40'	1249	595		
Imp/Exp	20'	919	815		
	40'	1748	1308		

Source : PPA Published Tariffs

In order to introduce new tonnage to the domestic shipping industry, the government granted exemption for import duties and taxes for vessels and spare parts under the Investment Priority Program from 1990 to 1996. The government also established a bareboat chartering program in 1994, which issued Philippine Registry to foreign flag vessels for a fixed period. In 1995, MARINA lifted the age and size restrictions on acquisition of vessels for domestic operation. In the same year, the government initiated the Domestic Shipping Modernization Program (DSMP) program administered by the Development Bank of the Philippines to provide financing for the acquisition of vessels for domestic operation. Most of the loans went for large passenger cum cargo vessels and tankers that lead to a dramatic increase in passenger vessel capacity. As a result of acquisitions in the mid-1990's, there has been a substantial increase in the domestic fleet tonnage together with a decline in the average age of vessels. This increase did not produce savings in transport costs or overcome the inefficient cargo handling in the ports. Instead, rates increased substantially with little improvement in the quality of service. This has created increasing dissatisfaction among the manufacturers and agricultural producers who face increasing competition from imports and declining markets and financial conditions.

Figure 9.5

Shipping Lines Entering and Exiting
the Domestic Shipping Industry



Despite all these initiatives, the shipping sector remains heavily regulated and under the control of a few large lines. The average age of container vessels remains about 25 years. The average age of general cargo vessels has steadily increased to 12 years. As of 1998, the five largest shipping companies[52] handled approximately 91 percent of the cargo on the primary and

[52] WG&A., Sulpicio Lines, Negros Navigation, Lorenzo Shipping Corp., and Solid Shipping Corp.

secondary routes. About one-third of the primary and secondary routes have only one operator and less than 1/6 report substantial competition. The liberalization did increase the turnover in the shipping industry with 27 new shipping lines established during the period 1993-1998.[53] Only 16 of these survived and many of the older companies ceased operating. Of those that did survive, about 40 percent are expanding their capacity while 33 percent are reducing their capacity.

Attempts at reform in the port sector have had even less of an impact. In 1994, Executive Order 212 enforced the Open Competition Policy in cargo handling operations that required at least two cargo-handling operators in each port (previously PPA had a one-operator-per-port policy). This Order was intended to increase private sector participation in the port sector, but was not enforced due to the opposition of existing arrastre companies and subsequent court challenges.

In 1997, Executive Order 410 was issued, effectively repealing EO 212 and strengthening the role of PPA in privatization and de-monopolization of the government ports. The rationale for this reversal was that the private sector had failed to become more actively involved in the port sector and the PPA had prepared a 25-year port development plan that required private sector involvement. Towards the end of the Estrada administration, Executive Order 59 was issued which would have created a single cargo handling monopoly for all ports.

CUSTOMS

The Bureau of Customs (BOC) has introduced major reforms over the last few years that have reduced the delays and amount of informal payments involved in importing goods. One major modification has been in the method of valuation of imports. Formerly, valuation was based on a system of published reference prices. The pre-shipment inspection performed by SGS until March 2000 provided information on the price at the origin that could be used to modify the reference prices. . The reference price system had been employed to overcome a high incidence of under-reporting and a lack of customs efficiency. This method of valuation was changed to transaction value in January 2000 in order to meet the WTO requirement (Republic Act 8181/9135). Now that import duties are based on the C&F transaction value, verification must be provided for both the commodity and the freight.

Customs has also refined its procedures for duty free industrial zones, though the latter continue to be a major source of leakage. Customs has allowed private bonded warehouses, but limited them because of the large volume of smuggling. It has allowed some inland container clearance depots but not dry ports. For re-exports, it has introduced duty drawbacks and established one-stop shop for tax credits.

As part of the reform program, Bureau of Customs (BOC) has improved its enforcement database and introduced risk management. It uses ASYCUDA ++ for managing its activities and has introduced an automatic payment system and a procedure for online release of goods to speed cargo clearance. As a result, customs has greatly reduced cargo clearance times, in most cases, to only a few hours. There are three physical inspection procedures:

[53] Some of these were established by existing shipping lines

- Green line - no inspection other than random sampling
- Yellow line -- inspection of documents
- Red section – physical inspection, 100 percent

Cargo is cleared by either licensed customs brokers or nominees of importers, (referred to as attorneys because they have the power of attorney). Both operate under a regulated fee structure.

EDI services are provided in three ways:

- A proprietary Value-added Network (VAN) system
- A privately-operated network stations for direct trader input
- Entry and encoding system inside the port, again privately operated

The Customs Modernization Act allows for electronic filing of customs documents. BOC has proposed to convert to the Web-based ASYCUDA World, which is now being tested by UNCTAD. These improvements benefit the larger, better-organized importers and exporters. About 10 percent of the transactions still have to be processed using the older, slower, paper-based system with its greater potential for irregularities

There are 13 major customs gateways/districts, which include major seaports and airports, e.g. Leyte, Subic, Clark/L'Union, Zamboanga, General Santos, Cagayan, Manila, Cebu, Davao, Batangas, Ilo-Ilo. However, BOC computer system requires upgrading but lacks the budget.

CUSTOMS

The PPA remains entrenched as an inefficient public monopoly with low port productivity and serving mostly old and small vessels. Most of the shipping routes remain under the control of shipping cartels. Investment and productivity in both sectors has been nominal. In the absence of competition in the supply chain, the costs remain high with rent-seeking by all participants in the chain.

The continued regulation of freight rates for agricultural commodities has had a negative impact on the trading of these goods. Because rates are so low, shipping lines are reluctant to carry the cargo especially during the harvest when there is a shortage in capacity. The lack of capacity adds to inventory costs and cargo losses. The high rate of containerization of agricultural commodities is a rather costly alternative for obtaining capacity to carry these commodities.

Chapter 10

GENERAL FINDINGS AND CONCLUSIONS

OVERVIEW

There have been some successes in local efforts to generate non-farm employment. There has also been a gradual shift in the market structure towards processing agricultural products into higher value goods for shipment to Luzon. However, there are substantial business-related factors that prevent a significant improvement in the livelihood of the small farmers. These include a lack of :

- Post harvest management (to avoid selling crops immediately following harvest)
- Management skills (and information)
- Developed markets (quality standards, uniform market prices)
- Financial instruments (to hedge against uncertainty)

The result is the traditional small-scale agriculture with growing reliance on credit and manufactured inputs that places the farmer at increasing risk.

This review has focused on the movement of goods to and from Mindanao. The inefficiencies in the movement of agricultural products from Mindanao farm gate to food producers and retailers in the Visayas and Luzon is due to the continuance of:

- poor road transport
- inadequate port infrastructure
- inefficient cargo-handling operations
- high cost shipping
- small consignment sizes
- lack of cargo consolidation activity

As expected, a wide range of performance was observed from the efficient and well-integrated logistics of large exporters to the costly logistics of the small scale farming operations. The most efficient logistics, those of the electronics industry in Luzon and the pineapple and banana plantation operations in Mindanao, have a number of things in common:

- Relatively high value goods
- Significant foreign participation
- Concentrated production
- Relatively short travel distances
- Few intermediaries
- Continuous flows
- Modern communications and computerization
- Highly integrated logistics

Since these characteristics do not apply to non-plantation agriculture, it is necessary to develop new strategies to address the problems of this sub-sector. Four areas of intervention have been identified. These are

- Consolidation of cargo,
- Integration of logistics,
- Improved Inter-island Shipping, and
- Institutional reforms

The high cost of domestic transport cannot be blamed on a single mode or link but rather on the entire chain. Road transport is expensive because of the condition of the roads and the relatively small volumes being transported. Non-plantation production is widely dispersed making it difficult to consolidate shipments until the cargo reaches the port. Even then, the vessel consignments remain relatively small. The result is that inter-island shipping is carried out by relatively small vessels, e.g. bulk carriers of 2000 tons. Inefficient and under-equipped cargo-handling services result in relatively long turnaround time for vessels in port, often exceeding the vessel travel time. Limitations on cargo handling service providers, one or two in most ports, and the unconstrained ability of the PPA to raise tariffs without any improvement in service produce a relatively high cost for port services. Ocean freight rates continue to be high because of the inefficient deployment of small and old vessels, and inefficient management of the vessel fleet. The logistics services for international trade have improved with the increase in number of third party logistics providers over the last 5 years. Local companies previously offering only transport or warehousing services have expanded their operations to more complete logistics services. Foreign logistics companies (from US, Europe and Asia) have set up local offices either on their own or in joint operation with local companies, to take advantage of the logistics business opportunities. They compete with local logistics service providers and help to professionalize the industry.

In recent years, the attention of the principal donors (USAID, ADB, JBIC and IBRD) has shifted away from transport, logistics and agriculture, except where these are directly linked to poverty reduction. They continue to fund road rehabilitation projects even though past investments have failed to produce good quality roads or a sustainable road network. They are no longer involved in port development because of the dysfunctional nature of the Philippine Port Authority. Their involvement in the shipping sector has been limited to USAID's efforts in the early 1990s to liberalize the sector and JBIC's funding of a lending program for vessels managed by the Development Bank of the Philippines.

CONSOLIDATION OF CARGO

Transport and logistics have considerable economies of scale. One of the major causes for the high cost of the logistics is the small scale of agricultural production, processing, storage activities and the small consignment sizes for shipping and storage. The problem begins with the small farm size and the lack of effective groups to consolidate the crops that have been harvested. It continues with the small size of the post-harvest processing activities and ends with small consignments transported to the ports and from the ports to the major markets. There are

two options for increasing consolidation:

- Downstream from farmers groups through the traders to the wholesalers and
- Upstream from the food processing industries through the buying agents to the contracted farmers

The first approach is now being addressed through efforts by farmers at cargo pooling. Both farmers' groups and cooperatives have undertaken cargo consolidation, but these efforts have been limited and their effectiveness has been uneven. Stronger local coordination requires better information on technology and markets. This can be provided directly by the regional markets and through extension services taking advantage of modern communications technology. The second approach has been employed by San Miguel and other large, Luzon-based food processing companies. They have moved the point of consolidation back from the factory to the mills, from the mills to regional buying operations and from the buyers to direct contracts with the farmers.

INTEGRATION OF LOGISTICS

The supply chains for Mindanao agricultural products have three notable characteristics. They are

- Technically simple
- Loosely integrated
- Procedurally complex

If the farmers are to develop a competitive advantage in the selling of agricultural goods in both the domestic and foreign markets, then it will be necessary to improve the quality of the logistic services and to integrate the supply chains. These efforts should be market driven; that is, the market should determine the relative benefits of various improvements and the extent to which the chain can be integrated from producer to final consumer.

Among the specific components of the supply chain to be improved are:

Post harvest processing – there is a lack of standards for grading, sizing, packaging, handling (stacking, palletizing, provisions for air circulation), and transporting (temperature and humidity control, compatibility with other cargoes) commodities such as fruits and vegetables destined for both domestic and international markets. There is limited use of cold chain systems to integrate cleaning, grading and packing at the farm site with transport in refrigerated trucks to the retailers' refrigerated storage or to vessels with refrigerated storage. [54]

Appropriate packaging and containers for fruits and vegetables - The packaging currently used for agricultural products, particularly fruits and vegetables, does not allow for adequate air

[54] Mincool which has a cold storage in Cagayan de Oro has notified the Land Bank, from which it obtained its loan, that it will instead procure a refrigerated truck in lieu of refrigerated van, which is needed by local farmers/ traders. This was not allowed in the existing loan contract.

circulation and control over ripening. Farmers and traders have proposed the use of better containers to reduce both logistics costs and cargo losses. These include:

- Rectangular, stackable and reusable plastic crates to maximize space utilization in trucks and storage,[55] prevent damage, and provide additional air circulation,
- Corrugated cartons with holes for air circulation for use in the local market for products other than mango and bananas.
- Zeolite packaging to extend the life of exports to 30 days to allow time for shipment to international markets.
- Multi-modal mini containers with 1-ton capacity that can be transferred between LCT and land-based transport without port facilities. This system can be tied to small-capacity portable grain storage systems that will be able to provide logistics to small rice and corn farmers. This may be appropriate to island provinces in Mindanao such as Camiguin island in Northern Mindanao, etc.
- Styrofoam air pallets for perishables
- Bar codes to record the product's "age" at any point along the supply chain.

Bulk transport systems for grains – The lack of storage at the farm level requires shipment to mills shortly after harvest. Most grains are transported in sacks and handled manually. Since production is small, sacks are appropriate for movement up to the mill, but beyond, they cause losses and inefficient handling.[56] A more efficient system of integrated bulk transport has been proposed, which includes silos, conveyors and special purpose terminals at General Santos, Cagayan de Oro, and Cebu, to complement the bulk facilities in Manila. These systems would reduce losses and provide better protection from elements.

Simplified marketing and distribution channels – There are multiple transactions and players involved in the movement between the market and the farmers for fertilizer and other inputs and for products including grains, fruits and vegetables. Many of these transactions provide no benefit but rather add to the cost of logistics by introducing additional transport and handling costs and additional participants seeking a profit margin.

Establishment of commodity exchanges – Commodity exchanges would provide the farmers with the information and transparency that is missing in the agricultural supply chains. They could be used to promote export markets, to perform pilot testing and research, to improve product quality (freshness, the shelf life extension, packaging design and packing materials), to extend marketing services, and to procure agricultural inputs. They would provide farmers with information on the

[55] Rectangular crates make use of around 80%of floor space, compared to 60%for circular containers, and 30% improvement in quantity loaded.

[56] These bags are sometimes used for shipping but are frequently emptied into bulk carriers or containers incurring significant losses

quantity, quality, and prices of products demanded by the market and the proper packaging and handling systems for specific products.[57]

These exchanges should be located in Cagayan de Oro, Davao and General Santos in order to provide better trading opportunities for farmers. They should be privately managed and operated with participation from farmers' associations and cooperatives.[58] The city governments could provide some equity financing, e.g. the Agora market complex in CDO is owned by the City Government. These exchanges could be linked with consolidation and packing facilities as well as with a national commodity exchange facility. A number of national organizations exist to support these exchanges including the Distribution Management Association of the Philippines, Philippine Exporters Confederation (Philexport) and local business and shippers organizations

Restructuring NFA - The NFA acts as a regulator, enforcer and competitor. It is difficult to understand what benefits it provides to the economy. It has failed to provide facilities for post harvest processing and storage. It is not effective as a food security program but dominates the import of grains. Its role in buying and selling favor the short-term gainers/traders and lowers domestic grain prices therefore reducing rural incomes. By controlling certain trades, it prevents traders from investing in more efficient bulk logistics systems.

IMPROVED INTER-ISLAND SHIPPING

The liberalization of the shipping sector over the last decade has been accomplished through a series of executive orders and MC's. These include reducing the level of regulation of rates and routes and allowing the introduction of new operators. However, the remaining regulations discourage the carriage of basic commodities and lead to cross-subsidization of cargo and passengers. Market regulation and the dominance of the major lines have prevented the elimination of the excess capacity and the introduction of more appropriate and efficient vessels. The trades are served by frequent calls by smaller vessels although there appears to have been a dramatic increase in vessel size in 2000 (Table 10.1)

[57] Commodity exchange facilities have been relatively successful in Japan, Thailand, Taiwan and South Korea. In Taiwan, there is the Taiwan Provincial Fruits Marketing Cooperative established in 1947 with a computerized auction system with bidders provided with individual electronic push button connected to the mobile platform with electronic screen indicating transaction number, quality class, bid price, quantity and seller.

[58] The Food Terminal in CDO is an example of such an exchange offering a variety of facilities and services for a wide range of products, eg. fruits and vegetables, poultry, etc. However, it suffered from a number of problems. It was subject to regulations imposed by government agencies such as the Commission of Audit, Bureau of Animal Industry, and the Price Control Council, which restricted its ability to respond to market forces. It also experienced changes in ownership, from the Development Bank of the Philippines to Human Settlements Development Corporation to the National Food Authority. There were also changes in mission. During the Aquino administration, the focus was on commercial viability through estate leasing and warehousing with the goal of being privatized. In the Ramos administration, the focus shifted to increasing the occupancy of its land and buildings, especially the central refrigerated warehouse, in order to enhance its attractiveness to prospective buyers.

Table 10.1 Characteristics of Vessels Berthing at the Base Port

2000	Shipcalls			Avg. Gross Registered Tonnage			Avg. Length (meters)		
	Total	Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic	Foreig
Cagayan de Oro	2,535	2,347	188	4,452	4,090	8,972	100	97	131
Cotabato	1,642	1,641	1	74	74	69	26	26	20
Davao	823	583	240	7,142	6,483	8,740	125	122	133
General Santos	1,159	998	161	5,025	5,182	4,047	111	114	94
Cagayan de Oro	3,521	3,336	185	2,837	2,478	9,301	72	68	135
Cotabato	1,449	1,449	0	30	32	0	10	11	0
Davao	930	705	225	1,783	1,280	10,838	33	25	167
General Santos	1,257	1,050	207	1,773	1,665	3,712	40	36	98

On the port side, the initial attempts at devolution of regional ports, which saw the formation of the Cebu and Subic Port Authorities and the transfer of smaller ports to the Local Government Units (LGUs), stalled under the Estrada administration. The PPA, despite changes in leadership, has been unable to reform itself. It continues to encourage monopolies in cargo handling and to approve increases in both port and handling charges without improving services or facilities. The berth productivity remains low as shown in Table 10.2 while the handling charges account for nearly 25 percent of the port-to- port shipping costs, exclusive of other port charges (Table 10.3). The frustration with PPA's performance is growing both among the users and within the government.

An alternative strategy has been developed by the USAID supported Agile project. This involves the development of a parallel transport system utilizing private port facilities and unregulated shipping.[59] This strategy does not attempt to reform the PPA or the existing regulated shipping market, rather it creates an alternative service. For higher valued goods, this would be based on a hub and spoke network utilizing RoRo operations with back-to-back transfers at the transshipment facilities. The backbone route would connect special purpose facilities in Cagayan D'Oro, Cebu and Manila. Cagayan D'Oro would act as the hub for Mindanao with collection/distribution services to Davao, General Santos and Zamboanga.

The vessels would be either second hand or chartered. It would operate outside of the regulatory and market constraints of the PPA and MARINA. This implies that the vessels could load and unload using their own crew and that the vessels would carry vans and trailers without tractors. It also implies that the port facilities will be relatively simple, a wharf for ramp operations and a parking lot for marshaling units. Both, shipping services and the ports would be privately operated and not pay fees to PPA.

[59] Economic regulation, regulation of safety would continue

The parallel network would also provide shipping for small-scale bulk and neo-bulk cargoes. Since the volumes are not sufficient to justify large vessels and cargo-handling equipment, this service would utilize the available tramp fleet and charters. The cargo handling facilities would be privately operated and equipped with mobile cranes and portable conveyors sized to allow vessels to turnaround in 1 ½ to 2 days. The system would operate independent of the PPA and Marina.

The current status of this initiative is that the concept has been presented to senior cabinet officials and backing has been received from the Mindanao Business Council, various industrial associations and legislators. A market/cost analysis has begun. Initial attempts have been made to identify a potential investor who would provide shipping services and develop the port facilities. The policy framework and proposals for revisions to existing policy are under development. The Bank could participate in the development of this parallel network by supporting these policy changes as well as providing infrastructure financing for port facilities that would be privately operated. This project is discussed in greater detail in the following chapter.

INSTITUTIONAL REFORMS

A number of legislative and regulatory reforms to remove structural barriers and inefficiencies have been under consideration for a decade and remain relevant[60]

- *Revise PPA Charter* - PD 857 mandated PPA to regulate the cargo handling rates in public ports and receive a portion of the revenues generated (typically 10 percent for domestic charges and higher for imports /exports rates). Since their revenues increase as port handling rates rise, there is a clear conflict of interest. There is no incentive to promote competition, as this would reduce rates. As owner, operator, and regulator of some 331 public ports in the country, PPA has a significant competitive advantage over approximately 490 private ports. It has shielded public ports from competition and created a major obstacle for private investment in port development. Some of the recommended changes have included: (a) Limit PPA's role to port planning and development, (b) Increase private sector representation on the PPA Board and (c) Provide proper incentives to private sector participation in port management, operations and investments in port facilities.

- *Deregulate domestic shipping rates* – Shipping rates are only partially deregulated. MARINA prescribes upper and lower limits on rates. Domestic Shipowner's Association (DSA) publishes only the upper limit, thus misinforming shippers as to the allowed rates. Whatever the objectives of regulation, they have not benefited the shippers. The class C rates were intended to protect low value cargoes but shipping lines often shut-out cargo shipped under these rates and shippers have had to ship under more costly tariffs to meet their delivery schedules. Given a competitive market, deregulation should have lowered freight rates but the opposite happened due to limited competition and the market power of the ship owners. While it is clear that MARINA's efforts at rate regulation have not

[60] These are from various shippers' organizations and form part of the resolution of the Fourth Mindanao Food Congress to reform the sea-transport industry and improve the agricultural marketing/ logistics system in Mindanao.

been helpful to the economy, any effort to deregulate these rates must be accompanied by elimination of constraints on competition in the provision of shipping services for all commodities.

- *Eliminate cabotage* - There is an ongoing debate on whether to eliminate cabotage in order to create competition thus allowing foreign vessels to transport cargo between domestic ports. The arguments for and against have been debated *ad nauseum.* Most countries, including the US, retain cabotage as a strategic policy. However, Indonesia, another nation in ASEAN, benefited from opening domestic trade to foreign shipping. It is unclear whether the removal of cabotage would attract substantial foreign flag activity; but the continuing debate at least provides some threat of competition.

- *Revoke EO 59* – This order would create a single monopoly to control cargo handling in every public port. The contract would be awarded without public bidding. It is a proposal borne of cronyism with no economic justification other than to enrich selected politicians

- *Revise the deregulation rules for shipping* - MARINA MC 153 (which revised the implementing rules of EO213 on shipping rate deregulation) prescribed the removal of consultative councils for discussion of rates. This shifted the burden from the shipping lines having to justify a rate increase to cargo owners having to disprove the need for a rate increase. Shipping lines can increase the freight rates through notices in the newspaper. The increase in freight rates for unregulated containerized cargoes affected the transport costs for regulated bulk and break-bulk cargoes, which were frequently shipped under the non-regulated containerized cargo rates in order to avoid being shut out.[61]

- *Campaign Against Corrupt Practices* - In Northern Mindanao, trucks traveling to Cagayan de Oro from Bukidnon and other areas are stopped and required to pay a fee of P50 to P200. Such disruption on the road not only results in higher logistics cost but also leads to delays in reaching the markets and product deterioration.

While these six reforms are important and necessary, they would challenge vested interests and require a continuity in public policy, that has not been achieved over the last decade. Dismantling the economic regulation of the shipping industry and the public monopoly in the port sector would require more than executive orders or changes in regulations. The Public Services Act would have to be revised and public institutions downsized. Assuming a continuous effort on the part of government, at least five (more likely ten) years would be required to pass the necessary legislation, overcome the opposition of vested interests, and respond to the legal challenges, injunctions and court delays.

Corruption and crony capitalism that has prevented effective investments in transport infrastructure for over a decade continues to represent a major risk to any reform. The unacceptable performance of the PPA - poor maintenance and safety, conflict of interest as a

[61] Based on the consultation of the Mindanao Business Council with MARINA last 19 February 2002.

regulator, rent-seeking behavior as a public monopolist, lack of transparency, restrictions on private sector cargo-handling activities and general inefficiency - continue unabated. The inability of DPWH to construct and maintain good quality roads continues. Despite the Bank's efforts to re-engineer the organization and change its way of doing business, problematic contractors and consultants continue to perform substandard work.

SUMMARY

The development of more effective logistics for Mindanao must address both the distribution of post-harvest processing and resulting small-scale shipments and the inefficiencies which result from government's failure to introduce effective deregulation of the logistics market, most notably in inter-island shipping.

Earlier attempts by the Bank to encourage reforms in the port sector as part of its lending program were unsuccessful and lead to the Bank disengaging from the sector. This may be the time for re-entry through support of private development and management of the shipping and port sector. The Bank could support this effort by reducing the risk premium and other financial impediments. Alternatively, it could introduce the necessary policy reforms, in sectoral adjustment loans or covenants in on-going lending for poverty reduction programs in Mindanao.

While it is important to address these problems and to pursue reform in the public sector, the need for short-term development in Mindanao argues for local, private sector initiatives that would bypass the current system. By limiting these initiatives to a regional activity and transferring regulatory responsibility to the regional government, it should be possible to limit the political resistance from the PPA, the shipping cartel, and other vested interests. These initiatives should allow for their participation but on a competitive basis.

Table 10.4 : Proposed Initiatives for Improving Logistics for Philippines

Initiative	Activities	Implementation Agency	Goals	Role of Development Agency
Cargo Consolidation	Expand cargo pooling arguments, Support efforts to develop logistics/consolidation providers		Increase the size of shipments of grain and other agricultural products in order to reduce transport costs	Technical Assistance
New Bulk Handling Facilities	Establish small- consignment, bulk-handling private terminals		Reduce handling costs and decrease shipping costs for bulk cargoes	Technical Assistance Capital Investment
New Inter-island Shipping Services	Develop RoRo Service between Mindanao and Luzon/Visayas		Create a lower cost transport system for general cargo shipments	Policy Reform Technical Assistance Capital Investment
Deregulate Inter-island Shipping	Eliminate economic regulation of shipping		Reduce impediments to competition between existing providers of inter-island shipping, encourage new investments and improvements in technology, reduce barriers to entry	Policy Reform
Decentralize Port System	Restrict PPA to planning and establish a system of independent port authorities and municipal ports		Increase efficiency of port operations, improve maintenance of infrastructure, encourage investment in new facilities	Policy Reform
Establish Commodity Exchange	Develop commodity exchanges to provide marketing and financial support for local farmers		Increase the income of farmers	Technical Assistance
Improve post- harvest processing, packaging	Develop extension services for cooperatives and farmers groups		Reduce losses and improve quality for agricultural products shipped domestically and internationally	Technical Assistance

Chapter 11

INTER-ISLAND SHIPPING PROJECTS

Various studies have been carried out proposing investments in port facilities to allow for more efficient cargo handling. However, they fail to address the problem of the production system not being able to provide the concentrated volumes required to make these investments viable. Efforts to improve the efficiency and market power of the farmers through government efforts to promote cooperatives, introduce floor prices for basic commodities, adjust import duties from substitute goods, invest in downstream processing and introduce new crops have either met with limited success or completely failed.

Rather than restructuring the current system, it is proposed to introduce a parallel system intended solely to serve the movement of cargo between Mindanao and Manila/Cebu. This system would be designed for the transport of two types of cargo, bulk and unitized.

BULK SYSTEM

At present, grains are transported from Mindanao as break-bulk or containerized cargo. They absorb the higher cost of this form of transport because an efficient alternative is not available. The production systems for grain are small-scale and do not allow for the consolidation of shipments to provide the larger consignments required for bulk shipping. There are bulk ships available for charter, but there are relatively few port facilities equipped for the handling of bulk cargo efficiently. The time spent in port loading and unloading these vessels using ship's gear and arrastre gangs adds significantly to the cost of ocean freight. This problem is being addressed by some of the larger food processing companies. They are consolidating corn shipments from Mindanao and shipping them to bulk-handling facilities along the Pasig River. Given that large volumes are required to justify the investment in a public bulk handling facility (+1 million tons per year), it is proposed to utilize the existing private bulk-handling facilities in Luzon, e.g. North Harbor.

The development of an effective bulk shipping system requires a complete logistics solution from farm to market. The proposed project for bulk cargoes would have two components:

- First, a consolidation activity at Davao, Cagayan D'Oro and General Santos, to be operated by the private sector under a long term supply contract negotiated by the representatives of the Mindanao agricultural community.

- Second, a bulk loading facility at each port developed either through a joint venture with the large food processing companies or construction of a silo and conveyor system using an existing private or other non-PPA port facility.

The inter-island shipping is the easiest component to develop, as it would utilize chartered bulk carriers, which are readily available. A third party logistics provider (3PL) would procure, consolidate and also provide storage, inventory control and sales. The scale of this activity should be sufficient to develop full shiploads. The vessels would be chartered by either the consolidator or the operator of the bulk facility. Although these are relatively small bulkers, their size is well-suited to the typical consignment size. For bulk carriers in the range of 5000 DWT with 4-6 holds, this would require consignments of homogenous cargo to the order of 1000 tons. This could not be done through direct loading. Therefore, a terminal would be required equipped with loaders (portable or fixed) having an average handling rate of 100-150 tons per hour and multiple silos with 1000-2500 ton capacity. This could be accomplished through portable conveyors and simple grain silos but the terminal should be capable of expansion at relatively little cost. The terminal should be privately operated and independent of PPA just as the vessels would operate independent of Marina tariff regulations.

The individual farms produce surpluses to the order of tons and consolidators operate at the 10 to 100 ton level. Therefore a new consolidation activity would be required to develop 1000 ton consignments. The grain would be procured from the existing consolidators. This would require the hiring or purchase of a large number of trucks. Assuming an initial level of operation of 10,000 tons per week during peak season, this would imply about 200 trucks (25 tons per truck, 3 days per round trip, 2 trips per week). The grain would be purchased on an FOB basis for the Mindanao loading port or on a CIF basis for delivery to Manila. Over time, the procurement activity could be extended inland to rural areas for purchases ex-market.

The implementation of this program would begin with an analysis of the market and development of a strategy for capturing a significant market share. This would be followed by an investigation of the most efficient mechanism for collection and consolidation and the least cost configuration for loading facilities in Cagayan D'Oro. It would then be necessary to determine whether a 3PL could profitably develop this facility or whether it would be necessary to use public funds. Finally, it would be necessary to attract a private 3PL provider to undertake the activity. It is assumed that only a single provider would be granted the franchise/terminal lease, but that there would be substantial competition from the existing shipping lines and from the large food companies that have already initiated bulk shipments from Mindanao.

CONTAINER SYSTEMS

Container cargoes are shipped on old pure container vessels, passenger-cum-cargo RoRo vessels, and general cargo vessels. None of these vessels operate efficiently as container carriers. The container vessels are self-sustaining with extremely low handling rates. The passenger cum cargo RoRo vessels are newer but are designed for and operated as passenger services. The general cargo vessels carry containers on the deck and have relatively long turnaround times in port. In order to develop an efficient container operation, it is necessary to have vessels designed to carry containers and to achieve fast turnaround in port. Two alternatives have been considered, a pure cargo RoRo service and an efficient LoLo service.

The RoRo service would transport containers on trailers between dedicated terminals. The terminals would consist of a berth designed for the RoRo vessel ramps (either straight stern or side slewing stern) and a parking lot with sufficient space for unloading and loading a full vessel.

There would be no need for storage, customs or other fixed facilities. Assuming a 15-knot vessel and an average berth time of three hours and with an additional one hour for port entry, the round trip voyage time for Cagayan D'Oro - Manila would be 2 ½ - 3 days while Davao - Manila would be 5 days. In order to provide efficient logistics, the terminals in Luzon and the Visayas would have to be located away from the existing ports and near to major highways allowing for easy access to the region.

The LoLo service would use cellular container vessels to transport the boxes between dedicated berths equipped with mobile cranes. The facility would require a single berth and 2 hectare yard with space for 1000 TEU. The equipment would include two mobile cranes and yard equipment (3-4 reach-stackers or top loaders). Assuming that the vessels carry 250 TEU and that two mobile cranes can handle 35 moves per hour, the round trip voyage time would be 3 ½ - 4 days.

The design of an efficient transport system requires consideration of the trade-off between vessel size and frequency of movements. Larger vessels are less costly per TEU-kilometer but have slightly longer voyage times because of the additional time in port. More importantly, they will have an impact on frequency if their capacity is large relative to volume. For example, a 75,000 TEU inter-island trade (total loaded boxes in both directions) could be served by three 150 TEU, two 250 TEU vessels[62] or one 500 TEU vessels operating 2 round trips per week (assuming a loaded:empty ratio of 4:1). The first would provide a daily service, the second an every other day service, and the third a twice weekly service. While the third would be less expensive to operate, the first would provide savings to the users from more frequent sailings. These savings include reduced inventory requirements, less loss on perishable items and tighter order cycle times. In addition, the smaller vessels offer the potential of greater competition by lowering the barriers to entry.

A container service offers the advantage that the operation of the terminals and the vessels would be separate thus increasing the potential for competition. At the same time, it requires a separate investment in the container terminal and equipment. The shipping lines would provide the containers so their capital cost would include the cost of the boxes. Small size container vessels are available both second hand and special purpose new-buildings. The latter are more expensive but more efficient. They include hatchless vessels that require less time in port.

Used Ro-Ro vessels cost to the order of $2.5-$3 million for 5000 GRT and $4-$6 million for 8000 GRT. The market for RoRo vessels is generally split between car-carriers and large cargo vessels operating on ocean routes, and ferries and cargo ships operating on short sea routes. The majority of the pure RoRo vessels constructed over the last three decades are in this size range (Figure 11.1). More recently, the average size of new-buildings has been in the range of 10,000 DWT (Figure 11.2)

The choice between these two systems would be based on four considerations:

[62] Approximately 8.5 lane meters per TEU

- The average cost per TEU at different traffic volumes
- The availability of suitable sites for terminals
- The ability to operate outside of the PPA's jurisdiction and MARINA's regulation
- The logistics at either end of the voyage.

A RoRo system involves vessels that are 2-3 times as expensive as container vessels. However, they are able to make between 50 percent and 75 percent more voyages per year. The RoRo system requires containers to be transported on trailers. Depending on the logistics requirements, these trailers would be owned either by the vessel or the trucking companies. If the former, the boxes would have to be placed on trailers prior to loading which would require yard equipment and additional marshalling area. The same would apply for the unloading operation. There is also the capital cost for the trailers while on board the vessel, which is 2-3 times that of the container. On the other hand, the land required for the terminals is about the same. The RoRo system requires special tractors to move the trailers on and off the vessel whereas the LoLo system requires mobile cranes and yard equipment. There would be more staff required at the container facility because there is more equipment to operate and additional workers are needed to guide the movement of the boxes. Both systems would require berths located in a sheltered area, but the berth for the RoRo system would be less costly. A summary of the relative cost advantages of the two systems is shown in the following Table 11.1

Figure 11.1

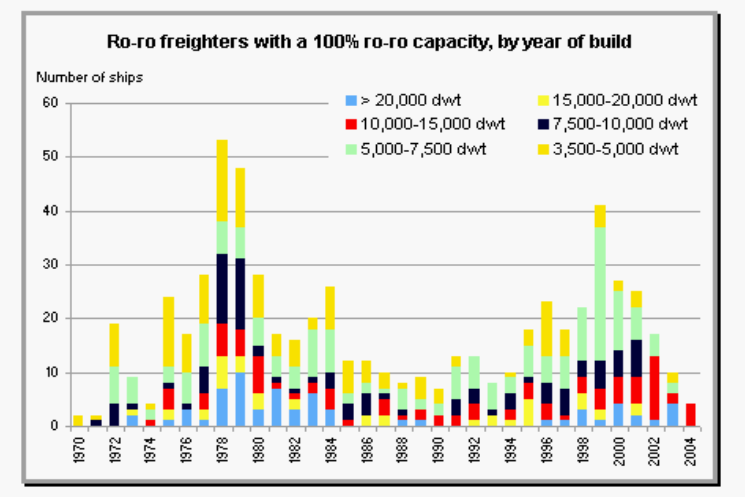


Figure 11.2

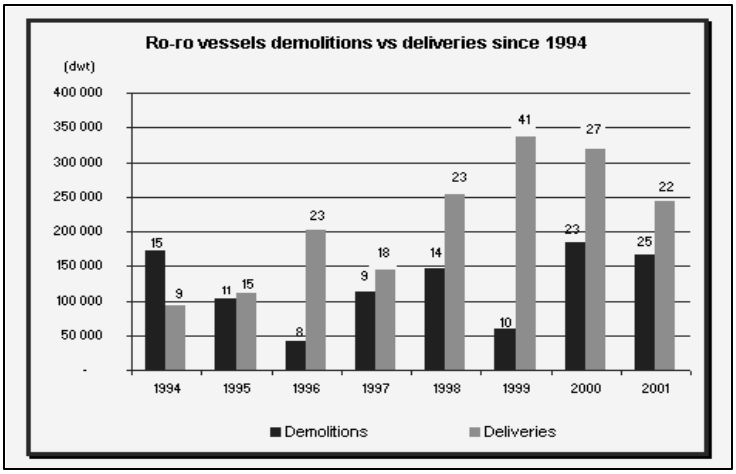


Table 11.1: Relative Advantage of the Different Systems

Factor	RoRo	LoLo
Vessel Cost		++
Berth and Depth	++	
Sensitivity to Wind, Waves		+
Size of Terminal		
Yard Equipment	+	
Terminal Labor	++	
Voyage Time	+	
Voyage Reliability	+	

+ Better, ++ Much Better

In order for either of these systems to operate independently of the PPA and MARINA, they must be designated as a completely separate system serving a specific market. The existing domestic shipping lines would no doubt protest that they should be allowed to operate with the same freedom. Therefore, it is important that this service be distinct and that existing vessel operators be allowed to participate on a competitive basis. The pure cargo RoRo operation represents a unique offering and, to the extent that it is integrated with a trucking service, it might be presented as an extension of that trucking operation. It would be more difficult to claim that the LoLo operation is unique since there is already a substantial container service provided by the existing shipping lines.

The RoRo system, if operated efficiently, will cost less than the existing inefficient, regulated system and will provide a better quality of service. However, the competitive advantage of the RoRo system is dependent on the continuation of the market distortions created by the government involvement in the port and shipping sector. Under an open and competitive system, and with better management, the existing shipping lines could compete with the RoRo service. If these operators invested in more appropriate vessels and used better terminals, they would have a cost advantage over the RoRo system

The selection and design of an appropriate container transport system should be based on logistics analysis to determine the system that offers the best combination of low cost and flexibility for the origin-destination movements. The Ro-Ro system has a higher capital cost per TEU capacity but offers the potential of higher productivity assuming that the movement of the cargo can be integrated from origin to destination.

A Ro-Ro service could most efficiently be provided as an integrated service. The vessel operator would also provide the terminal in Mindanao and possibly in Cebu and Luzon. The cost of these terminals is relatively small. They should be designed to service the needs of specific vessels. In order to justify the creation of an integrated service, it would be necessary to obtain a contract for a specific volume of cargo or to ensure that there would be adequate traffic to justify the capital investments. It is assumed that the trailers would be provided by the shippers if there is

adequate backhaul cargo. Otherwise, the shipping line would provide lowboy trailers for moving the cargo on and off the vessel.

The design of an efficient system must address the various questions raised. This implies an analysis not only of the relative costs for the vessels and terminals but also of the total costs to the users. It also implies a policy analysis to determine which system will be more effective at encouraging competition and which will offer the best chance of circumventing the monopoly power of the PPA and the oligarchy of existing shipping lines.

ANNEXES

ANNEX A: TRADE STATISTICS

Table A.1. FOREIGN TRADE, 1971 to 2000
(F.O.B. value in million U.S. dollars)

Year	Total Trade	Exports			Imports			Balance of Trade
		Value	Percent to Total Trade	Average Exchange Rate [1] (P/U.S.$)	Value	Percent to Total Trade	Average Exchange Rate [2] (P/U.S.$)	
1971	2,450.08	1,189.25	48.54	6.399	1,260.83	51.46	6.481	(71.58)
1972	2,502.03	1,168.43	46.70	6.580	1,333.60	53.30	6.721	(165.17)
1973	3,433.81	1,837.19	53.50	6.721	1,596.62	46.50	6.806	240.57
1974	5,868.25	2,724.99	46.44	6.754	3,143.26	53.56	6.838	(418.27)
1975	5,753.65	2,294.47	39.88	7.212	3,459.18	60.12	7.303	(1,164.71)
1976	6,207.16	2,573.68	41.46	7.403	3,633.48	58.54	7.496	(1,059.80)
1977	7,065.65	3,150.89	44.59	7.366	3,914.76	55.41	7.458	(763.87)
1978	8,157.07	3,424.87	41.99	7.329	4,732.20	58.01	7.421	(1,307.33)
1979	10,742.92	4,601.19	42.83	7.341	6,141.73	57.17	7.433	(1,540.54)
1980	13,514.70	5,787.79	42.83	7.474	7,726.91	57.17	7.568	(1,939.12)
1981	13,666.08	5,720.40	41.86	7.860	7,945.68	58.14	7.959	(2,225.28)
1982	12,687.51	5,020.59	39.57	8.497	7,666.92	60.43	8.604	(2,646.33)
1983	12,491.92	5,005.29	40.07	11.072	7,486.63	59.93	11.193	(2,481.34)
1984	11,460.26	5,390.65	47.04	16.582	6,069.61	52.96	16.848	(678.96)
1985	9,739.62	4,628.95	47.53	18.586	5,110.67	52.47	18.859	(481.72)
1986	9,885.38	4,841.78	48.98	20.356	5,043.60	51.02	20.403	(201.82)
1987	12,457.21	5,720.24	45.92	20.556	6,736.97	54.08	20.564	(1,016.73)
1988	15,233.57	7,074.19	46.44	21.065	8,159.38	53.56	21.065	(1,085.19)
1989	18,239.53	7,820.71	42.88	21.703	10,418.82	57.12	21.738	(2,598.11)
1990	20,392.19	8,186.03	40.14	24.200	12,206.16	59.86	24.375	(4,020.13)
1991	20,890.88	8,839.51	42.31	27.516	12,051.36	57.69	28.003	(3,211.85)
1992	24,343.24	9,824.31	40.36	25.310	14,518.93	59.64	25.901	(4,694.62)
1993	28,972.21	11,374.81	39.26	26.732	17,597.40	60.74	27.250	(6,222.59)
1994	34,815.46	13,482.90	38.73	26.271	21,332.57	61.27	26.625	(7,849.67)
1995	43,984.81	17,447.19	39.67	25.605	26,537.63	60.33	25.791	(9,090.44)
1996	52,969.48	20,542.55	38.78	26.220	32,426.93	61.22	26.271	(11,884.38)
1997	61,161.52	25,227.70	41.25	29.205	35,933.82	58.75	29.647	(10,706.12)
1998	59,156.24	29,496.35	49.86	40.276	29,659.89	50.14	40.922	(163.54)
1999	65,779.35	35,036.89	53.26	38.781	30,742.46	46.74	39.369	4,294.43
2000	69,465.65	38,078.25	54.82	43.710	31,387.40	45.18	44.480	6,690.85

[1] - BSP buying rate. [2] - BSP selling rate.

Notes: 1. Details may not add up to totals due to rounding. 2. Exports include domestic exports and re-exports

3. Starting August 4, 1992, the average exchange rate refers to the weighted average rate under the Philippine Dealing System (PDS).

Sources: National Statistics Office and the Bangko Sentral ng Pilipinas.

Figure A.1

Value of Trade 1970-2000

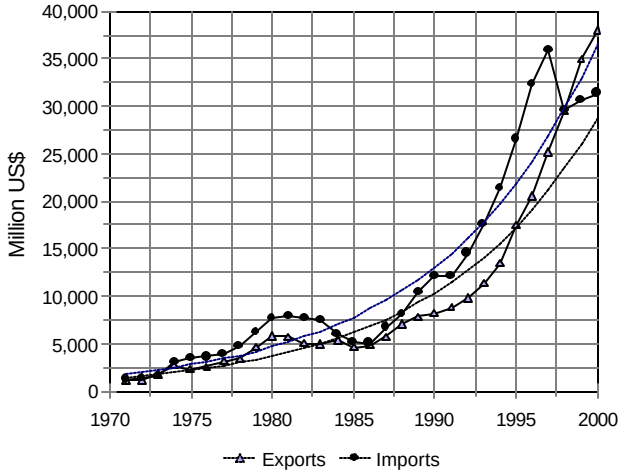


Table A.2. Minimum Access Volumes Committed to the WTO (1995 to 2005)

PRODUCT	UNIT	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Poultry fresh/ chilled/ frozen	MT (000)	7.3	15.2	16.2	16.7	17.7	18.8	19.8	20.9	21.9	23.0	10.4
Potatoes fresh/ chilled	MT	465	965	1,035	1,102	1,171	1,240	1,309	1,378	1,447	1,516	772
Coffee, roasted/ not decaff/ not Husks & skin…	MT	5	927	993	1,060	1,126	1,192	1,258	1,324	1,391	1,457	745
Maize, other than seed	MT (000)	65.1	135.0	144.6	154.3	164.0	173.6	183.2	192.8	202.5	212.1	108.5
Rice	MT (000)	29.9	61.5	65.1	97.1	112	119.5	134.4	164.3	194.1	224.0	142.2
Sugar	MT (00)	19.2	39.8	42.7	45.5	48.4	51.2	54.1	56.9	59.8	62.6	32.0

Source: Department of Agriculture, AGILE Study Report, June 1999

Table A.3. In-Quota Tariff for Sensitive Agricultural Products: Average by Product Group, 1995 to 2000

HS HEADING	PRODUCT GROUP	INITIAL RATE	COMMITMENTS APPLIED TARIFF RATE					FINAL RATE
		1995	1996	1997	1998	1999	2000	2004
0102.9	Other live bovine animals	30	30	30	30	30	30	40
0103.9	Live swine	30	30	30	30	30	30	40
0104.2	Other live goats	30	30	30	30	30	30	40
0105	Live poultry	40	40	40	40	40	40	40
0201	Beef fresh/chilled **	30	30	30	30	20	10	30
0202	Beef frozen **	30	30	30	30	20	10	30
0203	Pork fresh/chilled/frozen	30	30	30	30	30	30	30
0204.5	Goat meat fresh/chilled/frozen	30	30	30	30	30	30	40
0207	Poultry fresh/chilled/frozen	50	46.47	42.35	42.35	42.35	42.35	40
0210	Meat & edible meat offal, salted…	ni	30	30	30	30	30	Ni
0701.9	Potatoes fresh/chilled	50	50	45	45	45	45	40
0703.1 & 2	Onions, shallots, and garlic	ni	30	30	30	30	30	Ni
0704.9	Cabbages, kohlrabi, kale…fresh/chilled	ni	30	30	30	30	30	Ni
0714.1 & 2	Cassava & sweet potatoes fresh/chilled*	ni						Ni
0901	Coffee, roasted/not decaff/not husks & skin	50	50	45	38	38	38	40
1001.9	Other wheat and meslin*	ni						Ni
1002	Rye*	ni						Ni
1003	Barley*	ni						Ni
1004	Oats*	ni						Ni
1005.9	Maize, other than seed	35	35	35	35	35	35	35
1006	Rice	50	50	50	50	50	50	50
1007	Grain sorghum*	ni						Ni
1008.9	Other cereals*	ni						Ni
1103.1	Cereals groats, meal and pellets, except wheat	ni						Ni
1104.2	Other worked grains*	ni						Ni
1601	Sausages and similar products,**…	ni	30	30	60	50	10	Ni
1602	Other prepared or preserved meat,…	ni	30	30	32	31.33	30.67	Ni
1701	Sugar	50	50	50	50	50	50	50
2101.1	Solluble coffee	ni	30	30	30	30	30	Ni
2302.1	Bran,… & other residues… of maize*	ni						Ni
2306.7	Oil-cake & other solid residues… of maize*	ni						Ni
2309.9	Other prep. of a kind used in animal feeding*	ni						Ni
Simple Average		**38.21**	**35.57**	**34.87**	**34.77**	**33.23**	**30.2**	**38.93**

No in- and out-quota rates are provided but only a single tariff for all imports for all imports for a given year;
ni - not included in Sect 1-B of Scheduled LXXV
Source: Section 1-B, Phil. Schedule LXXV, GATT-UR; EO No. 313, 29 March 1996; EO No. 465, Jan. 1998

ANNEX B: FERTILIZER STATISTICS

Table B.1
Fertilizer Use in Philippines and Northern Mindanao

ITEM	AREA PLANTED	% AREA APPLIED	APPLICATION Bags/Hectare
PHILIPPINES			
1990	3,441,500	79%	3.90
1991	3,487,797	82%	3.62
1992	3,287,393	79%	3.91
1993	3,346,255	82%	4.07
1994	3,735,303	81%	4.07
1995	3,814,081	84%	3.97
1996	4,009,489	86%	4.35
1997	3,390,637	99%	4.44
1998	3,301,039	81%	4.36
1999	4,090,493	84%	4.32
2000	4,149,509	71%	4.43
NORTHERN MINDANAO			
1990	93,510	77%	4.29
1991	108,760	90%	3.68
1992	93,877	80%	4.26
1993	96,763	77%	4.72
1994	102,675	96%	4.54
1995	99,677	96%	4.70
1996	94,070	97%	5.40
1997	85,030	96%	5.73
1998	94,515	88%	5.78
1999	97,047	89%	5.49
2000	97,371	68%	5.32

Table B.2: Production, Importation And Consumption Of Fertilizers, 1991-2000

Year	Plant Nutrients ('000 nutrient tons)				Fertilizer Products ('000 metric tons)						
	Total	Nitrogen	Phos-phorous	Potas-sium	Total	Urea	Ammosul	NP & P	NPK	Potash	Others
					Production						
1991	432.0	152.6	190.1	89.3	1,007.8	-	-	363.0	636.2	7.6	1.0
1992	394.9	142.4	183.2	69.3	930.0	-	-	429.2	494.1	6.7	…
1993	418.2	157.5	186.1	74.6	1,035.5	-	-	431.6	597.3	6.6	…
1994	451.0	168.9	205.1	77.0	1,098.9	-	-	427.3	665.3	6.3	…
1995	575.8	215.3	264.4	96.1	1,389.7	-	19.5	502.2	861.0	7.0	…
1996	637.9	255.7	273.4	108.8	1,607.3	-	185.6	489.5	917.5	9.0	5.7
1997	522.7	213.0	217.1	92.6	1,321.9	-	172.7	357.3	777.0	8.6	6.3
1998	464.4	184.6	192.7	87.1	1,180.6	-	113.2	320.4	731.6	14.5	0.9
1999	445.7	186.2	180.8	78.8	1,163.4	-	215.3	388.8	542.6	15.1	1.6
2000	400.8	168.2	150.1	82.5	1,064.9	-	176.3	269.4	597.9	15.4	5.9
					IMPORTATION						
1991	438.0	300.6	29.5	107.9	1,102.2	436.0	410.8	64.2	5.7	178.6	6.9
1992	452.7	357.7	32.3	62.7	1,163.3	567.4	389.0	72.9	7.4	114.2	12.4
1993	473.4	363.5	43.7	66.2	1,099.2	638.1	239.1	93.7	-	110.4	17.9
1994	466.0	390.1	38.7	37.2	1,130.7	672.0	253.5	99.3	2.0	59.9	44.0
1995	528.4	383.5	37.4	107.5	1,237.5	651.9	282.1	84.7	-	179.2	39.6
1996	557.5	368.2	66.0	123.3	1,190.6	660.1	166.3	143.4	-	205.5	15.3
1997	545.5	369.6	39.1	136.8	1,235.6	640.5	240.9	87.5	6.2	226.3	34.2
1998	330.5	293.6	15.3	21.6	786.7	550.7	162.8	33.2	-	35.9	4.1
1999	545.8	381.9	51.4	112.5	1,222.4	682.0	217.5	110.0	5.0	186.2	21.7
2000	548.0	364.5	79.3	104.3	1,259.9	577.7	294.3	192.0	16.0	172.3	7.6

Note: Details may not add up to totals due to rounding.
Source: Fertilizer and Pesticide Authority.

Table B.2 (Cont)

Year	Total	Nitrogen	Phos-phorous	Potas-sium	Total	Urea	Ammosul	NP & P	NPK	Potash	Others
					Consumption						
1991	437.5	298.7	71.3	67.5	1,125.1	395.0	288.7	175.9	188.1	68.9	8.5
1992	504.3	362.3	73.2	68.8	1,261.3	540.8	252.4	188.5	202.8	67.3	9.5
1993	565.6	401.2	96.5	67.9	1,387.3	602.2	241.0	241.8	235.0	57.0	10.3
1994	601.8	402.6	106.6	92.6	1,474.5	580.2	217.6	250.7	340.6	74.0	11.4
1995	595.0	394.7	129.1	71.2	1,469.4	544.3	182.9	310.4	394.7	25.4	11.7
1996	665.1	426.0	145.7	93.4	1,635.1	568.7	224.5	333.5	447.5	50.0	10.9
1997	809.2	548.5	148.3	112.4	2,032.4	742.3	413.3	324.7	453.9	80.7	17.5
1998	628.4	408.8	121.1	98.5	1,544.9	577.0	214.2	285.1	373.1	77.2	13.4
1999	744.3	480.6	142.8	120.9	1,864.0	639.5	360.4	324.0	413.2	105.4	21.6
2000	733.2	488.0	124.1	121.1	1,840.1	667.8	366.8	261.4	423.9	103.3	16.9

Table B.3
Type of Fertilizer Used in Philippines and Northern Mindanao

ITEM	TOTAL QUANTITY APPLIED (Bags of 50 kgs.)				
	Urea	Ammosul	Ammophos	Complete	Others
PHILIPPINES					
1990	50%	7%	14%	28%	2%
1991	48%	11%	12%	29%	0%
1992	48%	11%	13%	28%	0%
1993	50%	9%	12%	29%	
1994	48%	10%	14%	27%	
1995	47%	12%	12%	29%	
1996	45%	11%	13%	30%	1%
1997	45%	10%	13%	30%	2%
1998	48%	10%	13%	28%	1%
1999	46%	10%	12%	31%	1%
2000	45%	9%	12%	32%	1%
NORTHERN MINDANAO					
1990	49%	18%	11%	19%	3%
1991	39%	21%	19%	18%	4%
1992	40%	25%	21%	15%	
1993	40%	25%	17%	18%	
1994	42%	16%	23%	19%	
1995	42%	18%	22%	18%	
1996	37%	16%	20%	17%	10%
1997	37%	15%	15%	24%	8%
1998	36%	13%	17%	25%	9%
1999	34%	18%	19%	23%	6%
2000	36%	19%	19%	23%	3%

Table B.4: Fertilizer Use for Cultivation of Corn

	Area Planted	Area Applied	All Fertilizer	Area Planted	Area Applied	All Fertilizer
	All Philippines			Northern Mindanao		
1990	3,955,180	60%	3.73	268,560	85%	4.62
1991	3,725,965	57%	3.81	280,128	74%	4.79
1992	3,481,257	57%	3.78	234,294	74%	4.36
1993	3,220,601	56%	4.06	321,931	78%	4.34
1994	3,089,675	63%	3.79	331,137	81%	4.22
1995	2,708,803	64%	3.71	299,877	84%	4.83
1996	2,781,619	72%	3.95	318,847	89%	5.80
1997	2,760,533	68%	4.02	304,548	92%	6.03
1998	2,421,370	70%	4.02	259,265	90%	6.41
1999	2,687,255	72%	4.16	256,754	90%	6.28
2000	2,530,337	52%	4.45	251,340	68%	6.49

Table B.5 FREIGHT RATES FOR FERTILIZER					
As of March 1, 2002					
	10 FOOTER				
	CDO -MLA	CDO - BAC	CDO - BATANGAS	CDO - DGTE	CDO - ILO
Per CBM (Inclusive Of VAT)	850.6	609.42	766.18	422.76	594
Per CBM (Exclusive Of VAT)	773.27	554.02	696.53	384.33	540
Freight	7,655.38	5,484.80	6,895.65	3,804.77	5,346.00
Stamp	10	10	10	10	10
Wharfage (CDO)	34	34	34	34	34
Wharfage (Destination)	34	34	34	34	34
Handling (CDO)	298.1	298.1	298.1	298.1	298.1
Handling (Destination)	411.4	311.85	400.7	315.7	331.54
Weighing	22	22	22	22	22
Trucking (CDO)	1,201.10	1,201.10	1,201.10	1,201.10	1,201.10
Trucking (Destination)	2,480.00	1,346.00	2,530.00	950	1,425.00
Door To Door	12,145.98	8,741.85	11,425.55	6,669.67	8,701.74
Door To Pier	9,665.98	7,395.85	8,895.55	5,719.67	7,276.74
Pier To Door	10,944.88	7,540.75	10,224.45	5,468.57	7,500.64
Pier To Pier	8,464.88	6,194.75	7,694.45	4,518.57	6,075.64
Pier To Pier Origin Charges	8,019.48	5,848.90	7,259.75	4,168.87	5,710.10
	20 FOOTER				
	CDO -MLA	CDO - BAC	CDO - BATANGAS	CDO - DGTE	CDO - ILO
Per CBM (Inclusive Of VAT)	850.6	609.42	766.18	422.76	594
Per CBM (Exclusive Of VAT)	773.27	554.02	696.53	384.33	540
Freight	15,310.74	10,969.59	13,791.29	7,609.54	10,692.00
Stamp	10	10	10	10	10
Wharfage (CDO)	69	69	69	69	69
Wharfage (Destination)	69	69	69	69	69
Handling (CDO)	596.75	596.75	596.75	596.75	596.75
Handling (Destination)	823.35	623.7	801.39	631.4	663.08
Weighing	33	33	33	33	33
Trucking (CDO)	1,713.00	1,713.00	1,713.00	1,713.00	1,713.00
Trucking (Destination)	3,540.00	1,920.00	4,680.01	1,355.00	2,035.00
Door To Door	22,164.84	16,004.04	21,763.44	12,086.69	15,880.83
Door To Pier	18,624.84	14,084.04	17,083.43	10,731.69	13,845.83
Pier To Door	20,451.84	14,291.04	20,050.44	10,373.69	14,167.83
Pier To Pier	16,911.84	12,371.04	15,370.43	9,018.69	12,132.83
Pier To Pier Origin Charges	16,809.84	12,269.04	15,268.43	8,916.69	12,030.83
Note: In Bags/Barrel					

ANNEX C: FOODGRAIN

Figure C1:

Area Planted in Irrigated Paddy 2000

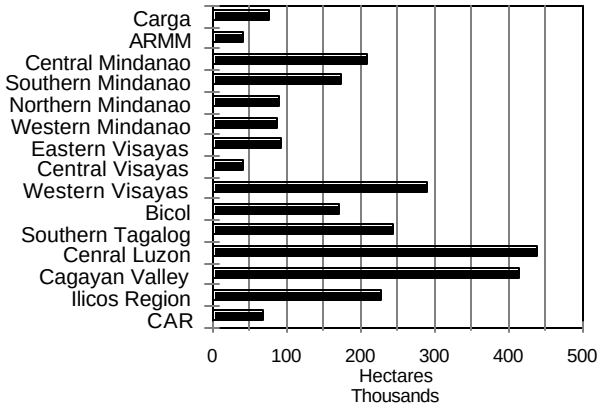


Figure C.2:

Area Planted in Rainfed Paddy 2000

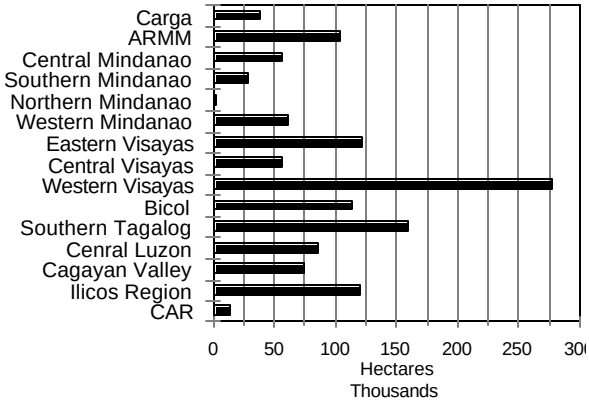


Figure C.3:

Area Planted in White Corn 2000

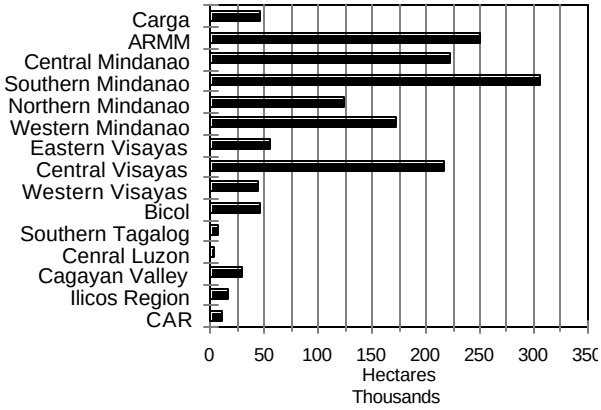


Figure C4:

Area Planted in Yellow Corn 2000

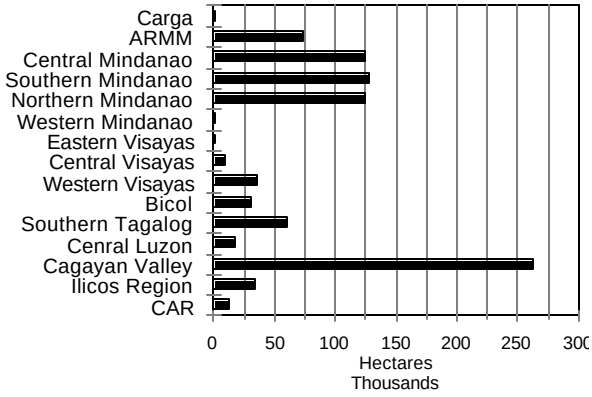


Figure C.5

Production of Irrigated Rice
Mindanao Provinces

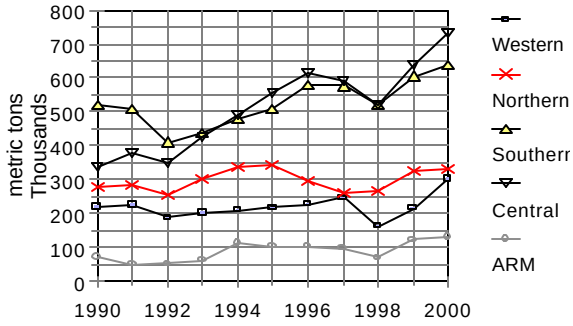


Figure C.6

Yield for Irrigated Rice
Mindanao Provinces

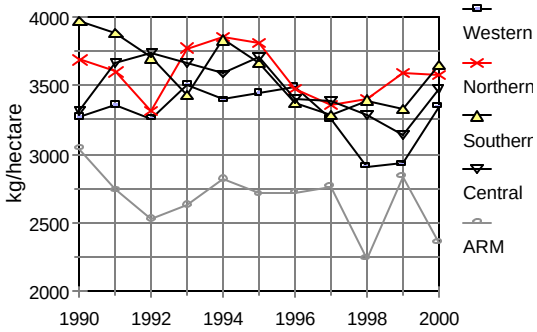


Figure :C.7

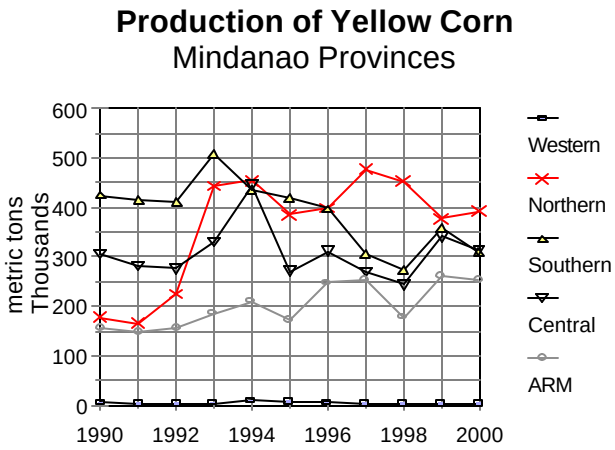


Figure C.8:

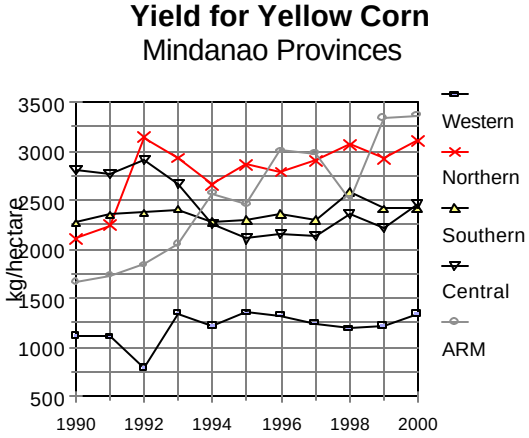


Figure C.9

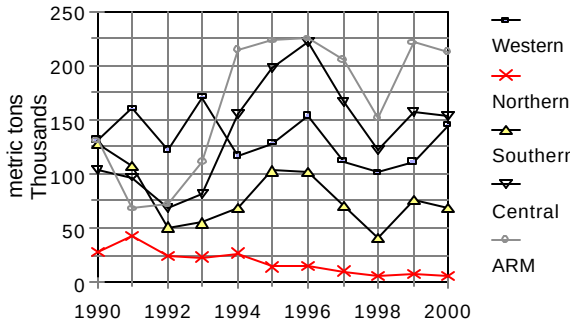


Figure C.10

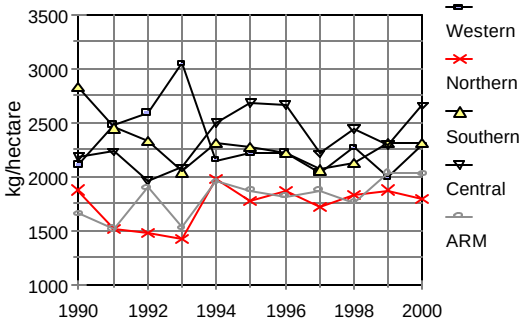


Figure C.11:

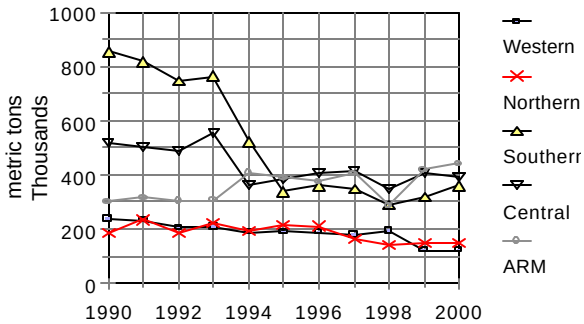


Figure C.12

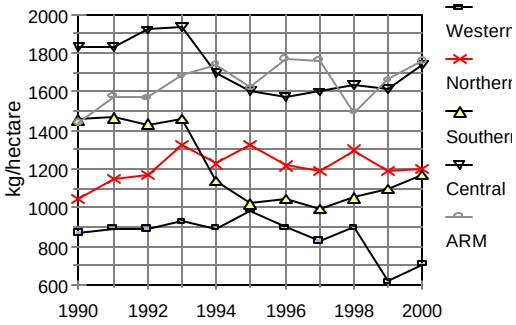


Table C.1: Rice Production by Region (tons)

Region	1999		2000	
	Production	**Surplus (Deficit)**	**Production**	**Surplus(Deficit)**
Philippines	8,053,117	(676,203)	7,661,307	(783,056)
Metro Manila	-	(855,131)	-	(938,950)
CAR	143,891	(31,674)	166,282	(14,907)
Ilocos Region	703,227	116,499	783,129	189,811
Cagayan Valley	1,110,726	658,171	1,160,339	704,108
Central Luzon	1,197,725	235,370	1,227,469	221,424
Southern Tagalog	784,861	(382,682)	784,535	(529,331)
Bicol	468,161	(133,297)	436,990	(159,192)
Western Visayas	995,623	(136,281)	1,045,419	163,532
Central Visayas	135,437	(209,373)	139,875	(226,148)
Eastern Visayas	329,158	(123,130)	336,412	(120,350)
Western Mindanao	211,995	1,590	291,152	(9,153)
Northern Mindanao	215,804	(68,552)	218,582	(40,479)
Southern Mindanao	442,546	(91,350)	461,175	(129,037)
Central Mindanao	516,090	215,219	576,422	(271,352)
ARMM	223,927	69,890	223,093	(108,511)
CARAGA	182,136	(74,253)	200,243	(60,226)

Source: Bureau of Agricultural Statistics

Table C.2: Rice Planting and Production

	Area		Quantity		Value		Yield
	000s ha	%Growth	000mt	%Growth	₱million	%Growth	(mt/ha)
1990	3,318	3.2	9,319	3.8	43,988	-0.6	2.8
1991	3,425	-6.62	9,673	-5.63	43,723	-1.66	2.8
1992	3,198	2.64	9,129	3.34	42,996	16.73	2.9
1993	3,282	11.24	9,434	11.7	50,190	17.79	2.9
1994	3,651	2.94	10,538	0.02	59,119	31.4	2.9
1995	3,759	5.12	10,541	7.05	77,685	17.51	2.8
1996	3,951	-2.75	11,284	-0.13	91,284	-3.59	2.9
1997	3,842	-17.5	11,269	-24.09	88,011	-21.46	2.9
1998	3,170	26.18	8,555	37.78	69,123	33.34	2.7
1999	3,999	0.96	11,787	5.11	92,171	14.52	2.9
2000	4,038	3.2	12389	3.8	105,558	-0.6	3.1

Table C.3: Rice Imports, 1993-2000

Year	Country of Origin	NFA - Volume (MT)	NFA -Value (US$ Million)	Private Imports
1993	Thailand	209,994	38.24	
1994	NO IMPORTATION			
1995		257,263	76	
	Australia	4,310	DONATION	
	Thailand [2]	169,043	50	
	Vietnam	60,680	18	
	India	23,229.	7	
1996		892,943	279	
	Thailand	157,100	1234	
	Vietnam	364,179	53	
	India	159,572	23	
	Pakistan	68,650	41	
	Myanmar	121,920	26	
	U.S.A. (PL 480)	21,521	11	
1997		720,210	231	
	Thailand	212,484	64	
	Vietnam	335,445	101	
	China	159,546	62	
	U.S.A. (PL 480)	12,734	4	
1998		2,136,161	624	809
	Vietnam	578,752	176	
	Thailand	211,097	63	
	China [2]	1,317,411	380	
	India	28,900	7	
1999		781,716	223	52,206
	Vietnam	474,540	139	
	Thailand	224,901	9	
	China	53,400	66	
	India	28,875	8	
2000		557,243	107	19,788
	Vietnam	313,261	57	
		183,061	39	
	China	25,500	5	
	U.S. Gulf	35,420	7	

Table C.4: Production of Yellow Corn in Philippines

	Area ('000 has.)		Quantity ('000 mt)		Value	
	000 ha	% Growth	000 m.t.	% Growth	₱ million	% Growth
1990	3,820	-6.02	4,854	-4.1	19,513	-82.93
1991	3,590	-7.19	4,655	-0.78	3,331	551.62
1992	3,331	-5.47	4,619	3.88	21,708	-0.54
1993	3,149	-4.56	4,798	-5.81	21,591	5.7
1994	3,006	-10.43	4,519	-8.65	22,822	13.97
1995	2,692	1.61	4,129	0.55	26,010	4.21
1996	2,736	-0.36	4,151	4.36	27,104	2.62
1997	2,726	-13.64	4,332	-11.75	27,814	-22.75
1998	2,354	94.74	3,823	-30.89	21,486	22.05
1999	4,585	-45.24	2,642	-9.6	26,224	13.53
2000	2,510	0.34	2,389	31.57	29,773	50.75

Table C.5: Northern Mindanao Yellow and White Corn Production, 2001
Region 10-Northern Mindanao, 2001

	NORTHERN MINDANAO	**BUKIDNON**	**CAMIGUIN**	**MISAMIS OCCIDENTAL**	**MISAMIS ORIENTAL**
Production (MT)	505,938	434,540	504	20,753	50,141
White	149,172	91,755	490	20,715	36,212
Yellow	356,766	342,785	14	38	13,929
Area Harvested (Ha)	230,888	155,618	474	24,926	49,870
White	120,845	50,862	463	24,900	
Yellow	110,043	104,756	11	26	
Yield/ Hectare	4.47	5.07	2.33	2.29	
White	1.23	1.80	1.06	0.83	
Yellow	3.24	3.27	1.27	1.46	

Table C.6: Philippine Corn Imports by Country of Origin, 1990-2000

Year	Imports				
		NFA		Private	
	Country of Origin	Volume (metric tons)	Value (mn U.S.$)	Volume (metric tons)	Value (mn U.S.$)
1990		69,099	11.02 [a]	284,828	44.71
	Indonesia	10,069	1.59		
	U.S.A.			32,686	4.81
	Thailand	42,782	6.89	230,868	36.65
	China	16,248	2.53	21,274	3.25
1991-1994	No Imports				
1995		206,585	34.77		
	U.S.A.	156,410	27.06		
	Argentina	50,175	7.71		
1996		558,131	107.64 [a]		
	U.S.A.	429,706	80.96		
	Argentina	128,425	26.68		
1997		174,895	28.37 [a]	159,166	-
	U.S.A.	53,397	9.74	55,000	
	China	121,498	18.63	104,166	
1998		317,292	44.50 [a]	50,536	-
	U.S.A.	187,375	28.28	50,536	
	China	49,130	6.63		
	Argentina	80,787	9.59		
1999				177,080	-
	China			50,000	
	Argentina			42,377	
	PNW			39,913	
	Gulf			44,790	
2000		59,650	7.72 [a]	506,583	-
	Vietnam	53,750	6.99	280,771	
	China	5,900	0.73	100,057	
	PNW			125,755	

Notes: 1. Details may not add up to totals due to rounding.

2. No corn exportation for CY 1990 to 2000.

[a] Cost and freight.

Source: National Food Authority.

Table C.7
Freight Rates of Feeds, Bran and Corn in 10-footer Van from CDO
As of March 2001

	CDO-MLA	CDO–BAC	CDO–BATANGAS	CDO-DGTE	CDO-ILO
Freight	6,922	4,962	6,236	3,440	4,837
Stamp	10	10	10	10	10
Wharfage (CDO)	34	34	34	34	34
Wharfage (Destination)	34	34	34	34	34
Handling (CDO)	298	298	298.10	298	298
Handling (Destination)	411	312	400.70	316	331
Weighing	22	22	22	22	22
Trucking (CDO)	1,201	1,201	1,201	1,201	1,201
Trucking (Destination)	2,480	1,346	2,530	950	1,425
Door to Door	11,413	8,219	10,766	6,305	8,192
Door to Pier	8,933	6,873	8,236	5,355	6,767

Table C.8
Freight Rates of Feeds, Bran and Corn in 20-footer Van from CDO
As of March 2001

	CDO-MLA	CDO-BAC	CDO-BATANGAS	CDO-DGTE	CDO-ILO
Freight	13,845	9,924.42	12,471.31	6,880.77	9,673.43
Stamp	10	10	10	10	10
Wharfage (CDO)	69	69	69	69	69
Wharfage (Destination)	69	69	69	69	69
Handling (CDO)	597	597	597	597	597
Handling (Destination)	823.35	624	801	631	663
Weighing	33	33	33	33	33
Trucking (CDO)	1,713	1,713	1,713	1,713	1,713
Trucking (Destination)	3,540	1,920	4,680	1,355	2,035
Door to Door	20,699	14,959	20,443	11,358	14,862
Door to Pier	17,159	13,039	15,763	10,003	12,827
Pier to Door	18,986	13,246	18,730	9,645	13,149
Pier to Pier	15,446	11,326	14,050	8,290	11,114
Pier to Pier Origin Charges	14,554	10,633	13,180	7,589	10,382

ANNEX D : COMMERCIAL CROPS

Table D.1

TOMATO: Volume of Production in Metric Tons by Region/Province, PHILIPPINES, 1990 - 2000 P

REGION/PROVINCE	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 P
PHILIPPINES	183,961	177,231	165,420	138,490	150,637	155,822	162,640	166,353	132,987	145,365	148,106	146,031
N. MINDANAO	21,941	22,512	19,125	19,425	21,997	25,833	28,139	27,114	16,447	19,841	20,727	20,961
Bukidnon	16,859	17,854	16,110	15,977	18,445	22,395	24,357	23,756	14,298	16,915	18,213	18,615
Camiguin	55	69	68	73	76	81	87	73	71	66	28	18
Misamis Occidental	887	1,003	724	657	704	585	475	444	215	373	260	269
Misamis Oriental	4,140	3,586	2,223	2,718	2,772	2,772	3,220	2,841	1,863	2,487	2,226	2,059

CABBAGE: Volume of Production in Metric Tons by Region/Province, PHILIPPINES, 1990 - 2000 P

REGION/PROVINCE	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 P
PHILIPPINES	117,204	170,942	150,783	155,095	151,340	129,991	98,073	95,864	85,840	87,477	87,579	89,536
N. MINDANAO	1,993	1,917	2,155	2,180	2,198	2,803	2,772	2,567	2,346	2,390	2,413	2,376
Bukidnon	1,462	1,313	1,510	1,532	1,542	2,146	2,247	1,966	1,784	1,744	1,782	1,788
Camiguin												
Misamis Occidental	125	128	137	137	136	137	161	159	124	154	142	128
Misamis Oriental	406	476	508	511	520	520	364	442	438	492	489	460

EGGPLANT: Volume of Production in Metric Tons by Region/Province, PHILIPPINES, 1990 - 2000 P

REGION/PROVINCE	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 P
PHILIPPINES	112,704	104,044	110,449	111,670	123,465	130,701	157,601	195,029	163,838	159,748	166,146	169,817
N. MINDANAO	1,346	1,754	1,764	1,813	1,852	1,841	1,847	1,867	1,402	1,683	1,515	1,475
Bukidnon	167	315	320	351	354	363	363	386	322	381	397	397
Camiguin	45	79	86	100	104	100	101	79	81	68	45	38
Misamis Occidental	208	335	335	330	333	317	305	316	294	441	352	353
Misamis Oriental	926	1,025	1,023	1,032	1,061	1,061	1,078	1,086	705	793	721	687

Table D.2

TOMATO: Area Planted/Harvested in Hectares by Region/ Province, Philippines, Calendar Year 1990-2001

REGION/PROVINCE	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 P
PHILIPPINES	20,037	19,476	18,241	15,625	17,493	17,896	16,861	17,105	14,909	16,808	16,692	16,645
N. MINDANAO	1,413	1,490	1,226	1,246	1,400	1,622	1,732	1,725	1,047	1,425	1,555	1,544
Bukidnon	1,031	1,091	976	967	1,110	1,347	1,442	1,460	880	1,182	1,330	1,330
Camiguin	10	18	13	14	14	14	14	14	13	12	6	4
Misamis Occidental	104	128	87	82	90	75	60	60	29	46	36	37
Misamis Oriental	268	253	150	183	186	186	216	191	125	185	183	173

CABBAGE: Area Planted/Harvested in Hectares by Region/ Province, Philippines, Calendar Year 1990-2001

REGION/PROVINCE	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 P
PHILIPPINES	8,626	10,986	10,082	10,370	10,678	8,529	7,956	7,858	7,532	7,637	7,672	7,772
N. MINDANAO	280	271	291	283	278	348	374	355	315	320	322	320
Bukidnon	192	174	196	197	198	275	287	275	234	228	232	232
Camiguin												
Misamis Occidental	25	25	27	27	27	27	30	30	32	36	34	35
Misamis Oriental	63	72	68	59	53	46	57	50	49	56	56	53

EGGPLANT: Area Planted/Harvested in Hectares by Region/ Province, Philippines, Calendar Year 1990-2001

REGION/PROVINCE	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001 P
PHILIPPINES	16,425	14,465	15,535	17,416	17,762	17,643	18,074	18,955	16,090	19,378	19,936	20,387
N. MINDANAO	441	456	545	625	640	635	606	608	487	506	454	447
Bukidnon	98	125	179	201	200	204	200	200	142	154	155	155
Camiguin	19	30	32	44	50	48	49	49	47	35	20	15
Misamis Occidental	82	107	118	127	130	123	93	93	123	132	100	100
Misamis Oriental	242	194	216	253	260	260	264	266	175	185	179	177

Table D.3: Processed Fruits Exports by Commodity

Processed Fruit Export 2000	Gross ton	FOB (US$mn)	Freight	% to FOB
Bananas	141,971	26,454	13,753	31.9
Centrifugal Sugar	32,591	13,061	1,920	15.7
Pineapples	19,312	7,204	1,801	8.7
Desiccated Coconut	7,665	6,362	1,006	7.7
Pineapple Juice Concentrate	4,328	2,621	410	3.2
Oil Cake and Others	66,852	2,617	2,524	3.2
Pineapple fresh	12,418	2,250	1,365	2.7
Banana Chips/ Crackers	2,198	1,749	193	2.1
Mixture of Fruits	3,230	1,548	249	1.9
Chewing Gum	499	1,205	29	1.5
Others	26,112	17,889	3,324	21.6
Grand Total	317,177	82,961	26,575	100.0

Processed Fruit Export 2001	Gross ton	FOB (US$mn)	Freight	% to FOB
Bananas, Fresh	94,149	17,482	7,075	21.7
Pineapple Processed	30,252	11,747	2,969	14.6
Desiccated Coconut	7,734	6,096	1,183	7.6
Mixture of Fruits	7,846	4,708	607	5.8
Pineapple Juice Concentrate	7,506	4,584	781	5.7
Oil Cake and Others	59,236	3,348	1,958	4.2
Milk and Cream, Solid Form	1,788	3,340	105	4.1
Pineapple fresh	12,850	2,813	1,352	3.5
Pineapple Juice Other	10,757	1,880	1,027	2.3
Other Food Preparation	876	1,705	60	2.1
Others	30,561	22,910	2,992	28.4
Grand Total	263,556	80,614	20,109	100.0

Table D.4: Processed Fruit Exports by Country, 2000 and 2001

Country Of Origin 2000	Quantity	Gross tons	FOB (US$'mn)	Freight	% to FOB
United States of America	54,423	59,221	26,783	4,752	32.3
Japan (excludes Okinawa)	75,142	75,804	18,440	10,108	22.2
China, Peoples Republic	48,101	48,123	8,610	2,628	10.4
Korea, Rep. Of South	72,792	73,234	5,735	3,296	6.9
Taiwan	18,418	18,515	3,608	1000	4.3
Hongkong	3,078	3,507	3,455	287	4.2
United Arab Emirates	10,658	10,682	2,148	1,387	2.6
Canada	2,960	3,562	1,918	368	2.3
Malaysia	511	732	1,241	37	1.5
Singapore	1,669	1,872	1,205	149	1.5
Others	20,462	21,926	9,817	2,562	11.8
Grand Total	308,214	317,177	82,961	26,575	100.0

Country of Origin 2001	Quantity	Gross tons	FOB (US$'mn)	Freight	% to FOB
United States of America	32,648	39,468	18,566	4,458	23.0
Japan (Excludes Okinawa)	62,668	63,265	16,220	5,463	20.1
Singapore	30,522	34,484	11,144	2,323	13.8
Korea, Rep of South	43,479	43,605	4,204	1,635	5.2
Malaysia	1,725	2,088	3,549	-	4.4
Taiwan	10,592	10,907	3,391	1	4.2
China, Peoples Rep.	16,189	16,227	2,975	1,339	3.7
United Arab Emirates	14,117	14,149	2,652	1,124	3.3
Canada	3,070	3,560	2,293	489	2.8
Netherlands	16,907	17,214	2,014	654	2.5
Others	16,860	18,589	13,606	1,807	16.9
Grand Total	248,778	263,556	80,614	20,109	100.0

Table D.5: Weighted Average Farm-gate Prices in Agriculture, Philippines: 1985, 1998-2000

Sub- Sector	Peso per Kilogram				Percent Change		
	1995	1998	1999	2000	1985-2000	1998-1999	1999-2000
Agricultural Crops						4.4	-5.7
Major Crops						3.4	-8.7
Palay	3.29	8.08	7.82	8.52	159	-3.2	8.9
Corn	2.96	5.62	5.72	6.60	123	1.8	15.4
Coconut	1.52	3.47	3.78	2.09	38	8.9	-44.7
Sugarcane	0.32	0.82	0.84	0.70	119	2.4	-16.7
Banana	1.79	4.95	5.90	4.66	160	19.2	-21.0
Pineapple	1.85	6.92	6.47	6.82	269	-6.5	5.4
Coffee	23.2	55.4	51.9	37.7	63	-6.3	-27.4
Mango	7.29	18.12	22.94	18.82	158	26.6	-18.0
Tobacco	15.1	47.5	55.1	48.9	223	15.9	-11.3
Abaca	6.5	18.4	19.8	18.0	179	7.6	-9.0
Other Crops						7.1	4.8
Peanut	8.5	15.8	15.2	17.2	102	-3.8	12.9
Mango	11.8	23.5	25.1	20.5	74	6.9	-18.4
Cassava	1.41	3.78	3.53	3.82	171	-6.6	8.2
Camote	1.90	5.27	4.82	4.70	147	-8.5	-2.5
Tomato	3.56	8.51	9.35	7.98	124	9.9	-14.7
Garlic	46.1	51.9	98.5	71.6	55	90.0	-27.3
Onion	6.3	20.0	38.2	15.7	150	90.4	-59.0
Cabbage	4.61	7.40	8.86	7.98	73	-31.2	-9.9
Eggplant	4.77	10.84	10.00	9.78	105	41.1	-6.3
Calamansi	5.2	8.1	62.0	10.8	108	-6.4	6.3
Rubber	4.5	31.4	214.6	8.1	79	-28.2	39.1
Cotton	5.8	9.2	3.5	23.0	298	-38.7	19.5
Other Fibercrops	5.05	6.00	3.09	8.36	66	-6.2	-3.4
Others	2.68	6.00	7.08	7.09	165	7.3	10.1

Source: Bureau of Agricultural Statistics

Table D.6: Philippine Exports of Processed Foods, 1996 to 2000
FOB Value in US$'000

	1996	1997	1998	1999	2000
Total	632336	589737	520019	491987	512521
Processed Fruits	198828	195814	180377	179063	201377
Nuts & Coconut Products	93572	96643	82345	99089	80591
Sugar & Sugar Preparations	140090	98730	99639	71253	57039
Animal Feeding Stuff	72835	64900	45902	27358	31246
Cereal & Flour Preparations	21325	36542	25500	34368	29564
Confectionery & Honey	22459	21552	18710	18420	28461
Misc. Edible Preparations	17842	11822	11770	12591	21486
Sauces, Condiments, Spices & Mixes & Mftrs.	18602	18385	17564	17921	19481
Beverages	14755	15732	13862	12625	14214
Daily Product & Bird Eggs	1849	1162	1243	2013	13804
Cocoa (processed)	20513	19084	16615	10551	7635
Processed Vegetables	5275	4284	3696	4302	3547
Coffee (processed)	3319	3201	1373	887	1757
Meat & Meat Preparatioms	218	1095	515	937	1615
Tea & Mate	285	233	361	484	561
Margarine, Shortening, Vegetable Fat & Oils	563	550	537	119	135

Table D.7: Estimated Rated Capacities of BOI- Registered Companies

Sub–Sector	Capacities	Unit
Fruit & Vegetables	186,068	Metric Tons
Beverages	16,416,751	Liters
Coconut Oil & Meal	1,147,465	Metric Tons
	217,155	Liters
Other Vegetable Oil	6,840	Metric Tons
Other Coco Products	50,890	Metric Tons
	21,904,200	Liters
	16.3	Million Packs
Processed Fish	32,866	Metric Tons
	10,720,523	Cases
	478,500	Cartons
Processed Meat	95,711.15	Metric Tons
Cereal-based	123,958	Metric Tons
	4,312,888	Pieces
	33,228,000	Packs
Confectionery & Honey	10,758	Metric Tons
	465,574,000	Pieces
	20,000	Kilograms
Condiments	9,510	Metric Tons
	341,795	Cases
Sugar		
Raw Sugar:		
Registered	13,40	Tons
Industry	175,40	Tons
Refined Sugar:		
Registered	4,75	Metric Tons
Industry	7,63	Metric Tons
Dairy:		
Milk	16,47,65	Metric Tons
Feeds:		
Animal Feeds	2,39,42	Metric Tons
Aquaculture Feeds	1,05,87	Metric Tons
Ruminant Feeds	311,40	Metric Tons

ANNEX E : INDUSTRY

Table E.1: Products Produced by Philippine Electronics Industry

Sub Sectors	Products
1. Components (Multinationals) Philippine Companies Subcontracting	- Integrated circuits - Transistors - Diodes, resistors - Capacitors, coils, - Transformers - Printed circuit boards - Wafer probe/ inspection - Die bonding - Wire bonding - Molding - Deflash trim form (DTF) - triplating
2. EDP	- software development - data encoding and conversion - systems integration and customization
3. Telecommunications	- switching equipment - transmission equipment - corded and cordless telephones
4. Consumer electronics	- TV sets - Electronic games - Car stereos - Radio cassette players - Karaoke machines

Table E.2 Electronic Exports by Product
FOB Value in Million US Dollars 1996 TO 2000

	1996		1997		1998		1999		2000		Average Growth %
	Value	% Share	Value	% Share	Value	% Share	Value	% Share	Value	% Share	
Total Electronics	10,609	51.7	14,959	59.3	19,880	67.4	25,399	72.5	27,166	71.3	27.2
Semiconductors, other components	8,606	41.9	11,703	46.4	16,093	54.6	20,380	58.2	21,012	55.2	25.8
Electronics Data Processing	865	4.2	2,074	8.2	2,687	9.1	4,124	11.8	4,934	13.0	60.6
Office Equipment	14	0.1	27	0.1	27	0.1	29	0.1	53	0.1	44.9
Medical and Industrial	23	0.1	24	0.1	22	0.1	23	0.1	30	0.1	7.7
Control and Instrumentation	4	0.0	3	0.0	7	0.0	10	0.0	13	0.0	68.7
Communication and Radar	282	1.4	265	1.1	317	1.1	287	0.8	239	0.6	-3.1
Telecommunications	528	2.6	619	2.5	440	1.5	297	0.9	584	1.5	13.1
Consumer electronics	287	1.4	245	1.0	286	1.0	249	0.7	301	0.8	2.5
Audio Video Products (B. Lines)	230	1.1	186	0.7	230	0.8	192	0.6	237	0.6	2.9
Household Appliances (W. Lines)	32	0.2	34	0.1	32	0.1	29	0.1	33	0.1	1.8
Other Consumer Products	25	0.1	25	0.1	24	0.1	28	0.1	30	0.1	5.3

Source: National Statistics Office (NSO).

Table E.3 Electronic Exports by Market
FOB Value in Thousand US Dollars 1995 TO 1999

	1996		1997		1998		1999		2000		Average Growth %
	Value	% Share	Value	% Share	Value	% Share	Value	% Share	Value	% Share	
Total Electronics	10,609	100.0	14,959	100.0	19,880	100.0	25,399	100.0	27,166	100.0	27.2
Top 10	10,003	94.3	14,200	94.9	17,903	90.1	22,299	87.8	24,398	89.8	37.2
1. United States	3,528	33.3	5,294	35.4	5,860	29.5	5,989	23.6	7,110	26.2	20.4
2. Japan	1,708	16.1	2,238	15.0	2,579	13.0	2,859	11.3	3,490	12.9	19.8
3. Singapore	929	8.8	1,283	8.6	1,488	7.5	2,168	8.5	2,701	9.9	31.1
4. Netherlands	801	7.6	1,263	8.4	1,844	9.3	2,626	10.3	2,679	9.9	37.0
5. Taiwan	477	4.5	948	6.3	1,547	7.8	2,764	10.9	2,539	9.4	58.1
6. Hongkong	404	3.8	711	4.8	947	4.8	1,546	6.1	1,535	5.7	42.9
7. Malaysia	579	5.5	475	3.2	1,002	5.0	1,320	5.2	1,176	4.3	28.5
8. U.K.	498	4.7	661	4.9	1,411	7.1	1,404	5.5	1,149	4.2	31.9
9. Germany	474	4.5	675	4.5	729	6.7	969	3.8	1,079	4.0	23.7
10. Thailand	605	5.7	651	4.4	496	2.5	653	2.6	939	3.5	14.8
OTHERS	606	5.7	759	5.1	1,977	9.940	3,101	12.2	2,768	10.2	57.9

ANNEX F: PORTS AND SHIPPING DATA

Table F.1 Container Characteristics and Direction of Movement

	PHILIPPINE PORTS		BASE PORT									
			All Base Port		Cagayan de Oro		Davao (Sasa)		General Santos		Zamboanga	
	2000	1999	2000	1999	2000	1999	2000	1999	2000	1999	2000	1999
Containers (% TEU)												
Domestic	48.0%	49.8%	46.6%	48.3%	94.3%	93.7%	60.4%	67.4%	96.1%	96.5%	100.0%	100.0%
Inbound	50.9%	50.7%	50.1%	50.3%	50.9%	50.7%	50.6%	49.4%	49.9%	50.5%	51.1%	50.4%
Empty	28.9%	25.5%	30.9%	27.5%	38.6%	38.0%	12.4%	14.2%	58.4%	58.9%	15.9%	13.4%
Loaded - FCL	61.7%	66.1%	59.1%	63.8%	61.4%	62.0%	87.6%	85.8%	39.4%	38.8%	62.5%	82.9%
Loaded - LCL	9.4%	8.4%	10.0%	8.8%	0.0%	0.0%	0.0%	0.0%	2.2%	2.3%	21.5%	3.7%
Outbound	49.1%	49.3%	49.9%	49.7%	49.1%	49.3%	49.4%	50.6%	50.1%	49.5%	48.9%	49.6%
Empty	23.4%	21.4%	23.6%	21.8%	16.0%	14.3%	38.7%	38.5%	19.2%	19.7%	42.1%	49.1%
Loaded - FCL	67.1%	69.9%	66.6%	69.1%	84.0%	85.7%	61.3%	61.5%	77.8%	77.0%	43.8%	48.9%
Loaded - LCL	9.5%	8.7%	9.8%	9.1%	0.0%	0.0%	0.0%	0.0%	2.9%	3.3%	14.1%	2.0%
Foreign	52.0%	50.2%	53.4%	51.7%	5.7%	6.3%	39.6%	32.6%	3.9%	3.5%		
Import	50.3%	50.2%	50.5%	50.4%	48.7%	50.2%	51.0%	51.4%	31.8%	42.7%		
Empty	6.2%	6.3%	5.1%	4.9%	52.3%	60.0%	37.0%	43.5%	3.7%	4.7%		
Loaded - FCL	93.6%	93.4%	94.6%	94.7%	47.7%	40.0%	63.0%	56.5%	96.3%	95.3%		
Loaded - LCL	0.3%	0.4%	0.3%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Export	49.7%	49.8%	49.5%	49.6%	51.3%	49.8%	49.0%	48.6%	68.2%	57.3%		
Empty	51.6%	51.5%	52.7%	52.9%	1.9%	6.5%	38.9%	29.6%	25.5%	28.1%		
Loaded - FCL	48.2%	48.3%	47.0%	46.9%	98.1%	93.5%	61.1%	70.4%	74.5%	71.9%		
Loaded - LCL	0.2%	0.3%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		
Cargo (% tons)												
Domestic	61.2%	62.5%	59.4%	60.6%	95.4%	95.4%	73.7%	78.1%	93.7%	94.9%	100.0%	100.0%
Inbound	48.1%	48.3%	46.8%	47.5%	42.1%	42.0%	60.6%	58.4%	32.2%	33.8%	64.1%	63.6%
Outbound	51.9%	51.7%	53.2%	52.5%	57.9%	58.0%	39.4%	41.6%	67.8%	66.2%	35.9%	36.4%
Foreign	38.8%	37.5%	40.6%	39.4%	4.6%	4.6%	26.3%	21.9%	6.3%	5.1%		
Import	64.9%	65.1%	65.8%	66.3%	33.9%	31.5%	52.4%	47.1%	28.2%	47.3%		
Export	35.1%	34.9%	34.2%	33.7%	66.1%	68.5%	47.6%	52.9%	71.8%	52.7%		

Table F.2: Port Performance Data for Public Base Ports and Major Private Ports in Mindanao (Berths only)

		CagayanD'Oro		Alsons		DelMonte		**Davao**		DUCC	
		2000	1999	2000	1999	2000	1999	2000	1999	2000	1999
1.NumberofVessels		2,535	3,521	965	952	98	154	823	930	223	245
	Domestic	2,347	3,336	892	921	-	-	583	705	188	204
	Foreign	188	185	73	31	98	154	240	225	35	41
2.GrossRegisteredTonnage		4,452	2,837	1,377	1,132	9,348	8,287	7,142	6,749	1,859	1,785
	Domestic	4,090	2,478	848	848			6,483	6,059	756	779
	Foreign	8,972	9,301	7,839	9,569	9,348	8,287	8,740	8,911	7,780	6,788
3.NetRegisteredTonnage		2,346	1,528	888	713	4,254	3,800	3,507	3,423	1,085	1,026
	Domestic	2,175	1,350	622	561			3,194	3,087	473	490
	Foreign	4,480	4,743	4,147	5,233	4,254	3,800	4,266	4,476	4,371	3,694
4.DeadweightTonnage		3,344	2,248	2,168	1,871	9,668	9,948	6,414	6,127	3,489	3,076
	Domestic	2,645	1,659	1,410	1,444			4,351	4,219	1,612	1,568
	Foreign	12,070	12,875	11,424	14,578	9,668	9,948	11,427	12,104	13,572	10,580
5.LengthofVessels(m.)		100	72	59	56	134	132	125	123	67	68
	Domestic	97	68	55	54			122	118	61	62
	Foreign	131	135	115	129	134	132	133	138	103	101
6.BeamofVessels(m.)		16.2	13.8	12.0	11.2	20.3	19.9	19.2	19.0	12.3	11.9
	Domestic	15.8	13.4	11.4	10.9			18.5	18.4	11.1	10.6
	Foreign	21.1	20.1	19.1	20.5	20.3	19.9	20.8	21.1	18.9	18.2
7.DraftofVessels(m.)		4.6	3.7	3.3	3.6	5.1	5.6	5.7	5.4	3.7	3.8
	Domestic	4.6	3.6	3.1	3.5			5.3	5.1	3.5	3.6
	Foreign	5.4	5.0	4.8	5.7	5.1	5.6	6.8	6.3	5.0	4.9
8. Service Time (hrs.)		29.0	24.0	67.7	73.4	26.2	27.3	41.7	38.5	107.6	104.8
	Domestic	28.2	23.1	69.3	74.3			33.8	34.9	104.7	106.1
	Foreign	39.1	40.2	48.1	46.2	26.2	27.3	60.8	49.9	122.9	98.2

Table F.3 Port Performance Data for Public Base Ports and Major Private Ports in Mindanao (Berths only) – cont.

		Tefasco		Tedeco		**GeneralSantos**		Cargill		DolePhils.	
		2000	1999	2000	1999	2000	1999	2000	1999	2000	1999
1.Number of Vessels		218	200	376	312	1,159	1,257	133	75	267	276
	Domestic	1	-	231	209	998	1,050	112	61	-	-
	Foreign	217	200	145	103	161	207	21	14	267	276
2.Gross Registered Tonnage		6,374	6,414	4,636	5,070	5,025	4,966	3,271	3,797	8,072	7,933
	Domestic	455		3,285	3,581	5,182	5,291	574	605		
	Foreign	6,401	6,414	6,789	8,092	4,047	3,318	17,653	17,708	8,072	7,933
3.Net Registered Tonnage		3,191	3,247	2,384	2,339	2,527	2,535	1,736	2,127	4,352	4,466
	Domestic	257		1,668	1,833	2,599	2,692	362	384		
	Foreign	3,204	3,247	3,525	3,366	2,085	1,734	9,060	9,718	4,352	4,466
4.Deadweight Tonnage		7,089	7,477	5,788	6,346	4,129	5,073	5,840	6,884	8,814	9,195
	Domestic	614		4,642	5,122	4,030	5,293	1,403	1,531		
	Foreign	7,119	7,477	7,615	8,829	4,748	3,956	29,506	30,210	8,814	9,195
5.Length of Vessels (m.)		132	135	101	105	111	111	78	82	136	137
	Domestic	57		86	89	114	116	62	63		
	Foreign	132	135	125	139	94	87	160	165	136	137
6.Beam of Vessels (m.)		18.4	19.1	16.8	16.7	17.1	17.3	11.9	13.5	22.5	23.3
	Domestic	11.0		15.2	15.6	17.4	17.7	9.4	10.7		
	Foreign	18.4	19.1	19.2	18.7	15.7	15.3	25.2	25.6	22.5	23.3
7.Draft of Vessels (m.)		5.0	5.1	4.5	4.6	5.3	5.0	4.1	3.9	4.8	5.1
	Domestic	5.0		4.6	4.7	5.4	5.1	3.7	3.4		
	Foreign	5.0	5.1	4.3	4.2	5.0	4.4	6.0	6.0	4.8	5.1
8.Service Time (hrs.)		69.8	69.5	64.9	67.4	40.9	42.7	51.6	43.5	22.5	24.3
	Domestic	59.0		50.7	52.3	41.0	39.7	50.4	42.7		
	Foreign	69.8	69.5	87.5	98.0	39.6	58.0	57.8	47.3	22.5	24.3

Table F.4 : Berth Throughput for Public Base Ports and Major Private Ports in Mindanao (Berths only)

		CagayanD'Oro		Alsons		DelMonte		**Davao**		DUCC	
		2000	1999	2000	1999	2000	1999	2000	1999	2000	1999
9.ServiceTime(hrs.)		29.0	24.0	67.7	73.4	26.2	27.3	41.7	38.5	107.6	104.8
	Domestic	28.2	23.1	69.3	74.3			33.8	34.9	104.7	106.1
	Foreign	39.1	40.2	48.1	46.2	26.2	27.3	60.8	49.9	122.9	98.2
1.TotalCargoThroughput(m.t.)		2,646,301	2,691,398	1,941,804	1,555,166	210,853	237,242	2,191,519	2,032,702	753,318	681,361
	2,193,303	2,193,680	1,230,115	1,171,104	1,171,104	-		1,402,883	1,449,795	319,839	289,767
	Inbound	0	0	0	0			63%	59%	13%	4%
	Breakbulk	0	0	0	0			21%	21%	11%	0%
	Bulk	0	0	1	1			1%	2%	89%	100%
	Containerized	1	1	-	-			78%	77%	0%	0%
	Outbound	1	1	1	1			37%	41%	87%	96%
	Breakbulk	0	0	0	0			12%	22%	76%	73%
	Bulk	0	0	1	1			0%	0%	24%	27%
	Containerized	1	1	-	-			88%	78%	0%	0%
	b.Foreign	452,998	497,718	711,689	384,062	210,853	237,242	761,610	565,539	433,479	391,594
	Import	74%	79%	16%	4%	34%	39%	73%	66%	41%	41%
	Breakbulk	36%	38%	0%	0%	70%	77%	37%	16%	0%	0%
	Bulk	56%	56%	100%	100%	0%	0%	24%	44%	100%	100%
	Containerized	8%	6%	0%	0%	30%	23%	38%	40%	0%	0%
	Export	26%	21%	84%	96%	66%	61%	27%	34%	59%	59%
	Breakbulk	9%	5%	0%	0%	7%	11%	2%	3%	2%	0%
	Bulk	47%	47%	100%	100%	0%	0%	3%	10%	98%	100%
	Containerized	44%	48%	0%	0%	93%	89%	95%	87%	0%	0%
	TransitCargo	0	0	0	0	0	0	27,026	17,368	-	-

Table F.5 : Berth Throughput for Public Base Ports and Major Private Ports in Mindanao (Berths only) – cont.

		Tefasco		Tedeco		**GeneralSantos**		Cargill		DolePhils.	
		2000	1999	2000	1999	2000	1999	2000	1999	2000	1999
9.ServiceTime(hrs.)		69.8	69.5	64.9	67.4	40.9	42.7	51.6	43.5	22.5	24.3
	Domestic	59.0		50.7	52.3	41.0	39.7	50.4	42.7		
	Foreign	69.8	69.5	87.5	98.0	39.6	58.0	57.8	47.3	22.5	24.3
1.TotalCargoThroughput(m.t.)		470,455	423,962	1,417,310	1,216,107	1,580,970	1,421,767	270,320	155,939	249,725	271,224
	a.Domestic	1,000		1,049,412	921,172	1,385,836	1,228,445	104,390	55,039		
	Inbound	100%		63%	53%	41%	43%	92%	92%		
	Breakbulk	0%		11%	13%	27%	28%	0%	0%		
	Bulk	100%		2%	1%	15%	16%	100%	100%		
	Containerized	0%		86%	86%	57%	56%	0%	0%		
	Outbound	0%		37%	47%	59%	57%	8%	8%		
	Breakbulk			22%	12%	10%	13%	0%	0%		
	Bulk			0%	0%	7%	6%	100%	100%		
	Containerized			78%	88%	82%	81%	0%	0%		
	b.Foreign	469,455	423,962	367,898	293,902	195,134	193,322	165,930	100,900	249,725	271,224
	Import	2%	1%	20%	27%	74%	87%			24%	20%
	Breakbulk	100%	100%	100%	87%	72%	61%			57%	62%
	Bulk	0%	0%	0%	13%	15%	26%			0%	0%
	Containerized	0%	0%	0%	0%	13%	13%			43%	38%
	Export	98%	99%	80%	73%	26%	13%	100%	100%	76%	80%
	Breakbulk	100%	100%	100%	100%	4%	5%	0%	0%	43%	36%
	Bulk	0%	0%	0%	0%	1%	0%	100%	100%	0%	0%
	Containerized	0%	0%	0%	0%	95%	95%	0%	0%	57%	64%
	TransitCargo	-	-	-	1,033	-	-	-	-	-	-

Table F.6 Shipping Rates, Class A Cargo 2000

Class A rate, 2000	Cargo Handling				
	Origin	Destination	Freight	Total	%
Cebu-Tagbilaran	59.15	65.50	228.30	352.95	35.32
Cebu-Bacolod	59.15	66.05	340.00	465.20	26.91
Cebu-Surigao	59.15	51.50	302.54	413.19	26.78
Cebu-Calbayog	59.15	51.45	302.54	413.14	26.77
Cebu-Cagayan de Oro	59.15	51.30	305.98	416.43	26.52
Cebu-Iloilo	59.15	67.75	354.59	481.49	26.36
Cebu-Tacloban	59.15	61.45	371.60	492.20	24.50
Manila-Iloilo	92.55	67.75	506.50	666.80	24.04
Manila-Bacolod	92.55	66.05	506.50	665.10	23.85
Manila-Tacloban	92.55	61.45	532.49	686.49	22.43
Manila-Calbayog	92.55	51.45	506.50	650.50	22.14
Manila-Cebu	92.55	59.15	553.94	705.64	21.50
Cebu-Zamboanga	59.15	62.10	448.17	569.42	21.29
Manila-Tagbilaran	92.55	65.50	602.47	760.52	20.78
Manila-Cagayan de Oro	92.55	51.30	603.47	747.32	19.25
Manila-Surigao	92.55	51.50	629.55	773.60	18.62
Cebu-Davao	59.15	75.50	594.57	729.22	18.46
Manila-Zamboanga	92.55	62.10	689.37	844.02	18.32
Cebu-Cotabato	59.15	47.15	549.42	655.72	16.21
Manila-Davao	92.55	75.50	928.83	1,096.88	15.32
Manila-Cotabato	92.55	47.15	842.86	982.56	14.22
					22.36

ANNEX G : TRADE DOCUMENTATION

Figure G.1 ONE STOP EXPORT DOCUMENTATION CENTER

PROCESS FLOW

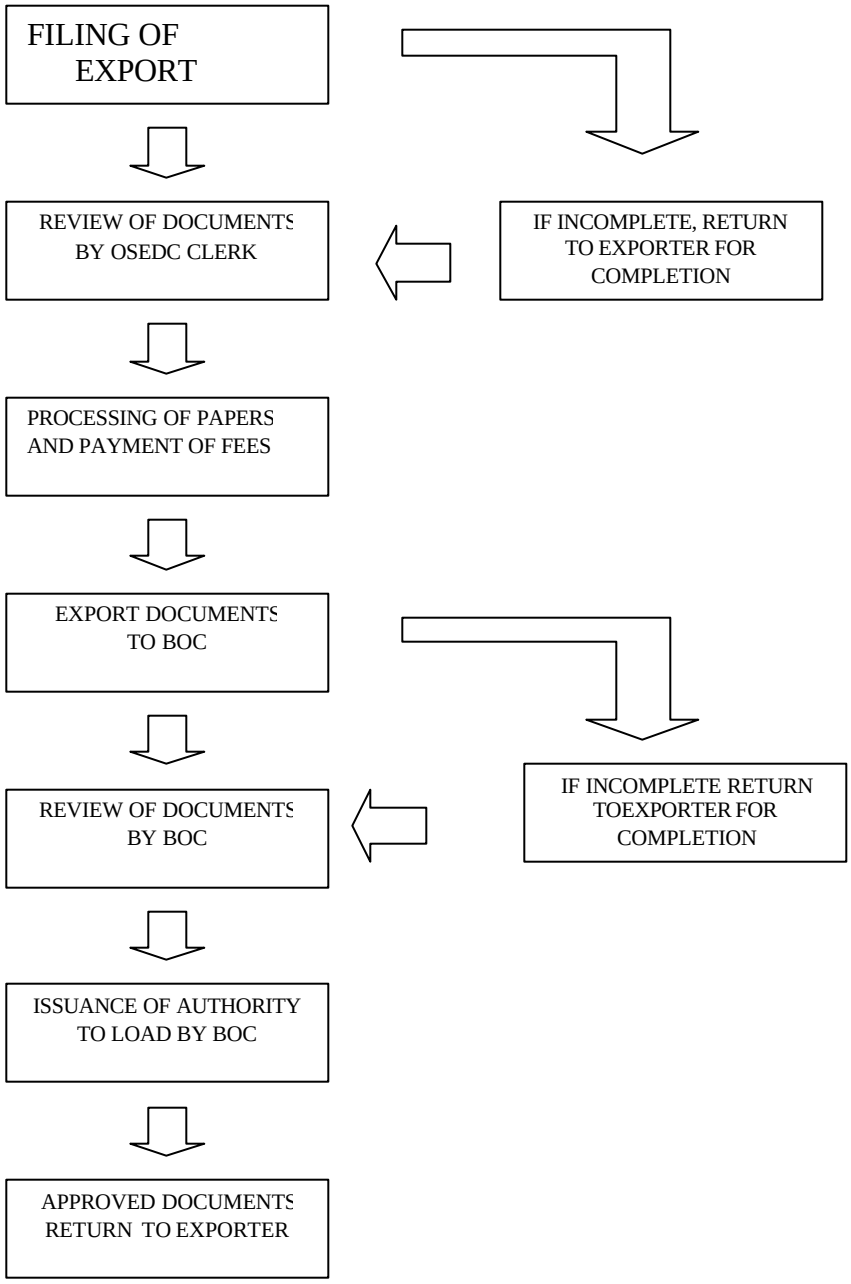


Table G.1 Shipping Fees

Following are the export fees that are paid by exporters exclusive of handling and transport:

I. Phil-export Processing Fee	
Members	₱ 50
Non-members	₱ 75
II. Bureau of Customs (BOC)	
Export of Declarations/Special Permit to Load	
Processing Fee	Free
Documentary Stamp/Document	₱ 65
Certificate of Origin	₱ 65
Certificate of Shipment, Short & Non-Shipment	₱ 65
Stuffing	₱ 65
* Certificate of Origin Form	
General (White)	₱ 6
GSP Form A	₱10
ASEAN_PTA (Form C)	₱10
III. Department of Agriculture	
A. Bureau of Plant and Industry	
Phytosanitary Certificate (Plant Products)	
Fumigation Certificate (non-plant products)	
Certification Fee	₱2.00/ton
B. Bureau of Fisheries and Aquatic Resources	
Application Fee	₱25
Permit Fee	₱80
Gathering Fee	₱15
Inspection Fee	0.5% FOB Value
IV. Philippine Ports Authority	
Direct Shipment	
20-footer container	₱259.70
40-footer container	₱391.65
Cargoes in sacks, bags, bulk	₱16.90/M.T.
Tran-shipment	
20-footer container	US$ 11.93
40-footer container	US$ 17.77
Cargoes in sacks, bags, bulk	US$ 0.769
Others (not mention above)	US$ 0.641
V. Department of Trade and Industry	
Certification of Handcrafted Products	₱6.0
Commodity Clearance	₱11.0

Table G.2 One Stop Export Documentation Center

EXPORT DOCUMENT

I. SEA FREIGHT

1. Export Declaration – Filled up with authorized signatory from the Bank agent and Exporter Representative. At least seven (7) copies.
2. Commercial Inv./ Proforma – Quantity, description and value of goods in Ed with signatory from the exporter/ Rep. At least 2 copies
3. Stuffing Report – Filled up with exact seal and container No., Size of the van, and description of cargoes. At least 4 copies.
4. (CEP) Cargo Entry Permit – Filled up with signature from the exporter/ rep. At least 4 copies.
   Product required clearance – A certification/ clearance from concerned agencies with corresponding products.

II AIR FREIGHT:

Same requirement as Sea Freight except for a transmittal for transloading at NAIA instead of Stuffing Report.

CERTIFICATE OF ORIGIN:

SEA FREIGHT

1. B/L from the shipping Line with Authorized signature. (1 carbon copy)
2. Processed Export Dec. (1) copy
3. Amendment if there's any. At least 2 copies
4. 2 Xerox copy of C.O. Pink triplicate.

AIR FREIGHT

1. One copy of processed Export Dec.
2. One copy of processed transmittal for transloading at NAIA

BUREAU OF CUSTOMS - Documentation

Documents Issued:

1. Authority to load
2. Certificate of Origin (CO), (GSP Form A, Asean PTA, General CO)
3. Certificate of Shipment

Pre-loading Procedure:

Steps

1. Bank delivers EDI
2. Exporter/Broker submits ED3 with Commodity Clearance (if needed), Certificate of Identification (for products with imported raw materials)
3. BOC validates EDI
4. Exporter/ Broker pay P60.00 (Documentary Stamp)
5. Processor consolidate and checks ED1, ED3, and clearances
6. Signing officer signs Authority to Load.
7. Releasing clerk perforates entry number on EDs and all attached documents
8. Clerk releases Authority to Load to exporter/broker.
9. For Sea Freight, exporter/broker proceeds to PPA, Counter 10.

   For airfreight, load cargo at NAIA
   Exporter/Broker buys CO form if needed

Post Loading Procedure:

10. Exporter/ Broker files appropriate CO/ Certification with the following documents:
    - Commercial Invoice
    - Loaded on Board Bill of Lading/ Air Waybill
    - Copy of Processed ED

Amendments if any.

Table G.3 Import Procedures
(Souce: PHILEXPORT)

Import Procedures (using L/C):

a) Importer applies for the L/C to the Opening Bank; the application states the type, quality, unit price and total value, freight charges, country of supply and PSCC Code No. of the goods to be imported; conditions are:
   - Import is subject to inspection by inspector nominated per Memorandum Order No. 63 prior shipment
   - Recipient of the L/C is responsible for facilitating the smooth inspection of the goods
   - The Bank makes payment only upon submission of the CRF by the seller

   The L/C is opened not later than 10 days before the scheduled date of shipment.

b) Upon issuance of the L/C, importer completes the Import Entry Declaration (IED) stating: tariff heading and import duty charges; pays the estimated advance customs duties to the opening bank; for those exempted for payment of advance duties, importer furnishes the Opening Bank with a letter of exemption from the authorized Government agency.
c) Opening Bank issues Customs OR to importer, sends the copy of L/C, Seller's proforma invoice and IED to the SGS Manila Liaison Office together with a copy of any exempting authority.
d) The Liaison Office registers the L/C and the IED and issues a numbered Import Advice Note (IAN); one copy of IAN is sent to importer and another to the Inspection Office.
e) Inspection Office sends advice of inspection requirement to shipper/consignor/seller of the goods.
f) Seller advices the inspection office of the date and place of inspection and sends the document of the Inspection Office giving at least 7 days advance notice. In exceptional cases, seller may request inspection before receipt of IAN by Inspection Office but no Clean Report of Findings (CRF) is issued unless IAN is received by Inspection Office.
g) Inspections Office performs physical inspection, verifies declared tariff heading, determines HCV, report tariff rates and; if warranted, issues a CRF to the seller, transmitting copies to the Liaison Office. CRF indicates invoice value and acceptable HCV.
h) Goods that are transshipped are subject to verification at the point of transshipment by the inspection office located thereat. (Transshipment is the act of unloading the cargo from one carrier and loading the cargo on another carrier, such loading occurring after 72 hours from the time of unloading.)
i) Seller presents the CRF to the advising/Corresponding (A/C) bank, which will send documents, and the CRF to the Opening Bank.
j) Opening Bank advices importer of the arrival of the documents; importer collects the documents together with an authenticated customs copy of the CRF supplied to the Opening Bank direct from the Liaison Office.
k) Importer of his broker prepares Import Entry from the authenticated customs copy of the CRF; pays the additional customs duties, if any, and the taxes due; presents to BOC the normal documents required for clearance, together with the authenticated customs copy of the CRF.
l) BOC verifies documents and calculates differences between deposit and duties due as well as internal revenue taxes; issues Order of Payment (OP) to importer.

m) Importer/Broker presents OP to the Opening Bank and pays balance of duties and taxes due.
n) Opening Bank issues to importer the CB Release Certificate and Customs OR; sends a copy of OP to the Liaison Office.
o) Importer/Broker presents to BOC as authenticated customs copy of the CRF and other documents for clearance; BOC issues delivery permit for release of goods, retains authenticated Customs copy of the CRF.
p) Liaison Office transmits to BOC by official messenger the original Customs copy of the CRF not later than the day following its receipt from SGS issuing office abroad.

Import Procedures for importation affected without L/C (Open Account, Documents Against Acceptance and No Dollar Import Arrangement):

a) Importer submits to CB written details of his proposed importation together with seller's proforma invoice indicating:

- The bank/branch which will receive the CRF
- Importer's name and address, telex/telephone
- Importer's tax account code
- Currency of transaction
- Value of goods to be imported; unit price
- Country of supply if different from that of seller
- Name and address of seller, telex/telephone
- Type, quality and quality of goods
- Freight charges and internal revenue taxes due
- PSCC and tariff heading of goods to be imported
- Copy of duty/tax exempting authority, if any.

Details are submitted at least 10 days before scheduled date of shipment; importer instructs seller to arrange for inspection by the Inspection Office and advises seller of his responsibility to facilitate smooth inspection.

b) Liaison Office issues an IAN, one copy to importer and another to the Inspection Office
c) Inspection Office sends advice of inspection requirement to seller.
d) Seller indicates date and place for inspection; provides necessary documentation to the Inspection office, giving at least 7 days advance notice. In exceptional cases, seller may request inspection prior to the receipt of the IAN but no CRF is issued until the Inspection Office receives IAN.
e) Inspection Office performs physical inspection verifies, declares tariff heading, determines HCV, report tariff rates and, if warranted, issues a CRF to the seller; transmit CRF copies to the Liaison Office by courier, or by telefax if urgent by request. CRF indicates the invoice value and acceptable HCV on the basis of the criteria for dutiable value in Sec. 201,TCC.
f) If goods are transshipped from a country listed in a Joint Order through another country also listed therein, the goods are inspected in the country of supply and the transshipment by the Inspection Office located thereat.
g) The Liaison Office receives the CRF, including the authenticated Customs copy and transmits these to the Importer's Bank.

h) Importer/Broker prepares Import Entry from the authenticated customs copy of the CRF with the additional custom duties, if any, and taxes due; prepare the proforma OP. Importer presents to BOC the normal documents required for clearance together with the authenticated Custom copy of the CRF.
i) The BOC verifies the documents, examines the cargoes and assesses the total amount of customs duties and taxes due; issues OP to the importer.
j) Importer/Broker presents OP to the Importer's Bank and pays the assessed duties and taxes.
k) Importer's Bank issues to importer the CRBC and Customs OR; sends a copy of the OP Liaison Office.
l) Importer/Broker presents to BOC the authenticated Custom copy of the CRF together with the other documents required for clearance; BOC verifies documents and issues Delivery Permit for the release of goods, retaining the authenticated customs copy of the CRF.

IAN – stands for Import Advise Note wherein a unique REFERENCE NUMBER is assigned by SGS to a transaction and this should be made available to the seller and exporter as soon as possible because a Clean Report of Findings (CRF) cannot be issued without this NUMBER. This document will confirm that SGS inspection office in the country of supply. Whenever, an importer/exporter makes any telephone call or written communication with SGS concerning a shipment, this NUMBER should be quoted.

Table G.4 GENERAL IMPORT PROCEDURES:[63]

A. Pre-Arrival of Goods

1. Pre-shipment [64]Arrangement between Importer and Exporter
   a) Obtain a quotation from supplier, stipulating the specifications of the goods to be imported.
   b) Agreed on the price, the manner of payment, the mode of shipment and other relevant details.
   c) Upon reaching an agreement, supplier then issues Proforma invoice covering the importation (stipulated therein are all the details of the agreement)
   d) Upon receipt of Proforma Invoice, importer checks contents, if OK, uses it for LC application, if there are changes, he returns the invoice to supplier for confirmation before proceeding to the bank.
   e) If importation is subject to SGS inspections, advice seller to contact SGS in the country of supply and arrange for an inspection schedule. Moreover in opening an L/C, include a clause requiring SGS inspection. After inspection, SGS in the country of supply issues a Clean Report of Finding (CRF), if warranted, to the seller and sends copies to SGS Manila Liaison Office (MLO). The SGS MLO shall send a copy of the authentic CRF to your AAB. Secure a copy of the CRF from the agent bank and present the same to the BOC, together with other import documents, upon arrival of the importation.
   f) Importer goes to a commercial bank and applies for L/C
   1) bank checks Pro-forma Invoice if goods to be imported are:
      - freely importable – bank checks Philippine Standard Commodity Classification (PSCC) manual if coding is correct.
      - Regulated – aside from checking with PSCC manual for correct coding, requires importer to secure permits from government agencies involved.
      - Prohibited – bank will not issue L/C.

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[63] Comprehensive Import Supervision Scheme (CISS) requires that all goods valued at US$500 FOB and above destined for importation to the Philippines shall be subject to inspection by duly authorized inspector of the government at the countries of supply, as to the quality, quantity, price/HCV, verification of tariff rate. Moreover, goods declared as of quality, under such descriptive terms as stock lots, siderims cull-rolls, seconds mill lots, scraps, off grade, reconditioned, used junk or similar terms conveying or purpoting to convey the condition of the article as not being brand new or first quality shall be subjected to pre-shipment inspection regardless of value.The government has contracted Societe Generalle de Surveillance (SGS) to undertake the CISS.

[64] The pre-shipment inspection is initiated upon issuance by SGS Manila Liaison Office of an Import Advice Note. This is triggered by the submission to SGS of a copy of the L/C opened by the Authorized Agent Bank (AAB) for L/C transactions and endorsement to SGS by the Foreign Exchange Department of the report of proposed importation (RPI) for non-L/C transactions. For purposes of the latter, the importer shall submit said RPI to the Imports Division duly accompanied with a copy of the pertinent proforma invoice or import permit if applicable.

2) If in order, bank further secures copies of importers business documents such as business name and permits, SEC registration, if corporation and most recent ITR.
3) Bank computes charges and importer either pays in cash as in Cash L/C or pays at a later date as in Sight L/C.

g) Importer (or Customs Broker or Bank Representative) proceeds to Bureau of Customs to file Import Entry Declaration (IED) and pays full or deposit percentage of assessed amount. An Official Receipt (OR) is issued and he attaches this to L/C, Pro-forma Invoice, permits, IED and other documents before submitting to bank.
h) Bank sends opened L/C to correspondent bank by mail, telex or fax.
i) Importer waits for arrival of required documents from exporter.
j) Importer waits for arrival of shipment.

B. Arrival of Goods

2. Documentation

Prior to or upon arrival of the shipment, file an import entry, together with the supporting documents with the Entry Processing Division (EDP) of the Bureau of Customs (BOC). The EDP shall process the entry and its supporting documents, then forward the same to the Formal Entry Division through either the Examiner's Group to prior examination (for documents files when the imported goods are already on port), or the Appraiser's Group to prior appraisal (for documents filed prior to the arrival of the shipment or while in transit).

Documentary Requirements for the Release of Importation

For Consumption Entries
- Order of Payment form prepared by the broker or importer
- Import entry and Internal Revenues Declaration (BOC Form No. 214)
- Permit to Deliver Imported Goods (PDIG-BOC Form No. 194)
- Proforma Order of Payment

For Warehousing Entries
- Bond Processing Form
- Import Entry and Internal Revenue Declaration (BOC Form No. 217)
- Warehousing Permit (BOC Form No. 198)
- Proforma Chargeable Bond

Other Requirements
- Bill of Lading
- Commercial Invoice
- Packing List
- Copy of Tax Exemption Authority (for tax-exempt importation)
- Examination Slip (if any)
- SGS Clean Report of Finding (for imports from all ports of origin)

3. Examination and Appraisal

The Examiner's Group conducts an examination of the imported commodities covered by the import entry while the Appraiser's Group determines the taxes, duties and other charges due on the importation based on the entry and its supporting documents.

4. Liquidation

After approval by the appraiser/examiner, the documents are forwarded either to the Liquidation and Billing Division, to verify/check the computation of taxes and duties, or to the Bonds Division, if the entry is under bond, to determine how much more or less the duties and taxes to be charged to the bond.

5. Payment

Payment for the taxes, duties and other charges due on the importation are made with the Collection Division, which issued the Customs Official Receipt to the importer or Customs Broker.

B. Release of Goods

The imported goods are released to the importer or Custom Broker (for consumption entries) at the Piers and Inspection Division and/or transferred (for warehousing entries) either to the:

- Consignee's Bodega, Custom Bonded Warehouse or Container Yard- Container Freight Station;
- Customs Common Bonded Warehouse (CCBW)
- Firm's Bonded Manufacturing Warehouse (BMW); or EPZA Warehouse