

**OVERVIEW
OF THE
PHILIPPINE
AGRI-BUSINESS
SECTOR AND
RECOMMENDATIONS**

**Technical Services Performed for
USAID/PHILIPPINES
Under the Provisions of Contract
398-0249-C-00-9140-00**

**by
Glen Allen
Rolando T. Dy**



**CHEMONICS
INTERNATIONAL
CONSULTING
DIVISION**

2000 M St. N.W., Suite 200
Washington, D.C. 20036
Tel.: (202) 466-5340
Fax: (202) 331-8202

July 6, 1990

USAID/PHILIPPINES
DEVELOPMENT INFORMATION CENTER
TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	1
SECTION I INTRODUCTION	13
A. Objectives	13
B. Methodology	14
C. Definition of Agribusiness	14
SECTION II AGRIBUSINESS OVERVIEW IN THE PHILIPPINES	17
A. Estimated Sector Size	17
B. Organizational Structure	17
C. Value Chain	17
D. Participants	18
E. Key Characteristics of Participants	20
F. Relationships with Farmers	21
G. Constraints to Agribusiness Expansion	24
H. General Comments on the Agribusiness Overview	26
SECTION III COMMODITY OVERVIEW	29
A. Major Commodities	29
B. Minor Commodities	31
SECTION IV REGIONAL OVERVIEW OF SOUTHERN MINDANAO	33
A. General	33
B. Market Access	34
C. Agricultural Production Trends	36
D. Existing Agro-industries	37
E. Key Participants	38
F. Future Expectations	38
G. Constraints to Agribusiness Development	38
H. Identification of Potential Agribusiness Opportunities in Southern Mindanao	39
SECTION V RECOMMENDATIONS	43
A. Guides to Project and Program Interventions	43
B. National Programs	44
C. Potential Project Opportunities in Southern Mindanao	47
D. Special Cooperation Requirements of ASAP	52
REFERENCES	53
ANNEX A SELECTED CONTRACT FARMING PROFILES	A-1
ANNEX B ADDITIONAL RECOMMENDATIONS FOR AGRIBUSINESS INITIATIVES	B-1
ANNEX C TABLES	C-1
ANNEX D LIST OF PERSONS MET/PERSONAL CONVERSATIONS	D-1

LIST OF TABLES, EXHIBITS, AND CHARTS

		<u>Page</u>
Exhibit 1	Philippine Agribusiness System	3
Chart 1	The Agribusiness System	16
Chart 2	Major Philippine Agribusiness Conglomerates	19
Table 1	Estimation of Philippine Agribusiness Size in 1989	C-1
Table 2	Structure of Philippine Agro-based Manufacturing in 1986	C-2
Table 3	Agriculture Performance: 1970s and 1980s	C-4
Table 4	Agricultural Performance During the Drought Years: 1983 and 1987	C-5
Table 5	"Other Crops" Performance: 1970s and 1980s	C-6
Table 6	Agro-based Industries Performance: 1980s	C-7
Table 7	Agro-based Industries: Annual Growth Rates in 1980s	C-8
Table 8	Growth of Key Exports in 1970s and 1980s	C-9
Table 9	Export Earnings of Key Agricultural Commodities	C-10
Table 10	Composition of Export Earnings of Key Agricultural Commodities	C-12
Table 11	Number of Farms and Productive Trees and Area Harvested, 1980	C-13
Table 12	Key Agribusiness Players in the Philippines By Business Group	C-14
Table 13	Key Players in Major Agribusiness Outputs in the Philippines By Commodity	C-20
Table 14	Typology of Corporate-Farmer Linkages	C-25
Table 15	Case Studies in Contract Farming: Philippines	C-26
Table 16	Land Elevation and Climate in Southern Mindanao	C-28
Table 17	Land Use in Southern Mindanao, 1987	C-29

LIST OF TABLES
(continued)

Table 18	Agricultural Land Areas in Southern Mindanao	C-30
Table 19	Southern Mindanao's Share in the Production of Selected Agricultural Commodities	C-31
Table 20	Production and Area Trends of Agricultural Crops in the Philippines/Southern Mindanao	C-32
Table 21	Key Players in Agribusiness in Southern Mindanao By Province/City	C-34
Table 22	Selected Export Commodities: Key Country Players	C-32
Table 23	Market Performance and Prospects For Export Commodities	C-38
Table 24	Domestic Demand Performance and Prospects For Selected Commodities	C-39

USAID/PHILIPPINES
DEVELOPMENT INFORMATION CENTER

C

EXECUTIVE SUMMARY

A. Objectives

The development goals of the Agribusiness Sector Assistance Program (ASAP) proposed by USAID/Manila are understood and supported by the results of our interviews with selected agribusiness participants and individual farmers. The interviews were conducted to obtain information for this report, whose objectives are consistent with those of ASAP, including:

1. to present an overview of the Philippine agribusiness sector, including regional differences associated with Mindanao;
2. to identify, document, and analyze existing and/or emerging patterns of vertical integration, including contract farming, that result in efficient relationships between farmers and processors,
3. to identify and briefly discuss new commodity opportunities for private sector investment in agribusiness, to meet domestic demand and for possible export;
4. to provide recommendations concerning agribusiness initiatives, for possible incorporation into the design of the ASAP and/or Mindanao Area Development Project (MADP).

The farmers and agribusiness companies interviewed recognize the need for greater cooperation in achieving food security for the country. However, each party expressed concerns about how to achieve equitability in dividing the consumer's food dollar. Consideration was given to the products and services associated with production and distribution of the various agricultural products that can be produced in the Islands under current governmental price controls. They also recognize the need for major assistance in improving the infrastructure in order to expand food-sector capability.

B. Agribusiness Overview

There is no common definition or understanding of exactly what constitutes the "agribusiness" sector in the Philippines. The most appropriate definition of the agribusiness sector includes four distinct market entities: agricultural input suppliers, farmer-producers, processor-wholesaler-distributors, and retailers. Unfortunately, the available Philippine value-added data are classified by industry, not market levels or channels.

The definition and data problem is highlighted in exhibit 1, where the 1989 total value added for the Philippine economy is classified as "agribusiness" and "rest of the economy". According to national income accounts, about 482 billion pesos of agribusiness goods and services were produced in 1989. About 46 percent of this amount, or 226 billion pesos, was produced by farmer-producers. The remaining 54 percent share of agribusiness, or 256 billion pesos, was produced by off-farm market services: input suppliers, processor-wholesaler-distributors, and retailers.

The off-farm market service share has two major problems. First, this share is probably underestimated. It is more likely that farmer-producers receive about 30 percent of the agribusiness share, rather than 46 percent. Second, there is currently no convenient method of disaggregating the off-farm market service share into its three main components: input suppliers, processor-wholesaler-distributors, and retailers.

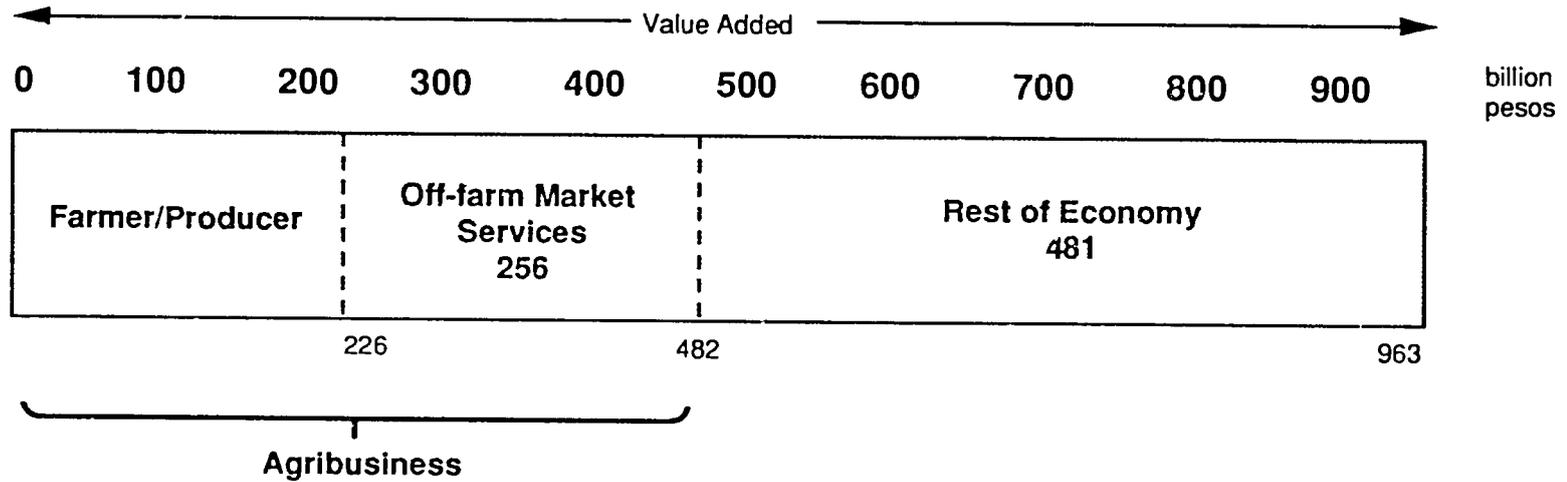
It is important to measure the retail share of off-farm market services. Although retail services are an urban-based industry, they are the final, important link in delivering food and fiber products to the consumer. There is great scope for innovation in the agribusiness retail subsector, and those innovations will have cost implications throughout all other agribusiness subsectors.

The data presented in exhibit 1 represent the best information now available on the importance of agribusiness in the overall economy. As mentioned above, it is very likely that the agribusiness share is underestimated. This implies that more than one-half of the economy's 963 billion pesos of goods and services in 1989 was produced by agribusiness. The farmer-production share is a reasonable estimate. It is therefore very likely that, assuming a 30 percent share of agribusiness by farmer-producers, the off-farm market service share of the total economy should be much larger. Later information in more detail may result in a significant change in estimates of the agribusiness sector's importance in the economy. Further discussion between governmental groups, farmers, and the business community during the design of the ASAP will eventually refine the values of the major agribusiness components. These improved estimates will help to understand the agribusiness sector's importance and assist in defining the roles of various market actors to ASAP implementation.

C. Integration: Backward and Forward Linkages

The most common integration representing backward and forward linkages in agribusiness is referred to as "contract farming" in the Philippines. Less common forms are core-satellite farming and nucleus estate and outgrower schemes (NES).

Exhibit 1: Philippine Agribusiness System*



* Includes products and services for food and fiber crops, livestock, seafood, and edible tree crops, based on table 1 in annex C.

There are at least 30 known cases of contract farming now found in the Philippines. Most contracts are offered by agribusiness companies, but the Department of Agriculture (DA) has sponsored the Livelihood Enhancement for Agricultural Development (LEAD) program, which represents a governmental effort to work with farmer associations and cooperative banks to advance selected specialty crops through a "project manager," either an agribusiness company or another selected party.

The largest contracted growing arrangement in turnover volume now in place involves six poultry integrators, who account for about 80 percent of the broiler meat consumed in the country. These contracts have been in effect for over a decade and have worked well for both farmers, who supply the labor and facilities, and the company, which supplies baby chicks, feed, and a market at predetermined prices upon delivery in seven to ten weeks.

D. Commodity Overview

Our brief commodity overview evaluation has produced the following observations:

1. Major Commodities

a. Rice

Forecasts of consumer demand and projections of domestic supply indicate that the country will continue to be a regular importer unless there is an increase in the use of improved seeds and fertilizer, and a reduction in postharvest losses.

b. Corn

A strong demand from poultry and hog producers should result in a favorable price for corn and therefore increased production. However, imports may still be necessary to meet the demand, unless the constraint of seasonality in domestic supplies can be reduced.

c. Coconuts

World supplies of competitive tropical oils are increasing and dietary demand in major importing countries is shifting to vegetable oils. Therefore, export demand will probably remain stable and supply will easily exceed domestic demand, resulting in lower farm prices.

d. Bananas

Export demand in Japan appears static; new markets, e.g. Korea, must be promoted to compete with increasing supplies from other exporting countries.

e. Pineapples

The export demand for canned pineapple products appears stable, but there may be an opportunity to expand exports of quality fresh pineapples.

f. Cacao

Quality is the key to market share in a competitive world market. Unless production costs can be reduced, the Philippine export demand will be in limited quantity, primarily for blending purposes.

g. Coffee

World supplies of robusta coffee are well above market demand. Worldwide supplies of arabica coffee are increasing, with demand moderate to good. Domestic demand is growing slowly but farm prices will depend upon limited export opportunities, which are not good for robusta types.

h. Rubber

World production is increasing in key exporting countries. Philippine production comes from an aging stand of trees and has a poor image among exporting countries. Increasing small-farm production is unlikely with limited financing at present high interest rates.

i. Poultry

Domestic demand is expected to grow at 5 to 6 percent per year. Supply growth is affected by corn production and prices.

j. Hogs (Pork)

Domestic demand for processed pork products is growing at a rate nearly equal to that of poultry products. Again, corn production and prices are key factors in determining supply.

2. Minor Commodities

a. Oil Palm

Potential small growers face the constraints of long-term credit and high interest rates.

b. Prawns

Cultivated prawns are becoming a commodity type product in world markets, except for jumbo sizes which enjoy good demand.

c. Fruits

World demand for fresh tropical fruits and processed concentrates is growing. Competing exporters sell about 55 percent fresh and 45 percent processed, so it is essential to have an infrastructure system to meet competition for both types of utilization.

d. Tuna

The world canned tuna market is very competitive. The fresh market is of possible interest, but infrastructure requirements must be available to meet the quality requirements of export markets.

e. Black Pepper

A share in major consumer markets of Europe and the US is difficult to achieve because of the limited export supply now available. Export opportunity for smaller producers may exist in small country markets.

E. Regional Overview: Southern Mindanao

The Island of Mindanao is of prime agricultural importance to the Philippines. It covers 10.3 million hectares; or about 34 percent of the country's land area, and is home to some 14 million people, close to a quarter of the total population. Mindanao claims about 40 percent of the total farmlands: its arable lands planted to temporary crops comprise about 34 percent of the national total, and those planted to permanent crops (e.g., coconut, coffee, and rubber), about 43 percent. In addition, some 40 percent of the forest cover is on the island.

Mindanao contributes about 40 percent of the national agricultural output. The region produces about two-thirds of the nation's corn, banana, coffee, and cassava production, and over one-half of the coconut production.

Southern Mindanao produces about one-third of the nation's corn, banana, and coconut production, and about one-fifth of the nation's coffee. All of the nation's fresh exported bananas and about one-half of the pineapples are produced in Southern Mindanao.

F. Recommendations

Several recommendations for promoting the ASAP were identified during the preparation of this report. Some are national in scope and others have a project or commodity orientation. The recommendations considered most important, based on our interviews, are summarized below.

1. Guides to Project and Program Interventions

The design of USAID agribusiness project and program interventions should be guided by opportunities to improve market performance through at least four approaches.

a. Identifying New Market Opportunities from Existing Market Linkages

Agribusiness market linkages should be thoroughly investigated to identify new opportunities for adding value to existing commodities and expanding production of other commodities.

b. Developing and Transferring New Marketing Technologies

New marketing technologies should be identified that can be developed and quickly transferred outside the usual government R&D framework.

c. Regulatory Reform

Much of the potential for strengthening the Philippines' agribusiness competitive position will not be realized until substantial regulatory reforms are adopted. Opportunities exist for developing agribusiness by removing price controls, allowing private traders direct access to international markets and privatizing government owned and operated agribusinesses.

d. Institutional Foundations

New agribusiness development initiatives will need a new set of institutional foundations based on strong private sector support and a new spirit of cooperation between the government and the private sector.

2. National-Level Considerations for the ASAP

a. Program Leadership

The key requirement for initiating and implementing an agribusiness program in the Philippines is the availability of an agency, authority, council, or entity, either government or non-government, to assume leadership in any

proposed ASAP program on a national and regional basis. A non-government group would be preferred by farmers and agribusinessmen. This preference was revealed in our interviews with agro-industry leaders and probably would not be shared by government agencies.

Further discussions with groups who express interest in assuming a leading role will need to be held, and their capabilities evaluated during the design phase of ASAP. It is important that they have the qualifications and managerial skills required to develop and initiate a prioritized master operating plan and to monitor its progress.

b. Cooperation Between DA/DTI/Agribusiness Sector

During our interviews, several comments were made on the difficulty for farmers and agribusinesses to understand the dividing line between the Department of Agriculture (DA) and the Department of Trade and Industry (DTI) bureaucracies. Agribusinesses are accustomed to dealing with DTI on inputs and outputs, and with DA on company-owned farms. Farmers are accustomed to dealing with DA, but when they begin to integrate forward, they soon encounter DTI.

The responsibilities and jurisdiction of DA and DTI in backward and forward integration involving either farmers or agribusinesses must be clarified for maximum and efficient expansion. The two agencies have parallel activities at the municipal level (Municipal Agriculture and Fishery Council and the People's Economic Council), as well as conflicts in several other policy directions, such as tariff reforms and import liberalization.

Several duplications of mandates exist among the agencies within the agribusiness sector, for example: (a) DA and DTI overlap in investment promotion and extension services; (b) the Department of Agrarian Reform (DAR) and DA overlap in providing support services to small farmers; (c) the Department of Environment and Natural Resources (DENR) and DAR overlap in the implementation of the Comprehensive Agrarian Reform Program (CARP); and (d) DENR and DA overlap in providing support services to upland farmers who till public lands.

c. Agribusiness Databank and Global Monitoring System

A problem identified during this study was the deficiency of data on agribusiness in the Philippines. This includes macro and micro data, and more importantly, data which have a degree of timeliness. Regular availability of data on quantities, qualities, and grades of available supplies and inventories, as well as market prices at various points in the marketing chain, is essential to achieving market shares in

"niche market" situations typical of new opportunities. Global agribusiness companies collect and analyze these data privately on a routine basis, but it is considered too costly for associations of small farmers.

Current data (less than 90 days old) for both domestic and international markets are needed in order to evaluate opportunities for new potential crops. It is recommended that the design study for the ASAP consider a program/project to address this critical need for timely agribusiness data.

d. Transport Infrastructure for Agribusiness

The lack of an adequate and efficient farm-to-market delivery system including roads, trucks, boats, and air services in the Philippines is a well-established and recognized constraint of the agribusiness sector. This constraint applies to all commodities, but is major limitation for perishable commodities requiring controlled temperatures. There have been numerous national efforts to solve the transport problem and to enlist the support of private investors, international financial institutions, and donors during recent years, but progress has been limited.

The agribusiness sector has made some progress at the level of individual companies, but their efforts have not been directed to mass movement of commodities from the farm to domestic markets. Some mechanism to increase cooperation between private sector efforts and governmental and international donor agencies will be required within any ASAP program, in order to increase intra-country movement of perishable and non-perishable commodities from smaller farms to urban markets in the Philippines. Any program of relocating postharvest processing production areas closer to small farmers will meet with only limited success without better orientation of national priorities to reduce transport constraints.

e. Cooperation Between Commercial Families

A limited number of key commercial families has been a social and cultural phenomenon in the Philippines for several generations. Some Philippine analysts suggest that there are 15 to 20 key commercial families with agribusiness interests out of the 80 to 100 recognized commercial families. There are key families at both the national and regional levels. These families typically make commercial decisions on future activities in great secrecy, and it has proven difficult to obtain cooperation between them.

The phenomenon is illustrated by the difficulties in obtaining cooperation to establish a database to provide current data on any agribusiness subsector, with the possible exception of the flour-milling subsector. Some programs which will become

part of the ASAP will benefit from more cooperation between these key commercial families. Potential foreign investors are knowledgeable of this special family-oriented commercial environment, and they are very cautious about entering into new opportunities without an understanding of the potential family players they will encounter.

3. Agribusiness Opportunities for Southern Mindanao

A number of potential commodity-oriented opportunities were identified for Southern Mindanao during our agribusiness interviews for this report. These opportunities should be considered illustrative of situations which may arise during any proposed program, but they have not been prioritized in any way. The following comments are offered for each of the opportunities, based on worldwide marketing experience.

a. Strengthening of the Regional Development Council (RDC)

The RDC has produced a planning document called the Regional Accelerated Program for Investment and Development (RAPID). It is a good step in the right direction, but needed improvements include a good information base, strong analytical tools, and perhaps a simple regional economic model. A technical assistance program to include staff training and expert advice could make Southern Mindanao a pilot region. It should be noted that the private sector, through the Kauswagan ug Timog Mindanao Foundation, plays an active role in providing planning advice.

b. Rice and Corn Handling Systems: Mindanao to Manila

At the present time the agro-industry subsector finds it easier (and perhaps more profitable) to import rice and corn for domestic food and animal feed, rather than invest in grain handling systems in a major producing area such as Southern Mindanao. Part of this reluctance to invest appears to be the result of government price-control policies and the lack of social stability. An interesting observation made during our study was the ability of key agribusiness companies to cooperate externally on import activities for these commodities. At the same time, they were reluctant to become involved in resolving the perceived constraints associated with implementing a domestic system for handling rice and corn between Mindanao and Luzon.

The technology and investment requirements for this activity are well known by these companies, but they need encouragement and regulatory initiatives to promote their joint efforts. Any project on this opportunity should consider carefully the amount of postharvest processing which can be established in Mindanao without endangering jobs at existing facilities elsewhere in the Philippines. A more open, market-driven system could permit an

analysis of the many technical alternatives which exist, in order to address national concerns on food security.

The National Food Authority plants were designed to address these concerns, but the facilities are only used about three months per year, during the harvest seasons. Maintaining an inactive labor force for the other nine months is costly. Private sector traders maintain several agribusinesses to utilize labor throughout the year. Leasing the facilities to the private sector for use in other activities is a possibility for better utilization of existing NFA facilities.

c. Pork Processing in Mindanao

This opportunity is similar to the rice and corn systems. It is probable that processing live hogs in Mindanao would reduce by half the present losses during live transit, but it may not reduce the cost of transporting fresh pork and pork byproducts to Manila under refrigeration, or the cost of packaging materials for processed pork products in Mindanao. However, the opportunity appears to be sufficiently attractive to suggest conducting the required economic analysis.

d. Tropical Flowers and Ornamental Foliage

Interest in this venture was encountered in several interviews because of some success in producing anthuriums, orchids, and leather leaf ferns in Mindanao, and marketing them in Manila and Japan. The expansion in the world cut-flower and ornamental foliage market is well known, and continued growth is expected. Tropical flower species in world trade include anthuriums, heleconia, selected lilies, "birds of paradise", astromaria and protea. Ornamental foliage species include ferns, crotons, philodendron, and dracaena.

The interest of small farmers in growing a greater number of species of tropical flowers in Southern Mindanao for local or export markets is increasing, but technical requirements to achieve the required quality are not fully understood. In every market study conducted on this commodity among the major consuming countries, the results show that bloom quality is the number-one prerequisite of the retailing group. Most tropical flower species require a farm-to-retail-market delivery system which takes no more than three days and can maintain a temperature range between 55 and 65 degrees throughout the delivery period to retain bloom quality.

Unless this specialized air-cargo handling system is in place or planned, the expansion of cut-flower and ornamental foliage production should proceed very slowly.

e. Refrigerated Container Air-Cargo Service

The same specialized refrigerated container air-cargo system required for flowers can be utilized for shipping perishable fresh fruits and vegetables, seafood, and perishable medical supplies. Most of the refrigerated containers now available ready-made have a dual control system which permits temperature ranges of 10 to 60 degrees. A study on establishing air cargo services with a refrigerated container capability in the Philippines should be a prerequisite as a part of the perishable commodity opportunities.

f. Agrobusiness Industrial Park - General Santos City

One of the business opportunities identified during interviews in South Cotabato was the strong interest in establishing a specialized agribusiness industrial park, including another deep-water sea terminal, somewhere near General Santos City. Some of the basic requirements of the park facility would be dependable electric and potable water supplies, high-tech communications, and waste treatment capability for agricultural input services and selected agroprocessing. Venture opportunities to enhance the local food system which might be included in the park are refrigerated food warehouses, ice makers, food processors, and converters. The local regional development groups have done some preliminary analysis for this park, and the opportunity appears to merit a comprehensive and detailed analysis of its commercial worth.

During the preparation of this report, a field trip was made to South Mindanao, to visit two sites and evaluate the agribusiness opportunities of the area. Based on the interviews conducted in the area and the availability of abundant raw agricultural products, it is recommended that consideration be given to establishing an agribusiness-oriented industrial park in one or both cities to assist in area development.

A decision on an agribusiness industrial park should not be made without a pre-feasibility analysis of such a venture. If the pre-feasibility analysis indicates a potentially significant commercial worth for the opportunity, it should be followed by a feasibility analysis, including letters of conditional commitment from prospective agribusiness tenants.

SECTION I
INTRODUCTION

A. Objectives

The broad development goals for the agricultural and natural resource sector of the USAID/Philippines mission are to accelerate private sector-led economic growth in agriculture and to improve national food security through:

- o increased reliance on open-market mechanisms;
- o elimination of historical policy biases against the sector;
- o increased choices for rural investment and employment; and
- o improved natural resource management.

The Agribusiness Sector Assistance Program (ASAP) is one of three proposed interventions to implement the Agriculture and Natural Resource Strategy (ANRS) of USAID for the Philippines. It is expected that ASAP will expand private sector agribusiness investments and accelerate market-led agricultural growth through two components:

- o encouraging public-private sector cooperation to improve market linkage between farmers, agribusinessmen and consumers;
- o linking performance-based disbursements to reforms in agribusiness policies, by supporting technical assistance to strengthen the following:
 - the private sector's ability to conduct policy analysis/advocacy;
 - the GOP's overall capacity for market-based sectoral management; and
 - the monitoring of progress on targeted policy reforms.

This report has four objectives consistent with the development goals of the ASAP:

1. to present an overview of the Philippine agribusiness sector, including regional differences associated with Mindanao;
2. to identify, document and analyze existing and/or emerging patterns of vertical integration, including contract farming, that result in efficient relationships between farmers and processors;

3. to identify and discuss new commodity opportunities for private sector investment in agribusiness, to meet domestic demand and possible export; and
4. to provide recommendations for agribusiness initiatives, for possible incorporation into the design of the ASAP and/or the Mindanao Area Development Project (MADP).

B. Methodology

The methodology used in preparing this report was to obtain, analyze, and evaluate information from several sources, including personal interviews with a sample of key executives from leading agribusiness companies. During a brief visit to Southern Mindanao, interviews were held with a number of Philippine agribusiness, community, and government leaders, and consultations were held with Philippine and worldwide agribusiness participants. The views and opinions expressed herein are those of the consultants, and may not reflect those of USAID or the United States Government.

C. Definition of Agribusiness

The term "agribusiness" came into use in the United States in the mid-1950s, and is now widely used around the world. Two common definitions have emerged from the expanded universal usage. To prevent misunderstanding in this report, a brief discussion of agribusiness as used elsewhere and as used in the Philippines is appropriate.

In the more developed economies, agribusiness is defined as the entire food and fiber system, including the products and services of processing, wholesaling and retailing businesses, plus farm production from conception to consumption, all inclusive. In the less developed economies, agribusiness usually represents the food agro-industries, including processing and wholesaling of inputs and outputs, plus agriculture, and is called the "agribusiness sector." The distinction often used is that anything within the "farm gate" is agriculture, while all products and services before and after the farm gate but excluding the final retail delivery system to the consumer, are referred to as "agro-industry."

In the Philippines, agribusiness is usually defined in a more restrictive manner which includes products and services for processing and distribution, inputs to farmers and outputs from farmers, but excludes the retailing of food products. This definition is a serious impediment to any comprehensive effort to develop the agribusiness subsector. Farmers are usually described as the agricultural "producer", but it is clear that a significant amount of agricultural output is produced by large-scale crop, livestock and fishery firms that do not match the popular image of a "farmer". To ignore the retail subsector

because it is an urban business misconstrues the understanding and analysis of agribusiness in the same manner as the assumption that farmers account for all agricultural production.

Our definition of "agribusiness" therefore means "farmer-producers" who produce the food and fiber commodities and "off-farm market services", composed of input suppliers, processor-wholesaler-distributors and retailers. This definition best represents the potential backward and forward linkages appropriate for understanding and strengthening any country's food and fiber system.

Based on GDP data for 1989, the agribusiness sector produced about one-half of the 963 billion pesos of goods and services produced by the total economy (see table 1 in annex C). Within the agribusiness sector, about 226 billion pesos of goods and services were produced by farmer-producers. By these estimates, another 256 billion pesos of off-farm marketing goods and services were produced by input suppliers, processor-wholesaler-distributors, and retailers.

This estimation of the agribusiness share of the economy has two major shortcomings. First, there is no convenient method to reclassify GDP industry data into agribusiness market service categories. If the market service share estimate of 256 billion pesos is reasonable, there is little information on the relative shares of input suppliers, processor-wholesaler-distributors, and retailers.

Second, the agribusiness market service share is probably underestimated. The farmer-producer estimate of 226 billion pesos is relatively more accurate, since it is based on a wide array of primary product data sources. According to the present allocation, farmer-producers account for 46 percent of agribusiness goods and services. Thirty percent is a more reasonable share, implying that the off-farm market service share is above the current estimate of 54 percent, and that the agribusiness share of the total economy is well above 50 percent.

The definition of agribusiness used in this report combines agro-industries with agriculture, due to the difficulty of obtaining data on the retail food subsector during the time allowed for this study. Our interviews and experience with the Philippine business community frequently suggested this definition, particularly in the Metro Manila area. However, outside the Metro Manila area, the distinction between agro-industries and agriculture becomes more pronounced. This observed difference was expected and it is not an unusual phenomenon. A workable definition which can be understood by all parties involved in the proposed ASAP has been presented. A diagram of the components of a complete agribusiness system is shown in chart 1 on the following page.

Chart 1 - THE AGRIBUSINESS SYSTEM

<u>ACTIVITY</u>	<u>PRINCIPAL COMPONENTS</u>				
INPUT DELIVERY	Seed stocks Fertilizer Chemicals Feeds Equipment	Input Storage	Transport (Rail/Truck/Air/Water)	Repackaging from Bulk	Credit Utilities Communica- tions
↓ v					
FARMER	Independent Farmer	Contract Grower	Company-owned Farm	Nucleus Estate	
↓ v					
POSTHARVEST ACTIVITY	Accumulators: Cooperatives/ Traders/Agents Parastatal Companies/ Private Sector	Transport	Storage Warehouses: Dry/ Refrigerated/ Freezer	Processing of First Stage/Second Stage Consummables and By- products	Packaging
↓ v					
DISTRIBUTION	Wholesalers	Brokers/ Commission Agents	Retail Food Outlets	Direct to Household Markets	Jobbers/ Distribu- tors
↓ v					
CONSUMPTION	Households	Hospitals/ Schools/ Institutions	Restaurants/ Hotels/ Fast food Outlets	Exporters	

SECTION II

AGRIBUSINESS OVERVIEW IN THE PHILIPPINES

A. Estimated Sector Size

Agribusiness in the Philippines is a most important sector in the national economy. In current value terms, the agribusiness sector (including retailing functions) is estimated at 482 billion pesos for 1989 (annex C, tables 1-1i). The turnover value behind the farm gate is estimated at 226 billion pesos by the Bureau of Agricultural Statistics. (These estimates have been made using available data sources of unknown reliability; later information may result in a significant change in sector turnover.)

B. Organizational Structure

The organizational structure of the agribusiness sector components in the Philippines is quite similar to that of other developing countries, ranging from a fairly complete system in Metro Manila to a rudimentary system in the more outlying islands.

A unique characteristic of the Philippine agribusiness system structure is the appearance of domination by a few participants along a community orientation. This perceived dominance is the result of initial efforts in the 1960s, primarily in poultry, swine, and feed milling, along semi-monopolistic lines, which were encouraged by government policies of the time. Considerable progress has been made during the past decade by these companies in crossing commodity lines, as they have acquired companies or initiated efforts to diversify outside their original one- or two-commodity origins. These participants will be discussed in greater detail in subsection D below.

C. Value Chain

The 1983 input-output model of the Philippines economy showed that the backward and forward linkages were greatest for the food/feed processing sector, with linkages for key crop sectors comparable to key non-agricultural sectors. The same model showed that the business multipliers for the livestock and poultry sector and the food/feed processing sector were more than twice as large as the multiplier for any other sector. Therefore, agribusiness multipliers in turnover and employment are of major importance to national and regional economics in the Philippines.

In developed economies, evidence shows that one dollar invested in raw agricultural materials will generate \$6-\$7 of gross value in the national economy. Estimates from the input-output model for the Philippine economy indicate a turnover of farm values of about 1.0 to 3.7. Using this value chain, considerable expansion opportunity exists in the Philippine agribusiness sector, provided investment funds become available and are effectively utilized on a prioritized basis.

For agribusiness systems in developed countries, analysts have discovered that \$1 invested within the farm gate requires \$6 invested outside the gate to achieve an efficient working system. In developing countries, estimates of the required investment outside the farm gate range from \$12 upward, although definitive studies to pinpoint the amount have been difficult in less developed economies, due to data limitations.

There is a general rule of thumb which says, "Never seed or breed unless you know where your market is for the resulting product." The more successful farmers try to identify a guaranteed market and price for half of their expected output. This amount of guaranteed revenue usually protects all production costs except labor and land rental fees. This is not easy to achieve in many situations, but it represents a sound business objective for the farmer.

D. Participants

An analysis of the agribusiness sector in the Philippine economy indicates that business in selected commodities is highly integrated and concentrated among six agribusiness conglomerates/integrators. The term "conglomerate" is preferred to describe these six companies, because they are usually owned by holding or investment companies that have many product/service activities outside the agribusiness sector. Within agribusiness, they are integrators with significant and substantial backward and forward linkages in products and/or services, including company-owned farming activities.

These companies have about a 60 percent market share of the mixed animal feed commodity subsector, 93 percent of the dairy products subsector, 80 percent of the broiler meat, 34 percent of the eggs and 39 percent of the swine (pork) subsector, as shown in chart 2 below. Some of the combined market share in each subsector is produced on company-owned farms, but the larger portion of market share in broiler meat, eggs, and swine is produced by contract growers or independent farmers. Imported raw material inputs are of significant importance in the dairy products (powdered milk) and mixed feed (corn, soybean meal) subsectors. Profiles of major agribusiness firms are summarized in annex A, and also in tables 12 and 13 from annex C.

Chart 2 - MAJOR PHILIPPINE AGRIBUSINESS CONGLOMERATES

Subsector Ranking and Estimated Agribusiness Market Share of Selected Commodities

Mixed Feeds			Dairy Prod.		Broiler Meat		Eggs		Swine	
Company	Rank [a]	Market Share [b]	Rank [a]	Market Share [b]	Rank [a]	Market Share [b]	Rank [a]	Market Share [b]	Rank [a]	Market Share [b]
San Miguel	-	-	1	48%	-	-	-	-	3	7%
Magnolia	1	27%	3	5%	1	30%	1	15%	-	-
Nestle										
RFM Corp/ Republic	5	3%	-	-	5	6%	4	3%	1	11%
Ayala/ Purefoods	-	-	4	5%	2	20%	2	7%	2	9%
CFC/UR	2	13%	-	-	6	4%	5	4%	5	4%
Vitarich	3	13%	-	-	3	11%	-	-	4	5%
GF Equity/ Holland Milk	4	4%	-	-	4	9%	3	5%	6	3%
	-	-	2	35%	-	-	-	-	-	-
6 Companies as percent of Industry	-	60%	-	93%	-	80%	-	34%	-	39%

[a] Ranking as of 1989

[b] Estimated market share after ranking

Sources: Consultants Report to the Asian Development Bank - 1986
Estimates by Chemonics International - June 1990

In addition to the six agribusiness conglomerates, there are about 50 additional companies which have a significant share in one or two of these subsectors or in other commodities not included in the table. The agribusiness division of the Philippine Chamber of Commerce reportedly has about 50 members, with a twelve-member steering committee, while the Center for Research and Communication's agribusiness unit has a database of about 350 agribusiness companies.

E. Key Characteristics of Participants

Several important characteristics of agribusiness participants were identified during the interviews; these contribute to their successful operations as measured by market share.

1. Management

The companies focus on specific market opportunities. Management is aggressive but well disciplined in risk taking and decision making. Operations are controlled with a business plan and a management information system which receives input on a global, national, and local basis. Output is margined and risk is analyzed on a regular basis and business decisions are made promptly with a flexibility that provides for adjustments as market conditions dictate.

2. Financing

All agribusiness conglomerates have access to the required long-, medium-, and short-term investment funds required to operate efficiently in agribusiness. Although some investment monies are obtained outside, most agribusiness companies are parts of holding companies where funds are generated internally from agricultural and non-agricultural businesses. Internal interest rates are generally at the same level as the external rates. Therefore, agribusinesses units have no credit advantage, except for the greater speed of an internal loan committee consisting of a few key executives of the holding companies. Each company can act quickly in pursuing an opportunity or in changing directions, based upon changes in the supply and demand.

3. Markets

The companies all have a market information system that reflects the market activities of each competitor and market channel in the commodity subsector, both within the Philippines and to a certain extent on a global basis.

4. Raw Material Supplies

The availability of a dependable supply of raw processing materials is a management concern. In general, all

companies have established company-owned farms and/or contract farmers to protect part of the break-even supply for their factories, or to meet seasonal peaks in consumer demand or seasonal shortages in supplies from independent farmers. The latter may be due to logistical problems of the transport system, changes in government policies, or weather conditions. The companies usually estimate market requirements in advance and try to match expected incoming supplies to the market, without incurring excess expense for the storage of raw agricultural products.

5. Middle Management Training

The Philippine educational system is well-known for producing large numbers of technically trained agriculturalists. However, the system does not encourage an agriculturalist to receive training in accounting, business management, and the decision making required of a future agribusiness manager. Likewise, a business student cannot obtain technical skills in agriculture under the present system. As a result, the agribusiness conglomerates must expend considerable money to train their agriculturalists in business or vice versa.

Our interviews with the leading companies have indicated a consistent need for internal training activities to develop middle management executives. Each company recognizes that they will need to fine-tune potential middle management personnel for their special requirements, but they would welcome the addition of an agribusiness-oriented curriculum at the university level which would provide a pool of potential employees for current and future expansion opportunities.

F. Relationships with Farmers

1. Contract Farming

Contract farming in its traditional form involves two parties: the processing/marketing firm and the farmers. Both parties are bound by a contract: the firm agrees to buy a set quantity of produce at a pre-agreed price, and the farmer to sell a fixed quantity at a pre-agreed price. Other responsibilities have evolved, such as the firm's commitment to provide technical and credit assistance to the farmers. The farm areas are generally within a certain radius from the processing/marketing firm. Core-satellite farming is a variant of contract farming in which the processing/marketing firm (the core) and the cooperating farms (the satellites) are not contiguous.

Contract farming gives a measure of market security to the farmer and the processing factory, and becomes the cornerstone of an economic atmosphere conducive to agribusiness development. Contracts can be offered by governmental or private sector groups, but experience in other countries has shown that

government-sponsored contracts are frequently difficult to enforce for social and political reasons.

The perceived image among farmers in most countries is that a private sector contract is more enforceable. The evidence from contract farming experience in the Philippines suggests that this perception exists, except where market prices at delivery time are higher than the contract price. This difficulty in contract enforcement is overcome in developed countries by governmental guarantees of minimum farm-gate prices based on traditional subsector margins and by providing an adequate storage system in the commodity sector should the government become the purchaser at delivery time. This activity helps fulfill the government's role of providing food security to their consumers.

The nucleus estate and outgrowers scheme (NES), pioneered by Commonwealth Development Corporation (CDC) in the 1950s, is another variant of contract farming. One outstanding feature of NES is that a proportion of the production area is owned and managed by the nucleus estate. The rest are owned and operated by outgrowers, who are mostly small farmers. There is a high degree of production integration between the nucleus estate and outgrowers. In less developed areas as well as newly opened lands (such as the Outer Islands of Indonesia) the nucleus estate and the outgrowers are geographically contiguous; in settled lands, the outgrowers may be scattered around the nucleus estate but within an economic transport distance.

Goldsmith has provided a typology of corporate-small farmer linkages (see table 14, annex C). His analysis shows that plantations are more integrated with the production process but have weaker linkages with small farmers. By contrast, core-satellite farming is also highly integrated, but has stronger linkages with small farmers. The advocates of core-satellite farming claim several potential advantages for the processors. First, the processors find primary production to be increasingly unattractive. Second, managing an agricultural labor force is always difficult, particularly in the context of unionization and rising wages. Third, large overseas land holdings have become a political liability, subject to government regulation and potential nationalization. Likewise, there are potential benefits to outgrowers. Production contracts should help growers to forecast their income, and growers can gain access to farm inputs and agricultural support services. Finally, they can acquire a larger market for their produce (Goldsmith, 1987). Governments can expect several benefits, including increased food supply, higher export earnings, and greater revenues.

Based on Philippine experience, a range of contract farming models are in operation, with a number of variants (see table 15, annex C). There are at least 30 known cases. In terms of amount, the largest contract growing arrangements are those

undertaken by the five poultry integrators that supply some 70 percent of the commercial chicken broilers in the country. In terms of area, the largest is the Paper Industries Corporation of the Philippines (PICOP), which involves 4,765 growers on 16,000 ha of fast-growing trees.

There are three variants of contract farming in the Philippines that require further explanation: the Unimer okra growing type, the Meralco Corfarm rice linkage type, and the Department of Agriculture's Livelihood Enhancement for Agricultural Development (LEAD) program type.

Traditional forms of contract farming typically involved two parties, the company and the grower, who are usually bound by a production contract. The growers may be organized into associations or cooperatives which deal directly with the company. The three variants in question differ according to the number of parties involved.

2. Contract Farming through Mediator

The Unimer okra project involves three parties: the company, the farmers, and the mediator. Unimer deals with the contract growers through mediators, or middleman. The mediator transmits to the farmers the company's requirements, such as export specifications, prices, and planting and delivery schedules. The company extends technical assistance to the growers and guarantees to purchase their produce at an agreed price. It also supplies seeds, packing materials, and fertilizers through the mediator. The farmers provide the land and labor while Unimer pays for the produce, net of advances, through the mediator. The mediator, in turn, distributes the income to the farmers at a pre-arranged ratio. A similar arrangement is operative for the California Manufacturing Company's cucumber project and the Shemberg seaweed project.

3. The Linkage Arrangement

With respect to the Meralco Corfarm rice project, a linkage arrangement was established among four parties: the company, the farmers, the Land Bank, and the national irrigation agency (NIA). Under the agreement, the company provides the farm technology, management, and supervisory services, and is responsible for collection and remittance of the loan to the bank. The farmers provide the land and labor, while NIA forms the irrigators' association and makes irrigation available to the farmers. Furthermore, the company identifies the cooperative to be accredited in the linkage, and the cooperative in turn borrows money from the Land Bank. The bank issues the check in favor of the farmers' cooperative. At harvest time, the farmers deliver their produce to the company, and the latter deducts their loans from the proceeds of their produce. The company in turn remits to the bank the collection from the farmers.

4. The LEAD Program

The Livelihood Enhancement for Agricultural Development (LEAD) program was launched by the Department of Agriculture (DA) in 1988. At least six small projects are now in operation, including papaya, passion fruit, pepper, and seaweed. This scheme involves many parties: the DA, the farmers, the farmers' cooperative, a bank, and the project manager. LEAD has three components: project identification, enterprise management, and banking linkages.

Organized farmers' and fishermen's groups and non-governmental organizations (NGOs) working with the farmers can propose projects for submission to the DA. A consultant firm will be asked to conduct a feasibility study paid for by the DA. If the project is found feasible, the Management Association of the Philippines (MAP) will select a project manager to ensure project execution for two years. He will be responsible for training farmers in the areas of production technology, cost control, and cooperative management. MAP would also identify the company that would purchase the farmers' produce. MAP has received a grant from the government for this purpose. At the same time, the DA would refer the project for funding by the cooperating banks. Eighty-five percent of the loan would be guaranteed by a government guarantee agency, thus assuring a collateral-free loan.

As the LEAD program is barely two years old, it has yet to establish a track record. The DA and the MAP reportedly have some disagreement concerning the pace of project approval.

G. Constraints to Agribusiness Expansion

The constraints to agribusiness expansion are many and diverse. Among the most important are the following:

1. Comprehensive Agrarian Reform Program (CARP)

CARP became law in July 1988, but top-level discussions within the government began after the February 1986 revolution which culminated in the signing of executive order no. 228 in July 1987. It followed the provisions of the February 1987 constitution, which provided for a comprehensive agrarian reform program. CARP stipulates low retention limits for individual and corporate land owners, and has effectively frozen investment in agriculture. In addition, the cost of production and profit-sharing for commercial farms, the bureaucratic red tape, and four changes of DAR secretaries in one year have caused major delays to firms that have applied for stock ownership and lease-back options.

2. High Minimum Wages

In July 1988, the government imposed a minimum wage increase of 25 pesos per day, which raised wage levels to about 68-89 pesos per day for agribusiness firms. These levels are higher than the corresponding wages in Thailand, Indonesia, and Malaysia. The profitability of many agribusiness enterprises is under serious threat, to the extent that many companies have laid off workers and voluntarily offered for sale their lands to DAR.

3. Poor Transport Infrastructure

The geographic fragmentation of the country into many islands is an inherent constraint to mobility, and the state of the transport system is poor. Port facilities and road networks are in state of disrepair, transport costs are high due to high vehicle-operating costs and heavy tariffs on vehicles and spare parts. Finally, the road system is not properly planned to serve areas with good agricultural potential.

4. Inadequate Supply of Raw Materials

The processing plants in Metro Manila and major cities including Cebu are underutilized, due to shortages in the supply of coconuts, fruits, and vegetables.

5. Lack of Long-term Credit

There is a shortage of long-term credit to expand supplies of raw materials for processing. Fruit trees and tree crops such as rubber, oil palm, cacao, and soft wood are long-gestating, but the banking system and the government have not evolved programs for supplying funds over a period of 15 to 20 years.

6. High Postharvest Losses

The poor transport network and small farmers' lack of access to facilities have led to postharvest losses ranging from 10 to 40 percent. For corn alone, it is reported that postharvest losses could be as high as 15 percent during the dry season and 30 percent during the wet season.

7. Insurgence/Law and Order

The deteriorating law and order situation in the countryside has hampered investments by firms or entrepreneurs who would be willing to operate within the limits imposed by CARP.

8. High Tariffs on Inputs and Supplies

Although duties on fertilizer are low at 5 percent, duties on agricultural chemicals, farm machinery, and transport vehicles remain relatively high, due to the protection of local industries.

9. Overvaluation of the Peso

The Central Bank's policy of propping up the peso vis-à-vis the dollar burdens exporters with implicit taxation. The National Economic Development Authority (NEDA) estimates a foreign-exchange premium of 20 percent.

10. Ambiguous Policy Towards Foreign Investments

While the country tries to promote foreign investments, its policies appear ambivalent. There is a need to relax the 60:40 rule on foreign investments in most areas, particularly when investments are planned outside the Metro Manila Area and the adjoining regions of Central Luzon and Southern Tagalog.

Other studies have cited the following sector constraints: agricultural price and market controls, the large and inefficient parastatal agribusiness complex, excessive government centralization, inappropriate natural resource management policies, and an ineffective system of technology generation and transfer. There are also problems involving road transport, inter-island shipping, electric power, and telecommunications. Finally, the duplication of mandates of various departments and agencies has led to "turf" problems.

H. General Comments on the Agribusiness Overview

The role of the private sector in expanding the agribusiness sector in the Philippines is vital, because it can provide dynamism, management, discipline, market emphasis, and additional financial resources.

An agribusiness conglomerate can serve to expand the market for raw agricultural products, improve the scope and quality of marketing services, manage the introduction of new and improved technologies, and support the dissemination of these technologies once they are introduced. Philippine agribusiness firms have shown a willingness to invest and support commodity activities given a favorable and stable investment climate. They have also shown that their implementation can be more effective and rapid than parallel efforts by parastatal companies and governmental groups.

Experience in other developing economies has shown that governmental efforts are effective in insuring food quality and safety, as well as regulating development and reinvestment

credits to help smaller farms and agribusinesses, as an offset against "potential excess profits" of the conglomerate.

The government of the Philippines' role in improving the country's food supply should be to institute a dynamic policy favoring intensive and integrated small-farm development. A key aspect of such a policy would be regulations and mechanisms to stimulate and support private sector initiatives in project implementation.

A combination of governmental and private agribusiness efforts will benefit the farm community in several ways. It will provide a market opportunity that farmers can depend upon as economically viable for their traditional activities. Farmers will be able to adopt new and improved technologies under qualified technical supervision, provided they are willing to utilize the services available to them. Greater productivity per input unit and a highly reliable market for farmers generally results in more net expendable income and an improved standard of living. In addition, the value chain from farm output value has a demonstrated turnover effect in community development, which usually means better services, education, and jobs for the expanding population.

International donor agencies should consider assistance to the private agribusiness components as a means of improving marketing services, a vehicle for the rapid adoption and dissemination of new and improved technologies, and a method of promoting sustainable growth in the food and fiber system. They should not consider private sector support as a subsidy or transfer payment, as long as the stated goals and objectives of the donor's programs are obtained.

SECTION III
COMMODITY OVERVIEW

This section will analyze the market prospects of the key commodities included in the RAPID program. Tables 22 and 23 in annex C show the key players among the export commodities and the latter's market prospects. Table 24 shows the domestic demand prospects for selected commodities.

A. Major Commodities

1. Coconut

Coconut is a major export of the region, with about 85 percent of copra production destined for the world market. The product is threatened by the American Soybean Association's campaign against tropical oils, as well as the lowering of aflatoxin standards by the EEC for copra meal. The long-term supply trend of coconut is down, due to aging trees and lack of replanting and fertilization. A World Bank loan approved in May 1990 has been designed to address this concern. On the other hand, the long-term growth rate of world demand is expected to grow by only 0.7 percent a year up to 2000. Meanwhile, the production of palm kernel oil--the direct competitor of coconut oil--has been increasing at a fast pace. As a by-product of palm oil crushing, palm kernel is highly competitive. Domestic demand could grow by 4 to 5 percent a year, but this operates on a relatively small base.

2. Corn

The prospects for corn are good, primarily due to the strong demand by poultry and hog producers. The two industries grew at a notable rate in the 1980s, following the strong demand of the 1986-1989 economic recovery. By the authors' estimates, poultry and hogs should sustain good growth levels in the 1990s. As a result, corn demand should grow by about 5 to 6 percent a year.

3. Bananas

The export volume of Cavendish bananas has been static in the 1980s because the product has reportedly reached its maturity stage in the Japanese market. However, the prospects appear bright with the liberalization of the Korean market. South Korea has a population of some 40 million and a per capita income of about \$5,000. In the past, importing bananas has been subject to tariffs and other barriers.

4. Pineapples

The market for fresh produce is strong according to industry experts, given the nearness of the Philippines to the high-growth countries of Korea, Singapore, and Hongkong. On the other hand, it is likely that canned pineapple and juices may be entering the maturity phase.

5. Coffee

The Philippines is a minor player in the world's coffee market. It exports low-quality robustas, which currently have a 40 percent discount compared to arabicas. According to the World Bank, world coffee imports should increase by only 1.1 percent a year in the 1990s. At the same time, domestic demand faces slow growth; consumption has been hovering around 0.4 to 0.9 kg per person over the past 20 years. The name of the game in the world market is quality, and unfortunately Mindanao coffee has a poor image in the export market as compared to Cavite coffee.

6. Cacao

The region is the cacao center of the country where, drip irrigation technology has taken root. The Philippines is a small net exporter of beans and butter. The world demand prospects for cacao beans is better than coffee, but the projected growth is still low at 1.9 percent a year in the 1990s. Given the rapid expansion of Malaysia and the high wage cost in the Philippines, cacao should become a small-farmer crop in the future. As it is a crop highly susceptible to pests and diseases, a nucleus firm would be necessary to provide technical assistance. Again, quality is the key to gaining a share of the world market.

7. Rubber

This is a promising small-farmer crop and the region has favorable agro-climatic conditions for it. According to experts' estimates, Mindanao has a potential area of at least 500,000 ha of rubber, about seven times the present area. The industry faces two problems: the low quality of cuplumps and the aging stands. Many plantations have shelved investments in replanting because of CARP restrictions. At the same time, the government has yet to design a financing package for long-gestating crops. The World Bank projects that world demand for rubber will grow at 2.0 percent a year in the 1990s. A bright spot is that Malaysia--the world's largest exporter--is experiencing a decline in production and Philippine local demand is expected to show notable growth.

8. Rice

The region is a surplus producer of rice. In 1989, the region produced some 723,000 tons of palay, or about 470,000 tons in rice equivalent. Assuming a per capita consumption of 100 kilos per person per year and a population of 3.2 million, the regional demand is about 320,000 tons. If the regional population grows at 3 percent a year and per capita income expands at 3.5 percent a year, the total demand by the year 2000 would be about 450,000 tons. (This assumes an income elasticity of 0.1). Without investments in irrigation and with minimal growth in yields and cultivated areas, the region will cease to be a rice exporter within ten years.

9. Poultry

Demand for chicken is expected to grow by 5 to 6 percent in the 1990s. (This assumes an income per capita growth of 2.5 to 3.5 percent, an income elasticity of 1, and a population growth of 2.5 percent). Regional demand would likely be higher due to immigration. At present, RFM and Vitarich operate in the region, with the former having 58 outgrowers.

10. Hogs

There are large piggeries in the region (1,000 sows and above). Among the largest are Nenita Farms in Davao City and Bibiana Farms in General Santos. According to some estimates, the Davao piggeries ship about 50 to 70 percent of their production to Manila, depending on the season. The prospects for regional and national markets are good. The author estimates that demand will increase by 4 to 5 percent a year in the 1990s. At present only about 10 percent of pork production is processed into ham and sausages.

B. Minor Commodities

Minor commodities are those with small production at present or new crops to be introduced in the future.

1. Oil Palm

Across the Davao del Norte boundary, NDC-Guthrie operates two plantations covering 8,000 ha supported by a palm-oil mill. In Sultan Kudarat province along the South Cotabato boundary, Kenram Philippines operates a 1,000-ha nucleus and some 3,500 ha of outgrowers. Genetically, oil palm is a better alternative to coconut, and world demand appears good. The World Bank projects that imports will grow by 4.4 percent a year during the next decade. The main constraint facing potential growers (small farmers) is long-term financing. It is likely that technology and marketing will be provided by NDC-Guthrie, particularly if outgrowers are located in Davao del Norte.

2. Prawns

Southern Mindanao is a minor prawn producer at present. Of the 26,000 tons of frozen prawns (\$231 million) exported in 1989, about half came from Western Visayas. Still, South Cotabato and perhaps Surigao del Sur have good potential. Dole Philippines, in a joint venture with the Alcantara Group, has a large prawn processing plant in General Santos. The company has now 30 to 40 contract growers operating some 1,000 ha. The Dole model may be a necessity, considering its access to shipping facilities. As a long-term strategy, outgrowers must consider extensive culture (low investment) and jumbo-size product, as this niche is not subject to significant price fluctuations.

3. Fruits

The region has potential for fruits such as durian, rambutan, mangosteen, mango, guyabano, papaya, and passion fruit. The major constraint is the lack of supplies for buyers and processors. As earlier stated, there is surplus processing capacity for purees and juices in Metro Manila. There is a need to assess the competitive advantage of the region for certain fruits, as they can also be grown in other regions. The author believes that demand for tropical fruit purees on the world market will continue to be strong. Moreover, the business is starting from a low base. Small farmers interested in planting fruit trees on a larger scale face the twin constraints of lack of good seedlings and long-term financing.

4. Tuna

The Philippines exported some 57,000 tons of fresh and canned tuna valued at \$129 million in 1989. It is a growing export in spite of strong competition from Thailand. Most of the high-value tuna for "shasimi" originates from General Santos. There may be a need to discuss with the industry association the constraints the members face, such as the lack of cold storage facilities and the poor road from General Santos to Davao City.

5. Black Pepper

The country grows this perennial vine, but will continue to be a net importer for sometime. The author estimates that there are about 400 ha of farms in the whole country, but many are in the immaturity stage. The large operations are outside the region, including: High Grains Farms (Gamboa Hermanos) at San Carlos, Negros Occidental, and the Menzi Agricultural Corporation at Basilan. In Southern Mindanao, there is reportedly an eight-ha farm in Tupi, South Cotabato, as well as small farms scattered all over the region.

SECTION IV

REGIONAL OVERVIEW OF SOUTHERN MINDANAO

A. General

1. Agricultural Importance to the Philippines

The Island of Mindanao covers 10.3 million ha, or about 34 percent of the country's land area. It is home to some 14 million people, close to a quarter of the total population. Mindanao claims about 40 percent of the total farmlands; its arable lands planted to temporary crops make up about 34 percent of the national total, and those planted to permanent crops (e.g., coconut, coffee, and rubber), about 43 percent. In addition, some 40 percent of the forest cover is on the island.

Mindanao contributes nearly 40 percent of the national agricultural output. Mindanao's share of production by commodity for 1987 is summarized as follows:

MINDANAO'S SHARE OF TOTAL PRODUCTION
OF SELECTED COMMODITIES

Commodity	Share(percent)
Palay	23.0
Corn	66.2
Coconut	54.9
Sugarcane	5.7
Bananas	68.0
Coffee	66.2
Pineapples	95.1
Mango	20.0
Cavendish Bananas (export)	100.0
Citrus	47.1
Cassava	62.9
Rubber	100.0
Ramie	76.3
Palm Oil	100.0
Cacao	74.1
Cattle Population	24.0
Hog Population	25.0
Chicken Population	21.2
Marine Aquaculture (Seaweed)	85.6

Source: Bureau of Agricultural Statistics

2. Location

Southern Mindanao, or Region 11, is situated between 5 and 8 degrees north latitude, and 124 to 127 degrees east longitude. Countries with similar latitudes include: Thailand, Sri Lanka, Cameroon, Nigeria, Ivory Coast, Liberia, Ghana, and Colombia. Its climatic pattern is similar to that of southern Thailand and peninsular Malaysia: the rainfall pattern is almost equally distributed all year round, and the region falls outside the typhoon belt (see table 16).

3. Political Subdivisions

The region comprises five provinces and two chartered cities. The provinces and their capitals are: Surigao del Norte (Tandag), Davao Oriental (Mati), Davao del Norte (Tagum), Davao del Sur (Digos), and South Cotabato (Marbel). The two cities are: Davao City and General Santos City.

4. Land Area, Population, and Land Use

Southern Mindanao has a land area of about 3.2 million ha, or just over 10 percent of the country's land area. The current population is about 4.3 million, and is growing faster than the national annual growth rate of 2.5 percent. This is due largely to immigration from other regions, particularly the Visayas.

According to a 1988 satellite survey, the region has a cultivated area of about 1.1 million ha or about 35 percent of the total land area. About 31 percent of the total is covered by forests (see tables 17 and 18).

B. Market Access

1. Airports

The region, located at the southeastern tip of the Philippines, is bounded by the Pacific Ocean on the east, the Celebes Sea on the south, and inland Mindanao in the north and west. The region is served by a major airport in Davao City where Philippine Airlines (PAL) operates three flights a day from Manila. (The Manila-Davao leg takes about one hour and 40 minutes.) From Davao City, PAL flies to Cagayan de Oro City in Northern Mindanao, Zamboanga City in western Mindanao, and Cebu City, the trading center of the Visayas regions. The second major regional center is General Santos City, which has two flights daily by Fokker 50 from Cebu City and that take about one hour and 30 minutes. There are other minor airports in the area, including Bislig, Allah Valley and Tandag.

2. Ports

The region has two main ports of entry: Sasa in Davao City and General Santos City; both have international links. The Sasa port is about 842 nautical miles from Manila, and the General Santos port, about 702 nautical miles. According to the Philippine Ports Authority, the Sasa port had a cargo throughput of 1.6 million tons in 1988. It had 701 domestic and 99 foreign ship calls for that year. The Davao Gulf area has three small public piers and 11 private ports; the latter serve the banana, copra/coconut oil, cement, and petroleum firms. Davao Oriental is served by the Mati pier. Within South Cotabato, the large ports include the Makar and Dole Philippines ports. The latter is the outlet for pineapple, banana and prawn exports. Surigao has three ports: PICOP, Bislig, and Bacobo.

3. Road Network

The road network of the region is underdeveloped. In 1987, the region had a rural ("barangay") road density of 0.3 per square km of land area. About 48,000 transport units (trucks, trailers, and utility vehicles), or a density of 0.47 per sq km of land area, serve the region.

The connecting roads among the regional centers range from good to poor. The following is a description of individual roads, including their condition and the distance from Davao City.

- o to Tagum, Davao del Norte: 54 km of concrete road, requires widening in some sections due to high traffic volume;
- o to Mati, Davao Oriental (via Tagum): 165 km of concrete and gravel surfaces, the Tagum-Mati stretch is reportedly under construction;
- o to Tandag, Surigao del Sur (via Tagum and Agusan Sur): 328 km, with bad stretches from Agusan to Tandag;
- o to Digos, Davao del Sur: 56 km of concrete and asphalt road, requires widening and rehabilitation; congested due to the convergence of traffic from North and South Cotabato;
- o to General Santos City (via Digos): 146 km of concrete and asphalt roads; a major artery of the region; the Digos-General Santos segment is in poor condition;
- o to Marbel (via General Santos): 205 km, the General Santos-Marbel segment is a first-class concrete road built to high standards by a Korean contractor and financed by the Asian Development Bank.

C. Agricultural Production Trends

1. General

The region accounted for 7.3 percent of the national gross domestic product (GDP) in 1989. During the 1980s the regional GDP grew at an average rate of 3.0 percent per year, compared to the national rate of 0.7 percent. Its strong agricultural base cushioned the region from the impact of the 1983-1985 crisis. From 1986 to 1989, the annual growth rate was 4.8 percent, as compared to the national rate of 4.6 percent.

Agriculture accounted for 45.6 percent of the regional product, compared to 26.9 percent for the whole country in 1989. Within the agriculture sector, crops contributed 81.3 percent of the output, much higher than the national rate of 58.7 percent.

COMPARISON OF MINDANAO AND NATIONAL GDP STRUCTURES, 1989 Valued at 1972 Constant Prices

Sector/Industry	Mindanao	Nation
----- (% Share) -----		
<u>Agriculture</u>	<u>45.6</u>	<u>26.9</u>
-Crops	81.3	58.6
-Livestock/Poultry	9.9	21.7
-Fishing	2.8	17.5
-Forestry	6.0	2.2
	100.0	100.0
<u>Industry</u>	<u>19.7</u>	<u>33.1</u>
-Mining	7.2	4.4
-Manufacturing	76.3	75.9
-Construction	11.8	13.3
-Utilities	3.3	5.8
	100.0	100.0
<u>Services</u>	<u>34.8</u>	<u>40.0</u>
-Transport	10.8	13.9
-Trade	61.0	40.0
-Finance, etc.	10.0	14.5
-Others	18.2	31.6
	100.0	100.0
<u>TOTAL GDP</u>	<u>100.0</u>	<u>100.0</u>

Source: NEDA

2. Key Products of National Importance

Southern Mindanao is a major producer of many key commodities, several of which are important agricultural exports. Among the major crops, the region supplies the following shares:

- o Corn: 29%
- o Coconuts: 33%
- o Bananas: 42%

All the fresh bananas for export are produced in Southern Mindanao. Among the "minor" crops, the region contributes the following shares:

- o Pineapples: 42 %
- o Coffee: 30 %
- o Cacao: 65 %
- o Ramie: 74 %
- o Soybeans: 71 %

Table 19 in annex C shows Southern Mindanao's share of national production for key agricultural commodities.

3. Production Trends

During 1980-1989, agriculture production grew by about 4.0 percent a year as compared to 2.0 percent for the entire country. The following chart summarizes the information contained in table 20 in annex C.

PRODUCTION TRENDS OF KEY COMMODITIES (1980s)		
Commodity	Ave. Annual Growth Rate	
	Regional	National
----- (% p.a.) -----		
Palay(rice)	4.0	2.3
Corn	3.5	4.8
Coconut	-0.1	-0.8
Banana	-0.4	-0.4
Coffee	4.5	3.4
Pineapple	4.9	4.3
Cacao	13.9	11.3
Rubber	7.2	7.3
TOTAL AGRICULTURE	4.0	2.0

D. Existing Agro-industries

Based on the aggregated data from the 1986 Survey of Establishments, there were 98 food processing firms in the region with a total output value of about 3.6 billion pesos, and an added value of 1.3 billion. A large number of these are coconut-oil mills, and 28 wood processing plants are also located in the region, with a total output value of 1.5 billion pesos and added value of 560 million pesos. The key paper products firm is Paper Industries Corporation of the Philippines (PICOP): output value, 1.5 billion pesos; added value, 850 million pesos. In addition,

five rubber processing plants contributed some 145 million pesos in output and 131 million pesos in added value. The following agro-industries operate in the region: pineapple processing, chicken and pork processing, feed milling; activated charcoal; dried fruits, coconut milk, ramie degumming, and tuna canning.

E. Key Participants

The key participants are involved in plantations (bananas, pineapple and cacao), coconut oil milling, and logging/wood processing. Among the companies with contract growing arrangements are: Nestle Philippines, soybeans; Ayala Agricultural Development Corporation, hybrid corn seeds; Dole Philippines, asparagus/prawns/flowers and ornamentals; RFM, chicken broilers; and Davao Fruits Corporation, cacao. Table 21 in annex C shows the key agribusiness players by province.

F. Future Expectations

The goal of Southern Mindanao is to become the major agro-industrial center of the country. The Regional Development Council has formulated the Regional Accelerated Program for Investment and Development (RAPID). Among its priority programs are:

- o grains and feed development: rice, corn, animal feeds;
- o livestock and meat processing: cattle, hogs, poultry;
- o fishing and aquaculture: tuna, prawns, milkfish;
- o coffee and cacao;
- o coconut and palm oil;
- o cotton, abaca, ramie and other fibers.

The above list considers such factors as soils, climate, and production technology. It is production-oriented rather than market-oriented.

There are a number of inherent weaknesses of RAPID, including the lack of in-depth analysis of the local and export markets, as well as a competitive analysis of the region compared with other regions.

G. Constraints to Agribusiness Development

The constraints faced by the country as a whole apply even more to Southern Mindanao, as the region is distant from Metro Manila, a growing market of about 8 million people. In addition, a significant number of crops with good potential are long-

gestating and thus would require a well-designed financing program. Moreover, CARP has required plantations to freeze investments, particularly in tree crops.

With respect to the infrastructure, the road system linking the provincial centers and municipalities is in poor condition. The Davao City-General Santos road, the main regional artery, is not able to sustain current transport needs. Many towns in Surigao del Sur, Davao Oriental, and Davao del Sur are isolated due to poor roads and lack of maintenance. In addition, the telecommunication facilities among the key areas leave much to be desired. Finally, the grain handling and storage facilities at South Cotabato, the nation's corn basket, are terribly inadequate. This results in high postharvest losses and reduced farmer income.

H. Identification of Potential Agribusiness Opportunities in Southern Mindanao

1. Selection Criteria

Agribusiness must be subject to the traditional standard of business criteria. The first criterion for agribusiness is identifying the market, both producers and consumers. The second is marketing the product. The "four Ps" of marketing continue to be of product, place, price and promotion.

Another criterion is identifying the potential for "value adding," which has several avenues: postharvest handling and storage, processing, grading, and new uses of old products.

Next is the availability of proven technology, and finally, the logistics and support services to implement the project. For example, the export of solo papaya to Japan has all the ingredients of success, but the lack of a vapor heat treatment plant and a Japanese quarantine inspector in Davao makes the project inviable. Another example is the shortage of good planting materials for such products as guyabano, mango, and cashews.

2. Investment Opportunities

Agribusiness opportunities in Southern Mindanao exist in the following areas:

- o expanding farm production
- o reducing postharvest losses
- o improving product quality
- o processing existing commodities

- o developing supply of new commodities
- o solving bottlenecks in the marketing system

a. Expanding Farm Production

Considering strong domestic demand prospects, there is scope for increasing production of corn, fruits, chickens, and hogs. With respect to export products, production of rubber, cacao, oil palm and softwood may be promoted, taking into account the competitive advantages of the country. For cut flowers, production expansion should consider only the Metro Manila and Cebu markets in the medium-term. Promotion of prawn culture in the region should concentrate on the market niche of large sizes. Production of solo papaya for exports has promise but for lack of a vapor heat plant in Davao and the reported unwillingness of a Japanese quarantine inspector to reside in the region.

b. Reducing Postharvest Losses

A program to reduce post-harvest losses of grains appears attractive as the country regularly imports rice and corn.

c. Improving Product Quality

A quality improvement program for coffee, rubber, and copra would have immediate impact on farm incomes.

d. Processing Existing Commodities

Expansion of processing capacity for fruits and copra may not be an immediate need, as farm supplies have not shown any sign of strong expansion. However, there is scope for a small coconut oil mill to serve a group of municipalities in South Cotabato, Surigao del Sur, and Davao Del Sur. For pork products, the establishment of abattoirs in General Santos and Davao City can be studied with Manila as the target market for carcasses.

e. Developing Supply of New Commodities

Fruits for processing into purees (mango and guyabano) should be promoted, as demand will be strong in the next ten years. Vegetables such as asparagus, mushrooms, and bamboo shoots have possibilities, provided export marketing is assured. The Dole Philippines model should be expanded and replicated. Black pepper would be a good small farmer crop, as the country continues to be a net importer.

f. Solving Bottlenecks in the Marketing System

There are several areas which need to be addressed including:

- o improvement/expansion of ports at Sasa, Davao City and General Santos;
- o improvement of the inter-regional road network and its secondary and tertiary links;
- o construction of facilities for grain storage and handling for both the General Santos and Manila terminals;
- o construction of an ice plant and cold storage facilities in the key fishing/aquaculture zones;
- o increasing the supply of transport and shipping units; this would require fundamental policy changes, particularly within the Department of Trade and Industry.

SECTION V
RECOMMENDATIONS

Several recommendations for promoting the ASAP were identified during the preparation of this report. Some are national in scope and others have a project or commodity orientation.

A. Guides to Project and Program Interventions

The design of USAID agribusiness project and program interventions should be guided by opportunities to improve market performance through exploitation of new market opportunities based on existing market linkages, developing and transferring new marketing technologies, regulatory reform, and establishing new institutional foundations.

1. Identifying New Market Opportunities from Existing Market Linkages

The food and feed processing subsector supports some of the Philippine economy's strongest intersectorial linkages. These linkages should be thoroughly investigated to identify new opportunities for adding value to existing commodities and expanding production of other commodities. Fresh and perishable commodity markets should be studied to identify new retail product lines, such as new packaging, preservation, and "convenience" processing.

2. Developing and Transferring New Marketing Technologies

It is clear that agribusiness markets have a regional cost disadvantage due to inadequate transportation and communications infrastructure, inadequate market information, and inappropriate processing and distribution technologies. These constraints, along with counterproductive market regulations and market structures, have raised urban food costs and weakened the Philippines' export potential. New marketing technologies should be identified that can be developed and quickly transferred outside the usual government R&D framework. Trade associations should be encouraged to identify new processing, transportation, and distribution technologies that can either be imported or quickly adapted to local marketing needs. In the case of market structure, horizontal and vertical integration systems should be studied to identify potential cost savings throughout the marketing channel. In many cases, technologies that reduce the cost of pre- and postharvest marketing services will also lead to lower farm-level production costs.

3. Regulatory Reform

Much of the potential for strengthening the Philippines' agribusiness competitive position will not be realized until substantial regulatory reforms are adopted. Continued enforcement of comprehensive price controls will stimulate further commodity shortages, particularly in the case of rice. Barriers to private traders' direct access to international markets increases domestic market inefficiencies and stifles domestic technological innovation. Finally, the government's continued ownership and operation of many agribusiness firms and industries perpetuates monopolistic market structures that discourage further private sector development, raise general agribusiness marketing costs, and constitute a large opportunity cost for scarce government investment and working capital.

4. Institutional Foundations

New agribusiness development initiatives will need a new set of institutional foundations based on strong private sector support and a new spirit of cooperation between the government and the private sector. The government's programming of agribusiness development support along arbitrary departmental lines is counterproductive. Competition between the Departments of Agriculture, Agrarian Reform, Trade and Industry, and Environment and Natural Resources often results in duplication of services and counterproductive regulatory constraints. Private sector trade associations must develop research capabilities to demonstrate credible measures of government-based constraints and private sector potential, and argue these findings persuasively within a broad forum of government-producer-consumer participants.

B. National Programs

The following recommendations are considered desirable at the national level for the ASAP. Additional national program recommendations are presented in annex B.

1. Program Leadership

The key requirement for initiating and implementing an agribusiness program in the Philippines is the availability of an agency, authority, or entity, either government or non-government, to assume leadership in any proposed ASAP program on a national and regional basis. A non-government group would be preferred by farmers and agribusinessmen, but this viewpoint is not shared by many governmental agencies. During our interviews, two existing private sector groups were mentioned as possible leaders for an agribusiness sector program: PCCI and CRC. However, no discussions with any existing or potential group were

conducted, and only general observations can be made at this point.

Further discussions with groups who express interest in assuming a leading role must be held and their capabilities must be evaluated carefully during the design phase of ASAP, to ensure that they have the qualifications and managerial skills required to develop and initiate a prioritized master operating plan and monitor the progress.

2. New Agribusiness Council

One mechanism to promote and encourage agribusiness in the Philippines is the establishment of a new agribusiness council, including representatives of agribusiness, farmers associations, and labor unions active in agro-industries. Such councils are common in developed economies, where they provide a forum for exchanging opinions on development objectives for agribusiness at the national and regional levels. The participation of labor groups has been lukewarm at best elsewhere, but it may be appropriate in the Philippines.

When a consensus of opinion on issues of development is achieved, the council represents a potent voice within governmental bodies. A consensus is not always reached, but a clarity of expressed viewpoints on issues has often led to finding ways to develop a satisfactory working relationship. On the other hand, it may be recognized that the issue is not resolvable within the present economic environment, and that the council's efforts should be redirected to other areas of priority. These councils have been most effective when led by a knowledgeable, respected, and energetic senior individual.

3. Agribusiness Data Bank and Global Monitoring System

A problem identified during this study was the deficiency of data on agribusiness in the Philippines. This includes macro and micro data and more importantly, data which has a degree of timeliness. Current marketing data, both domestic and international, are needed to evaluate opportunities for new potential crops. Regular data on quantities, qualities, and grades of available supplies and market prices at various points of the marketing chain are essential to achieving a share in "niche market" situations, which are typical of new opportunities. Global agribusiness companies collect and analyze these data privately on a routine basis, as it is considered too costly for associations of small farmers. It is recommended that the design study for the ASAP consider a program/project to address this critical need for timely data.

4. Transport Infrastructure for Agribusiness

The lack of an adequate and efficient farm-to-market delivery system including roads, trucks, boats, and air services in the Philippines is a well-established and recognized constraint on the agribusiness sector. This constraint applies to all commodities, but is a particular limitation for perishable commodities requiring controlled refrigerated temperatures. There are numerous national efforts being made to attack the transport constraint and to enlist the support of private investors, international financial institutions, and donors, but progress has been limited.

The agribusiness sector has made some progress at the level of individual companies, but their efforts have not been directed to mass movement of commodities from farm to domestic markets. Some mechanism to increase cooperation between private sector efforts and governmental and international donor agencies will be required within any ASAP program, in order to increase intra-country movement of perishable and non-perishable commodities from smaller farms to urban markets in the Philippines. Any program of relocating postharvest processing to small farm production areas will meet with only limited success without better orientation of national priorities to reduce transport constraints.

5. Specialized Private Agribusiness Investment Facility

Another mechanism proposed is the promotion of a Private Investment Corporation for Agribusiness (PICA). USAID could use some of its program resources to promote the establishment of PICA to handle the organization, implementation, management, and monitoring of selected commercial agribusiness projects.

As a specialized investment corporation, PICA could mobilize the best agribusiness talent available in the country to carry out commercially attractive agribusiness development ventures. It would be organized under Philippine law for investment corporations, and would comply with the applicable legal requirements for such corporations. PICA, however, would differ from other Philippine investment corporations through the following characteristics:

- o widespread private ownership (no shareholder would own more than 5 percent);
- o highly specialized agribusiness management and technical skills employing customized databases and analytic techniques;
- o a charter permitting the direct receipt of domestic and international donor funding without the Philippine Central

Bank acting as an intermediary for a 3 percent administrative charge; this fee could be better used for incentive financing of investments in which PICA is involved;

- o its role as an innovative signal of the government's view on and commitment to private agribusiness;
- o provide a mechanism for foreign investor participation which would overcome the current highly skeptical perception of existing institutions based on their past performance.

This type of company has been successful in several countries, with the degree of success depending partly on the freedom and flexibility to operate in the country. A more thorough and complete study on the viability of this mechanism for use in the Philippines or Mindanao may be appropriate.

C. Potential Project Opportunities in Southern Mindanao

A number of potential commodity-oriented opportunities were identified during our agribusiness interviews for this report. The following comments are offered for each of the opportunities based on worldwide marketing experience. However, efforts to prioritize the opportunities for further pre-feasibility or feasibility studies were limited, and the opportunities should be considered illustrative of situations which may arise during any proposed program. Additional regional program recommendations are presented in annex B.

1. Rice and Corn Handling Systems - Mindanano to Manila

At the present time, the agro-industry subsector finds it easier (and perhaps more profitable) to import rice and corn for domestic food and animal feed, rather than invest grain handling systems in a major producing area such as Southern Mindanao. Part of this reluctance to invest appears to be the result of government price-control policies and the lack of social stability. An interesting observation made during the study is the ability of key agribusiness companies to cooperate externally on import activities for these commodities, while they remain reluctant to become involved in resolving the perceived constraints associated with implementing a domestic system for handling rice and corn between Mindanao and Luzon.

The technology and investment requirements for this activity are well known by these companies, but they need encouragement and regulatory initiatives to promote their joint efforts. Any project on this opportunity should consider carefully the amount of postharvest processing which can be established in Mindanao without endangering jobs at existing facilities elsewhere in the Philippines. A more open, market-driven system could permit an

analysis of the many technical alternatives which exist, in order to address the national concerns on food security.

The National Food Authority plants were designed to address these concerns, but the facilities are only used about three months a year, during the harvest seasons. Maintaining an inactive labor force for the other nine months is costly. Private sector traders maintain several agribusinesses to utilize labor throughout the year. Leasing the facilities to the private sector with ability to use labor in other business activities is essential to better utilization of existing NFA facilities.

2. Pork Processing in Mindanao

This opportunity is somewhat similar to the rice and corn handling systems. Currently market hogs are shipped from Mindanao to Manila in three-tiered corral containers loaded on the deck of an inter-island ship. Transit time is a minimum of 60 hours (3 nights and 2 days) and the live shrinkage averages about 6 to 7 percent. The containers are offloaded to trucks which take them to the volume processors. It is probable that processing the live hogs in Mindanao would reduce by half the losses during live transit, but it may not reduce the cost of transporting fresh pork and pork byproducts to Manila under refrigeration for consumption, or the cost of packing materials in Mindanao for processed pork products. However, the opportunity appears to be sufficiently attractive to suggest conducting the required economic analysis.

3. Feedmill in Southern Mindanao

This opportunity was discussed during interviews, and many different viewpoints were expressed. Livestock farmers expressed a need for mixed feeds, particularly for raising weanling pigs and broilers. We recommend a feed mill where premixes are blended and mixed with local grains that have been cleaned and ground, rather than encouraging mills to produce a full line of complete mixed feeds. A mill of the suggested type could utilize corn coming from the local corn handling system.

4. Tropical Flowers and Ornamental Foliage

Interest in this venture was encountered in several interviews because of some success in producing anthuriums, orchids and leather leaf ferns in Mindanao and marketing them in Manila and Japan. The expansion in the world cut-flower and ornamental foliage market is well known, and continued growth is expected. Tropical flower species in world trade include anthuriums, heleconia, selected lilies, "birds of paradise", astromaria and protea. Ornamental foliage species include ferns, crotons, philodendron, and dracaena.

The interest of small farmers in growing a greater number of species of tropical flowers in Southern Mindanao for local or export markets is increasing, but technical requirements to achieve the required quality are not fully understood. In every market study conducted on this commodity opportunity among the major consuming countries, the results show bloom quality is the number-one prerequisite of the retailing group. Retailers want a bloom quality that will permit 10 selling days, and they will not buy second quality blooms at any price. The technical requirements to meet the quality objectives at the farm level are known and can usually be applied successfully. However, adequate postharvesting systems from farm to market are not available in Southern Mindanao. Most tropical flower species require a farm-to-retail market delivery system which takes no more than three days and can maintain a temperature range between 55 and 65 degrees throughout the delivery period.

The three major flower species in world markets are roses, carnations, and chrysanthemums, and these species require a delivery system at temperatures of 33 degrees to retain bloom quality. Normally the cut-flower trade involves air shipment to meet the delivery time and quality specifications. The best quality retention is achieved when flowers can be handled in special air-cargo containers with temperature controls operating on AC/DC energy through portable "umbilical cords." This provides maximum retention of flower quality.

Most ornamental foliage plants can be shipped at either temperature range. They are frequently mixed with cut flowers as packing material.

Unless this specialized air-cargo handling system is in place or planned, the expansion of cut-flower and ornamental foliage production should proceed very slowly.

5. Refrigerated Container Air-Cargo Service

The same specialized refrigerated container air-cargo system required for flowers can be utilized for shipping perishable fresh fruits and vegetables, seafoods, and perishable medical supplies. Most of the refrigerated containers now available ready-made have a dual control system which permits temperature ranges of 10 to 60 degrees. A study on establishing air cargo services with a refrigerated cargo container capability in the Philippines should be a prerequisite, as part of the perishable commodity opportunities.

6. Seaweed Conversion

This commodity opportunity has received considerable publicity because the Philippines has become the principal worldwide source for eucheuma seaweed, from which carageenan and alginate are derived by processors in other countries. Other

common seaweeds found in Philippine waters with known industrial conversion potential include sargassum, caulerpa and gracillaria. An export market for seaweed derivatives for many food and non-food uses exists, provided a dependable supply system can be developed. The principal growing areas are the islands of the Philippine Sulu archipelago. It is possible that value-added processing might be feasible in South Cotabato.

7. Other Potential Commodities

In addition to the opportunities identified and briefly discussed as potential projects of the ASAP, other opportunities were identified during the preparation of this report, including:

- a. selected oil-bearing crops (i.e., castor beans) for specialized uses in processed foods and lubricants;
- b. fresh and frozen seafood specialties;
- c. tropical fruit concentrates and pulp;
- d. selected spices and medicinal herbs;
- e. edible starch specialities for the processed food subsector, for use in convenience foods;
- f. tropical root-crop processed products (i.e., flour, starches, animal feed ingredients);
- g. micro propagation (tissue culture): disease-free planting materials for existing and new crop opportunities.

8. Agribusiness Industrial Park - General Santos City

One of the business opportunities identified during interviews in South Cotabato was the strong interest in establishing a specialized agribusiness industrial park, including a deep-water sea terminal, somewhere near General Santos City. Some of the basic requirements of the park facility would be dependable electric and potable water supplies, high-tech communications, and waste treatment capability for agricultural input services and selected agroprocessing. Venture opportunities to enhance the local food system which might be included in the park are refrigerated food warehouses, ice makers, food processors and converters. The local regional development groups have done some preliminary analysis for this park, and the opportunity appears to merit a comprehensive and detailed analysis of its commercial worth.

During the preparation of this report, a field trip was made to South Mindanao to evaluate briefly the agribusiness opportunities in the area. Based on interviews conducted in the

area and the availability of abundant raw agricultural products, it is recommended that consideration be given to establishing an agribusiness-oriented industrial park in one or both cities to assist in area development.

Two proposed sites were visited on the field trip. One site of about 1,000 ha was 9 km southwest of General Santos City and 2 km west of the present pier. Power and municipal water are available, but the site appears to be in a low-lying area with poor drainage, which would require filling. The other site of 32 ha was 14 km southwest of General Santos City, adjacent to deep water but without power or municipal water. Also five kms of new hard-surface road would be required for heavy truck movement. This site has good drainage but is too small for large-scale development. We were unable to determine whether additional adjacent land is available to expand the size of this site.

A decision on an agribusiness industrial park should not be made without a pre-feasibility analysis of such a venture. If the preliminary analysis indicates a potentially significant commercial worth for the opportunity, it should be followed by a feasibility analysis, including letters of conditional commitment from prospective agribusiness tenants.

9. BRC Micro-agribusiness Loans

The Business Research Center of Notre Dame University has six years of experience in managing an interesting micro-entrepreneur lending program which could serve as a model for a micro-agribusiness lending activity in South Cotabato. The present program has two components:

- o small entrepreneurs employing less than 10 people can apply for repayable operating loans up to 100,000 pesos;
- o small entrepreneurs employing 10 to 200 people can apply for repayable operating loans from 50,000 to 500,000 pesos.

There are currently about 150 loans outstanding, equally divided between the two component groups. Repayment rates average 80 percent, with the rate slightly lower for the smaller entrepreneurs. No amount of the loan can be used for capital assets, buildings, or equipment.

Although the BRC has no experience with agribusiness lending, they would be interested in exploring the potential for such a financial service, to assist in developing agribusiness activities in their area of operations as a part of the ASAP.

D. Special Cooperation Requirements of ASAP

Two factors identified during our interviews require consideration by USAID during the design of the ASAP. They represent social and cultural practices somewhat peculiar to the Philippine agribusiness sector, and are discussed briefly below.

1. Cooperation Between DA/DTI/Agribusiness Sector

During our interviews, several comments were made on the difficulty for farmers or agribusinesses to understand the dividing line between the Department of Agriculture (DA) and the Department of Trade and Industry (DTI) bureaucracies. Agribusinesses are accustomed to dealing with DTI on inputs and outputs, and with DA on company-owned farms. Farmers are used to dealing with DA, but when they begin to integrate forward, they soon encounter DTI. The responsibilities and jurisdiction of DA and DTI in backward and forward integration, involving either farmers or agribusinesses; must be clarified for maximum and efficient expansion.

2. Cooperation Between Commercial Families

A limited number of key commercial families has been a social and cultural phenomenon in the Philippines for several generations. Some Philippine analysts suggest that there are 15 to 20 key commercial families with agribusiness interests, out of the 80 to 100 recognized commercial families. There are key families at both the national and regional levels. These families typically make commercial decisions on future activities in great secrecy, and it has proven difficult to obtain cooperation between these families.

The phenomenon is illustrated by the difficulty in obtaining cooperation for establishing a database to provide current data on any agribusiness subsector, with the possible exception of the flour milling subsector. Some programs which will become part of the ASAP will benefit from more cooperation between these key commercial families. Potential foreign investors are knowledgeable of this special family-oriented commercial environment, and they are very cautious about entering into new opportunities without an understanding of the potential family players they will encounter.

REFERENCES

- Bureau of Agricultural Statistics. Selected Fishery Statistics, 1979-1988. Department of Agriculture, Manila: Republic of the Philippines. Circa 1989.
- Chemonics International. Philippine Agriculture and Natural Resource Strategy Statement. A Study Prepared for USAID/Manila. Washington, D.C. February 14, 1990.
- Department of Trade and Industry. South Cotabato Investment Guide South Cotabato Provincial Office: Republic of the Philippines, Undated.
- De Leon, Augusto. Development Strategy for the 1990s and Beyond. A report submitted to USAID/Manila. Draft January 9, 1990.
- Dy, Rolando. Agriculture in the Past Two Decades: A Survey. No.1 Agribusiness Papers. Center for Research and Communication. Manila. Forthcoming.
- . Mindanao: Will It Ever Fulfill Its Promise ? No.2 Regional Monitor. Center for Research and Communication. Manila. Forthcoming.
- . Analysis of Long-term Agricultural Growth. No.-. Agribusiness Papers. Center for Research and Communication. 1987 .
- . Price Swings and Instabilities of Selected Agricultural Products. No- Agribusiness Papers. Center for Research and Communication. Manila. 1989.
- Agriculture in 1989: A Comprehensive Review. No.4 Agribusiness Papers. Center for Research and Communication. Manila. 1989.
- Contract Farming Experience in the Philippines: A Survey. A Paper Presented to a Contract Farming Conference, Phuket, Thailand. November 21-23, 1989. Sponsored by the International Development Research Center. Canada.
- and Chua, Pacifico. Corporations and Small Farmers: The Big Helping the Small. Executive Briefings No. 1. Center for Research and Communication. Manila. 1990.
- Eastern Africa Economic Journal. Special Issue on Contract Farming in Eastern and Southern Africa. Nairobi, Kenya. August 1989.
- Ellman, Antony. "Nucleus Estates and Smallholder Outgrower Schemes." Overseas Development. London. December 1986.

- Goldsmith, A. "Can Agribusiness Help the Small Farmers?"
Economic Impact. No.59, 1987
- Lim, Manuel. Agribusiness Strategy. A report submitted to
USAID/Manila. November 1989.
- National Irrigation Administration. Provincial Irrigation
Profiles. Quezon City: Republic of the Philippines. 1989.
- Notre Dame University, Business Resource Center. Provincial
Studies on Development Opportunities: South Cotabato. First
Edition. General Santos City, Philippines. 1988.
- Philippine Business Profiles and Perspectives, Inc. and Center
for Research and Communication. Top 1000 Corporations.
Makati, Philippines. 1988.
- Freeman, Orville, and Karen, Ruth. Agribusiness and the Small
Farmer: A Dynamic Partnership for Development. Westview
Press. London. 1985.
- World Bank. Philippines: Environment and Natural Resource
Management Study. Washington, D.C. 1989.
- . Price Propects for Major Primary Commodities.
Report No. 814/88. Washington, D.C. November 1988.
- . Philippines: Agricultural Sector Strategy Review.
Washington, D.C. June 25, 1987.
- . The Philippines: Food Processing Sector,
Development Potentials and Constraints. Washington, D.C.
July 11, 1985.
- . Philippine Sector Study: Grains Production Policy
Review. Washington, D.C. January 22, 1979.
- Regional Development Council XI. Regional Accelerated Program
for Investment and Development (RAPID). Vision, Strategy, and
Prospects for Southern Mindanao. Davao City, Philippines.
Circa Late 1989.
- . A Suggested Framework of the
Philippine Assistance Program for Region XI. Draft. Circa
May 1990.

ANNEX A

SELECTED CONTRACT FARMING PROFILES

1. AYALA AGRICULTURAL DEVELOPMENT CORPORATION

Mother Company: Ayala Corporation
Product: Pioneer Hybrid Corn Seeds
Project Site: South Cotabato province
Plant Capacity: 5,000 tons of hybrid (F1) seeds per year
Production: 1,000-1,500 tons of seeds per year

No. of growers: 100 on 320 hectares
Year started: 1983

Services provided by the company:

- o Technical services
- o Farm inputs

2. CALIFORNIA MANUFACTURING COMPANY

Product: Pickled Cucumber
Project Site: Central Luzon and Southern Luzon regions

No. of growers: 540 on 150 hectares
Year started: 1961

Services provided:

- o Technical assistance
- o Seeds

Middlemen provide farm inputs and land preparation assistance.

3. EAST WEST SEED COMPANY

Product: Vegetable seeds
Research station site: Lipa City, Batangas
Project sites: Benguet, Cagayan, Ilocos Norte, Isabela,
La Union and Occidental Mindoro province

No. of growers: 400 on 160 hectares
Year started: 1984

Services Provided:

- o Technical services
- o Seeds
- o Farm inputs

4. GENERAL MILLING COMPANY

Product: Broiler chickens
Processing site: Metro Manila and Cebu
Project sites: Batangas, Pampanga, Rizal and Cebu
provinces

No. of growers: 120 averaging about 20,000 birds each
Year started: 1981

Services provided:

- o Technical services
- o Chicks
- o Feeds and veterinary medicines
- o Collection of chickens from the farm

Growers provide aside from land and labor:

- o Buildings
- o Expenses for labor, water and power
- o Collateral

5. KENRAM PHILIPPINES

Products: Palm oil and palm kernel
Project site: Sultan Kudarat province
Factory capacity: 18 tons FFB per hour
Nucleus area: 1,600 ha

No. of growers: 35 on 4,500 hectares
Year started: 1972

Services provided:

- o Technical assistance

6. MERALCO CORPORATE FARM MANAGEMENT, INC.

Mother Company: Manila Electric Company
Product: Rice
Project site: Isabela province

No. of growers: about 2,000 on 4,000 hectares
Year started: 1976

Services Provided:

- o Technical and management services
- o Seeds

Other Agencies involved:

- o Land Bank: credit to farmers via the cooperatives
- o National Irrigation Administration: formation of irrigators' association and irrigation water

7. NESTLE PHILIPPINES, INC.

Mother Company: Nestle Switzerland

Product: Soybeans

Project Site: South Cotabato province (main), and five other provinces

No. of growers: 600 on 1000 hectares

Year started: 1979

Services provided:

- o Technical assistance
- o seeds and pesticides

Farmers provide, aside from land and labor:

- o Fertilizers

Credit is provided by Land Bank

8. NORTHERN FOOD CORPORATION

Mother Company: Livelihood Corporation, a government controlled corporation

Product: Tomato paste

Project Site: Ilocos Norte province

Factory Capacity: 37,000 tons of raw tomatoes per year

No of growers: 6,000 on 1,200 hectares

Year started: 1984

Services provided:

- o Technical services
- o Seeds
- o All farm inputs

9. HIGH GRAINS FARM, INC

Mother Company: Gamboa Hermanos, Inc.

Product: Pepper (Piper Nigrum)

Project site: Negros Occidental province

Nucleus size: 46 hectares

Number of growers: about 100 on 70 hectares
to expand by 50 ha per year during the
next five years

Year started: 1983

Services provided to farmers:

- o Technical services
- o Seedlings at cost

Other Agents:

- o Farmers' cooperatives (2)
- o Land Bank: provides long term credit
- o Management Association of the Phil: provides the project manager to assist cooperatives for the next two years
- o Department of Agriculture: for project packaging assistance
- o J.F. Ledesma Foundation and Philippine Business for Social Progress, both NGO jointly provide institution building seminars to farmers

10. MARINE COLLOIDS, PHILIPPINES

Product: Carageenan from seaweeds

Factory site: Mandaue City, Cebu province

Factory Capacity: 2,000 tons of crude carageenan and 500
tons of refined carageenan per year

Project sites: Tawi Tawi and Bohol provinces

No. of growers: 500-600

Year started: 1973

Services provided:

- o Technical assistance
- o Inputs such as nylon nets

11. PHILIP MORRIS (ASIA), INC

Product: Burley Tobacco

Project site: Isabela province

No. of contract growers: 280 on 150 hectares

Year started : 1981

Services provided:

- o Technical assistance
- o All farm inputs

12. PHILIPPINE FRUITS AND VEGETABLE INDUSTRIES, INC. (PFVII)

Mother Company: National Agribusiness Corporation, a
government-controlled company

Product: Tomato paste

Project site: Pangasinan province

Factory capacity: not known

No. of growers: 400 on 500 hectares

Year Started: 1984

Services provided:

- o Technical services
- o Seeds and farm inputs

13. PUREFOODS CORPORATION

Mother Company: Ayala Corporation

Product: Broiler chicken

Factory site: Metro Manila

Factory capacity: about 50,000 birds a day

Project sites: Laguna, Cavite, Bulacan, Rizal and Quezon
provinces

No. of growers: about 100 averaging 30,000 birds each

Year started: 1982

Services provided:

- o Chicks
- o Feeds, vaccines, and other supplies

Growers provide, aside from land and labor:

- o Buildings and equipments
- o Power, light and water
- o Surety bond or real estate mortgage or bank
Guarantee/deposit

14. SARANGANI AGRICULTURAL COMPANY, INC

Product: Cattle

Project site: South Cotabato province

Nucleus: Cattle breeding farm

No. of growers: about 300 farmers

Year started: 1974

Services provided:

- o Technical assistance
- o Feeder cattle(sale or credit)

Farmers provide aside from land and labor:

- o Veterinary medicines
- o Feeds

15. SAN MIGUEL CORPORATION

Product: Broiler chicken
Factory site: Laguna province
Factory capacity: 120,000 birds per day

No of growers: about 150
Year started: c. 1970

Services provided:

- o Chicks
- o Feeds and vaccines
- o Collection of broilers from the farm

Grower provides, aside from land and labor:

- o Building and poultry equipments
- o Power, light and water
- o Skilled staff

16. SAN MIGUEL CORPORATION

Product: Frozen Shrimps
Factories: Negros Occidental(2) and Pampanga (1) provinces
Combined Capacity: 3,600 tons per year

No. of Growers: 200
Year started: 1983

Services provided:

- o Technical Assistance
- o Feeds and other inputs

Grower provides, aside from land and labor:

- o Infrastructure

17. SAN MIGUEL CORPORATION

Product: Passion fruit puree
Factory site: Pampanga province
Factory capacity: 1.5 tons per hour of aseptic packaged
puree
Project site: Quezon province

No of growers: 100 on about 100 hectares organized into a cooperative

Year Started: 1989

Services provided:

- o Technical assistance

Other agents:

- o Land Bank for credit
- o Department of Agriculture for project preparation
- o Management Association of the Philippines for project management

18. SEMBERG MARKETING CORPORATION

Product: Carageenan from seaweeds

Factory Capacity: 3,000 tons of crude carageenan and
800 tons of refined carageenan per year

No. of growers: 2000 +

Year started: Early 1970s

Services provided through middlemen:

- o Technical assistance
- o Seedlings and credit

19. UNIMER EXPORT CORPORATION

Product: Okra for export

Mother company: Philippine Investments and Management Consultants

Project sites: Bulacan, Laguna, Nueva Ecija and Cagayan provinces

No. of growers: 9 on 45 hectares

Year started: 1984

Services provided through mediator:

- o Technical assistance
- o Seeds, fertilizers and packing materials

20. RFM CORPORATION

Product: Broiler Chicken

Factory sites: Metro Manila plus 6 provinces

Combined factory capacity: about 50,000 birds per day

Project sites: 13 provinces.

No. of growers: c. 250 averaging about 20-30,000 birds

Year started: early 1970s

Services provided:

- o Chicks
- o Feeds
- o Vaccines

Grower provides aside from land and labor:

- o Buildings
- o Poultry equipments
- o Power, light and water
- o Cash bond or surety bond

21. PAPER INDUSTRIES CORPORATION OF THE PHILIPPINES (PICOP)

Product: Pulpwood; albizzia falcataria

Factory: Integrated pulp and paper mill

Factory site: Surigao del Sur province

Nucleus size: 183,000 ha of forest concessions

No of growers: 4,765 on 16,000 hectares

Year started: 1968

Services provided:

- o Technical assistance
- o Seedlings

Other agents:

- o Development Bank of the Philippines provided long-term credit

22. STANDARD FRUIT CORPORATION

Product: Cavendish bananas

Mother Company: Dole Philippines

Project sites: Davao del Norte and South Cotabato provinces

No. of growers: three firms and 380 small growers on
3,100 hectares

Year started: early 1970s

Services provided:

- o Technical assistance
- o Farm inputs
- o Crop collection

ANNEX B

ADDITIONAL RECOMMENDATIONS FOR AGRIBUSINESS INITIATIVES

The following recommendations are based on the analysis and findings of the report.

A. National

1. Foreign Investments

There is scope for liberalizing investment laws in order to attract firms with good knowledge of the international marketplace. It is proposed that the government permit 100 percent ownership of processing facilities for 15 to 20 years provided that investments are made in areas outside Metro Manila, including border regions of Central Luzon and Southern Tagalog. At the end of the period, however, the foreign investor would be required to sell 51 percent of ownership to the Philippine public. The higher political risks which face the country as compared to Thailand, Malaysia, and Indonesia call for a more liberal policy towards foreign investors.

2. CARP

It may be necessary to explore the possibility of technical assistance to the Department of Agrarian Reform in order to ensure that applications for stock ownership and long-term leaseback options are processed speedily.

3. Corporate-Farmer Linkages

There is need to study the possibility of channeling funds to corporations for the construction of access and farm roads, irrigation system, and other infrastructure that would benefit contract farmers or outgrowers.

4. Management Assistance to CARP Beneficiaries

As a result of CARP requirements, a number of companies have voluntarily offered their plantations for sale to DAR. These include rubber plantations, some of which are overdue for replanting. The farm workers are now left to fend for themselves. Management assistance based on the FELCRA model may be appropriate. Considering the poor track record of government agencies in this field, grant funds could be used to pay private firms with management fees over a five-year period, until the farmworkers' cooperatives could takeover management. It is likely that the cooperative could afford to pay the management fee after the initial period.

5. Reduction of Interest Rates

While the Department of Finance and the Central Bank short-term policy of slow monetary growth runs counter to the proposal, there is scope for reducing interest rates with the abolition of the gross receipts tax (GRT) and the agri-agra law (PD 717). Without reduction of interest rates, it would be difficult to launch a viable program for promoting long-gestating crops such as fruits, rubber, oil palm, and soft wood, as their cash flows could not support the prevailing levels of interest rates.

6. Liberalizing Importation of Transport Units and Ships

One of the constraints being faced by agriculture is not only the poor roads and ports network, but also the shortage of trucks and bottoms, particularly during the harvest season. The scarcity and high cost of transport units and spare parts adds to transport costs and postharvest losses. A more liberal policy for importing of second-hand vehicles and bottoms would alleviate these constraints.

7. Assistance to the Department of Agriculture

The scope and timeliness of agribusiness data within the DA are responsive to the needs of the public. Some steps have already been taken, such as USAID's assistance to the Philippine Statistical Association (PSA) in improving data collection and publications of the Bureau of Agricultural Statistics. But this assistance could be expanded to the Agribusiness Group, which is entrusted with promoting diversification. USAID may consider assistance for linking the DA with the USDA database and publications. In addition, an international marketing expert can be detailed at the DA to provide practical advice on the dynamics and requirements of the international marketplace.

8. Research and Training Support to DA

The strengthening of the DA's capacity to conduct research, to enlighten private and public policy makers, and to help the private sector make good choices would be a step in the right direction. The research agenda could include: (a) the cost and benefits of rice self-sufficiency; (b) strategic directions of several "minor" crops, such as cacao, coffee, rubber, oil palm, seaweeds, and fruit trees; (c) an in-depth analysis of the causes and consequences of high transport and postharvest losses; and (d) a review of the interest-rate policy as it affects the development of long-gestating crops for small farmers.

Concerning research capability, it is observed that the shortage of better trained policy analysts has reached serious

proportions. The present government has required far more policy studies than the previous regime, but the supply of analysts has not increased correspondingly. There is an urgent need to address this problem.

B. Regional

1. Trade and Investments

USAID may consider linking firms in the region to counterparts in the United States and Pacific Rim countries. At first glance, this may appear simple, but would require much preparatory work.

2. Expansion of Raw Material Supplies

There is a need to expand regional capability to supply good planting materials for diversification. These would include fruit trees and other crops. Assistance to private contract nurseries as well as to the Bureau of Plant Industry could be explored.

3. Grains Storage and Handling

South Cotabato is the corn basket of the country. A project to improve grain movements from General Santos to Manila is a must. This project would entail investments at both terminals.

4. Cold Storage and Refrigeration

South Cotabato and Surigao del Sur are the fishing and aquaculture centers of the regions. There is a need for cold storage facilities to serve small fishermen and entrepreneurs in both sites.

5. Strengthening of Regional NGOs

The Business Resource Center at Notre Dame University in General Santos may be replicated in other provincial centers of the region. These BRCs could serve as the information base of the private sector.

6. Strengthening the Regional Development Council

The RDC has produced a planning document called RAPID, which is a good start in the right direction. However, improvements to RAPID would require a better information base and analytical tools, and perhaps a simple regional economic model. A technical assistance program to include staff training and expert advice could make Southern Mindanao a pilot region. It should be noted that the private sector, through the Kauswagan ug

Timog Mindanao Foundation, plays an active role in providing planning advice.

7. Telecommunications

Access to rapid communications is an important aspect of investment and business decisions. A program to improve intra-regional and inter-regional links should be explored. In the short-term, the Davao-General Santos telephone link is high priority.

8. Davao-General Santos Highway

This road links the key cities of the region serving an area with at least 1.5 million people. An appropriate project would have the following components: (a) widening many sections, with asphalt shoulders; (b) building bypass roads in several towns; (c) widening bridges; and (d) rehabilitating the Sulop-Malungon section.

ANNEX C

TABLE 1. ESTIMATION OF PHILIPPINE AGRIBUSINESS SIZE IN 1989

SECTOR/INDUSTRY	GROSS VALUE-ADDED (PHP Billion)	SHARE IN GDP (%)	ALLOCATED SHARE TO AGRIBUSINESS (%)
AGRICULTURE			
Crops			
Palay	36.2	3.8%	
Corn	14.6	1.5%	
Coconut	11.5	1.2%	
Sugarcane	6.2	.6%	
Banana	5.6	.6%	
Other Crops	<u>55.2</u>	<u>5.7%</u>	
Sub-Total	129.3	13.4%	
Livestock	17.4	1.8%	
Poultry	22.3	2.3%	
Fishery	44.6	4.6%	
Forestry	<u>12.3</u>	<u>1.3%</u>	
TOTAL AGRICULTURE	225.9	23.5%	23.5%
INDUSTRY			
Manufacturing : Food	87.0	9.0%	
Beverages	8.3	.9%	
Tobacco	6.4	.7%	
Wood	4.8	.5%	
Paper	4.2	.4%	
Leather	.5	.1%	
Rubber	<u>2.7</u>	<u>.3%</u>	
Sub-Total "Agro-Based" [a]	113.9	11.8%	11.8%
Other Mfg.	<u>126.5</u>	<u>13.1%</u>	<u>0.7%</u> [b]
Total All Mfg.	240.4	25.0%	
Mining	16.4	1.7%	
Construction	42.0	4.4%	
Electricity, Gas & Water	<u>21.6</u>	<u>2.2%</u>	<u>0.7%</u> [c]
TOTAL INDUSTRY	320.4	33.3%	13.2%
SERVICES			
Transport, Storage & Comm.	48.3	5.0%	2.5% [d]
Trade	187.6	19.5%	7.8% [e]
Finance & Banking	67.7	7.0%	0.7% [f]
Government Services	61.5	6.4%	1.0% [g]
Private Services	<u>51.8</u>	<u>5.4%</u>	<u>1.4%</u> [h]
TOTAL SERVICES	416.9	43.3%	13.4%
GROSS DOMESTIC PRODUCT (GDP)	963.2	100.0%	50.1%

[a] Excluding Fertilizers & Agrochemicals

[b] Fertilizers & Agrochemicals; share based on 1986 Survey of Establishments

Author's Estimates :

[c] 30% of Total [f] 10% of Total

[d] 50% of Total [g] 15% of Total

[e] 40% of Total [h] 25% of Total

Source : National Economic & Development Authority (NEDA)

TABLE 2. STRUCTURE OF PHILIPPINE AGRO-BASED MANUFACTURING IN 1986

PSIC CODE	SECTOR/SUBSECTOR	NO. OF ESTABLISHMENTS	CENSUS VALUE-ADDED (PHP million)	VALUE OF OUTPUT (PHP Million)
	ALL FOOD MANUFACTURING	1,263	23,412	59,861
311	Food Manufacturing	423	10,630	33,755
3111	Slaughtering, Preparing & Processing Meat	26	538	2,490
3112	Processed Milk	5	168	1,542
3113	Dairy Products, except Milk	17	1,201	2,678
3114	Fruits & Vegetables Preserving & Canning	50	2,129	3,991
3115	Fish & Sea Products Processing & Canning	60	968	3,200
3116	Crude Coconut Oil, Cake & Meal	28	2,257	6,854
3117	Vegetable Oils & Animal Fats	24	2,252	6,999
3118	Rice & Corn Mfg.	205	311	1,942
3119	Flour Milling, except cassava	8	805	4,059
312	Food Manufacturing			
3121	Other Grain Products	4	14	4
3122	Bakery Products	550	541	1,955
3123	Sugar Milling & Refining	48	8,256	12,786
3124	Cocoa, Chocolate & Sugar Confectionery	56	271	920
3125	Dessicated Coconut	11	544	1,023
3126	Ice Mfg., except dry ice	79	79	222
3127	Coffee Roasting & Processing	6	739	2,605
3128	Animal Feeds	42	1,234	3,553
3129	Other Foods Mfg., n.e.c.	44	1,114	3,026
313	Beverage Mfg.	88	8,880	15,877
3131	Distilling, Rectifying & Blending of Spirits	44	876	3,009
3132	Wine Mfg.	4	1	6
3133	Malt Liquors & Malt (Beer)	4	5,018	6,774
3134	Softdrinks & Carbonated Water	36	6,088	
314	Tobacco Mfg.	25	6,767	13,995
3141	Cigarettes	10	6,650	13,509
3142	Cigars	3	21	34
3143	Chewing & Smoking Tobacco	5	14	37
3149	Other Mfg., n.e.c.	7	82	415

TABLE 2. STRUCTURE OF PHILIPPINE AGRO-BASED MANUFACTURING IN 1986 (Continued)

PSIC CODE	SECTOR/SUBSECTOR	NO. OF ESTABLISHMENTS	CENSUS VALUE-ADDED (PHP million)	VALUE OF OUTPUT (PHP Million)
323	Leather & Leather Products	*	*	*
3231	Tanneries & Leather Finishing	16	16	50
331	Wood & Wood Products	270	2,155	6,241
3311	Sawmills	107	774	2,132
3312	Veneer & Plywood			
3313	Hardboard & Particle Board	35	1,014	3,062
3314	Wood Drying & Preserving	12	205	586
3315	Millwork Plants	23	65	161
3316	Wood & Cane Containers	39	31	106
3317	Wood Carvings	16	28	87
3319	Other Mfg., n.e.c.	38	38	106
341	Paper & Paper Products	101	3,447	7,851
3411	Pulp, Paper & Paperboard	23	2,799	5,670
3412	Containers & Boxes	43	387	1,310
3413	Paper Articles			
3419	Other Mfg., n.e.c.	35	250	871
3512	Fertilizers	7	2,609	5,358
3514	Pesticides, Insecticides, Fungicides & Herbicides	9	200	551
355	Rubber Products	112	1,342	3,337
3551	Tires & Tubes	45	762	1,857
3552	Rubber Footwear	23	483	1,203
3559	Others, n.e.c.	44	97	276
3822	Agricultural Machineries	n.a.	n.a.	n.a.
TOTAL MANUFACTURING			97,747	247,461

Source: 1986 Survey of Establishments, National Statistics Office
(With 10 or more workers and/or PHP 1.0 million Sales or more)

TABLE 3. AGRICULTURE PERFORMANCE: 1970s and 1980s
 Values in Real Gross Value Added

	Average Annual Growth			
	1970s	1980s		Whole
		Early	Late	
	----- (% p.a.) -----			
CROPS:				
o Palay	4.3	0.4	2.8	2.0
o Corn	6.2	0.1	5.5	3.6
o Coconut	6.3	(4.8)	8.7	3.2
o Sugarcane	4.6	(1.3)	(6.7)	(6.8)
o Banana	(0.03)	4.6	(1.5)	1.7
o Other Crops	14.2	3.9	(0.3)	1.8
All Crops	6.9	1.5	1.5	1.6
LIVESTOCK	0.5	3.0	6.6	4.2
POULTRY	7.5	13.7	5.5	7.8
FISHERY	4.4	3.4	3.1	2.7
<u>TOTAL AGRICULTURE</u> (Excluding Forestry)	<u>5.9</u>	<u>3.0</u>	<u>2.6</u>	<u>2.6</u>

Source of Basic Data: NEDA

Note: Growth calculated by semi-logarithmic method.

1970s: 1970-79
 1980s: 1980-89
 Early 1980s: 1980-84
 Late 1980s : 1985-89

TABLE 4. AGRICULTURAL PERFORMANCE DURING THE DROUGHT YEARS
 1983 and 1987
 Values in Real Gross Value Added

	Production Growth	
	1983/ 1982	1987/ 1986
	----(% Change)---	
o Palay	(13.1)	(7.9)
o Corn	(9.8)	4.1
o Coconut	(11.7)	(1.0)
o Sugarcane	(26.6)	(9.6)
o Banana	14.0	(6.1)
o Other Crops	3.8	(3.5)
ALL CROPS	(6.0)	(4.1)
LIVESTOCK	7.6	6.5
POULTRY	13.2	7.7
FISHERY	3.6	1.9
<u>TOTAL AGRICULTURE</u> (Excluding Forestry)	<u>(2.1)</u>	<u>(1.0)</u>

Source of Basic Data: NEDA

TABLE 5. OTHER CROPS PERFORMANCE: 1970S and 1980s

	Production			Average Annual	
	1970	1980	1989	Growth Rate 1970s (a)	1980s (b)
	- - - ('000 tons) - - -			- - - (% p.a.) - - -	
Pineapple	233	797	1,179	9.9	4.3
Coffee	49	110	156	11.6	3.2
Mango	152	319	370	11.7	2.3
Tobacco	61	73	80	(1.0)	0
Abaca	122	108	88	3.7	(2.4)
Fibercrops	NA	399	64	NA	(19.4)
Peanut	17	52	38	13.2	(1.6)
Mongo	NA	34	35	NA	0.6
Beans & peas (c)	23	47	NA	8.7	NA
Cassava	NA	1,741	1,847	NA	2.1
Camote	NA	934	660	NA	(3.3)
Rootcrops (d)	1,316	3,470	NA	11.5	NA
Tomato	NA	132	179	NA	3.9
Garlic	NA	13	17	NA	0.7
Onion	NA	38	65	NA	5.8
Cabbage	NA	71	76	NA	0.9
Eggplant	NA	114	112	NA	(1.1)
All Vegetables	310	515	NA	6.9	NA
Calamansi	NA	37	49	NA	3.0
Rubber	19	96	172	15.4	7.3
Cacao	4.3	3.6	9.2	(2.6)	12.8
Other food crops	68	387	NA	24.8	NA

(a) Crop year 1970 to 1979

(b) 1980-88

(c) Mainly mongo

(d) Mainly cassava and sweet potato

Source: BAS

Table 6. AGRO-BASED INDUSTRIES PERFORMANCE
1970s and 1980s

INDUSTRY	1969-1989	1969-1979	1979-1989	1979-1984	1984-1989
	----- Growth Rate *(%) -----				
Food manufactures	3.85	4.92	1.96	3.42	3.05
Beverage Industries	4.67	7.55	2.04	2.10	2.99
Tobacco Manufactures	1.80	9.54	-5.40	-1.41	-6.16
Wood and cork products	0.00	2.86	-5.49	-1.33	-3.77
Paper and paper products	4.01	8.55	2.41	-0.87	10.83
Leather and leather products	2.56	1.23	1.94	-1.09	7.68
Rubber products	2.53	5.67	0.79	1.54	3.00

*Growth Rates computed using a semi-log trend regression.

Note: 1970s = 1970 to 1979

1980s = 1980 to 1989

Source of Basic Data: NEDA Statistical Yearbook

TABLE 7. GROSS VALUE ADDED IN MANUFACTURING BY INDUSTRY GROUP: 1969-89
(in million pesos at constant prices of 1972)

Average Annual Growth Rate (%)

Year	Food manufactures	Beverage industries	Tobacco manufacture	Wood and cork prods.	Paper and paper prods.	Leather and leather prods.	Rubber products
1969							
1970	7.38	13.83	4.39	2.69	24.45	-37.50	25.78
1971	3.83	8.70	4.34	14.29	-14.96	-20.00	29.81
1972	-1.76	9.37	16.14	2.46	18.97	-8.33	5.26
1973	6.85	4.70	35.89	7.73	21.74	13.64	8.18
1974	6.66	3.83	12.86	1.75	14.29	4.00	7.98
1975	2.81	2.67	5.83	-26.18	1.25	15.38	2.33
1976	7.41	5.99	1.06	6.68	10.90	1.92	-8.94
1977	5.81	19.77	0.73	28.08	1.73	7.55	-0.73
1978	7.58	9.12	2.60	4.89	6.25	7.02	2.56
1979	3.19	3.31	4.26	8.84	3.21	9.84	11.07
1980	7.04	2.09	0.97	-1.77	-1.04	1.49	-2.89
1981	4.56	-0.27	5.87	6.32	-1.57	2.94	2.98
1982	3.36	2.33	1.27	-0.42	-8.51	1.43	4.18
1983	1.62	2.14	0.27	1.70	13.95	-7.04	-2.47
1984	1.06	5.50	-20.32	-17.80	-7.14	-4.55	5.70
1985	-7.47	-1.12	8.99	-8.84	-13.19	9.52	-15.87
1986	1.06	-7.91	-26.49	-27.61	8.86	-8.70	3.20
1987	7.21	10.23	-11.50	7.22	8.72	7.94	5.17
1988	6.69	4.46	13.00	10.10	24.06	16.18	13.44
1989	4.32	11.02	-1.40	6.33	25.86	21.52	3.76

TABLE 8. GROWTH OF KEY EXPORTS IN 1970S AND 1980S

	1970S	1980S
Growth Multiple		
LEADING:		
Shrimp/prawns	14.8x	11.2x
Preserved tuna	Very high	3.7x
Seaweeds	83x	4.5x
Fresh pineapples	101x	2.3x
Pineapple concentrate	3.0x	1.9x
Fresh bananas	19.4x	1.3x
Banana crackers	48x	2.6x
Fresh mangoes	6.5x	2.6x
Coffee	446x	1.0x
Ramie Fibers	3.5x	2.2x
Natural Rubber	6.1x	1.2x
LAGGING:		
Coconut Oil	5.7x	0.7x
Copra	0.1x	0.5x
Copra meal	5.8x	0.7x
Dessicated Coconut	6.4x	0.7x
Raw sugar	3.0x	0.1x
Molasses	3.2x	0.7x
Canned pineapple	3.8x	0.9x
Pineapple Juice	4.5x	0.9x
Tobacco	1.6x	0.9x
Cocoa butter	41.5x	0.8x
Abaca fibers	1.8x	0.6x
Logs	0.4x	0x
Lumber	16.3x	0.8x

Source of Basic Data: NSO

TABLE 9. EXPORT EARNINGS OF KEY AGRICULTURAL COMMODITIES

	1970	1975	1980	1985	1989
----- (\$ million) -----					
COCONUT PRODUCTS:					
o Coconut Oil	98.9	230.3	566.8	347.3	376.7
o Copra	476.0	172.3	47.2	-	25.2
o Copra Meal	14.1	33.3	81.4	35.5	53.5
o Dessicated Coconut	18.1	30.4	116.0	75.7	78.3
<u>Subtotal</u>	<u>607.1</u>	<u>446.3</u>	<u>811.4</u>	<u>458.5</u>	<u>533.7</u>
SUGAR PRODUCTS					
o Raw sugar	186.1	580.7	557.3	144.9	79.7
o Molasses	10.3	33.9	32.9	16.4	23.4
o Refined sugar	1.9	-	66.8	23.8	9.1
<u>Subtotal</u>	<u>198.3</u>	<u>614.6</u>	<u>657.0</u>	<u>185.1</u>	<u>112.2</u>
PINEAPPLE PRODUCTS:					
o Fresh Pineapple	0.1	2.0	10.1	18.1	23.5
o In Syrup	21.8	34.7	82.1	88.8	83.2
o Concentrates	3.0	2.8	9.0	13.8	17.1
o Juice	1.3	2.7	5.8	6.7	5.4
<u>Subtotal</u>	<u>26.2</u>	<u>42.2</u>	<u>107.0</u>	<u>127.4</u>	<u>129.2</u>
BANANAS					
o Fresh	5.9	73.1	114.2	113.5	146.2
o Crackers	0.1	-	4.8	10.1	12.7
<u>Subtotal</u>	<u>6.0</u>	<u>73.1</u>	<u>119.0</u>	<u>123.6</u>	<u>158.9</u>
MARINE PRODUCTS					
o Shrimps/prawn, frozen	1.4	7.1	20.7	62.5	231.2
o Tuna, preserved	-	-	29.5	47.1	108.3
o Tuna, fresh/frozen	0.7	5.4	68.3	14.0	20.6
o Seaweeds	0.1	1.8	8.3	19.7	37.2
<u>Subtotal</u>	<u>2.1</u>	<u>12.5</u>	<u>118.5</u>	<u>123.6</u>	<u>360.1</u>

TABLE 9. EXPORT EARNINGS OF KEY AGRICULTURAL COMMODITIES
(continued -2)

	1970	1975	1980	1985	1989
	- - - - - (\$ million) - - - - -				
Coffee	0.1	2.6	44.6	69.5	42.0
Tobacco Products	19.0	34.6	30.1	28.4	26.3
Abaca Fibers	15.0	14.5	27.0	16.5	17.6
Ramie Fibers, etc.	1.3	0.8	4.6	14.5	10.2
Logs	224.5	166.9	91.9	39.2	0.3
Lumber	11.1	27.2	181.3	91.2	136.2
Mangoes, fresh	1.0	1.8	6.5	7.5	17.1
Cocoa Butter	0.4	1.8	16.6	7.6	13.2
Natural Rubber	1.4	0.7	8.5	9.9	10.2
<u>TOTAL</u>	<u>1,113.6</u>	<u>1,461.4</u>	<u>2,232.3</u>	<u>1,322.2</u>	<u>1,604.4</u>

Source: Foreign Trade Statistics, NSO.

TABLE 10. COMPOSITION OF EXPORT EARNINGS OF KEY AGRICULTURAL COMMODITIES

	1970	1975	1980	1985	1989
	- - - - - (% share) - - - - -				
COCONUT PRODUCTS					
o Coconut Oil	8.9	15.8	25.4	26.3	23.5
o Copra	42.7	11.8	2.1	0	1.6
o Copra Meal	1.3	2.3	3.6	2.7	3.3
o Dessicated Coconut	1.6	2.1	5.2	5.7	4.9
<u>Subtotal</u>	<u>54.5</u>	<u>31.9</u>	<u>36.4</u>	<u>34.7</u>	<u>33.3</u>
SUGAR PRODUCTS					
o Raw Sugar	16.7	39.7	25.0	11.0	5.0
o Molasses	0.9	2.3	1.5	1.2	1.5
o Refined Sugar	0.2	-	3.0	1.8	0.6
<u>Subtotal</u>	<u>17.8</u>	<u>42.1</u>	<u>29.4</u>	<u>14.0</u>	<u>7.0</u>
PINEAPPLE PRODUCTS					
o Fresh Pineapple	-	0.1	0.4	1.4	1.5
o In Syrup	2.0	2.4	3.7	6.7	5.2
o Concentrates	0.3	0.2	0.4	1.0	1.1
o Juice	0.1	0.2	0.3	0.5	0.3
<u>Subtotal</u>	<u>2.4</u>	<u>2.9</u>	<u>4.5</u>	<u>9.6</u>	<u>8.0</u>
BANANAS					
o Fresh	0.5	5.0	5.1	8.6	9.1
o Crackers	-	-	0.2	0.8	0.8
<u>Subtotal</u>	<u>0.5</u>	<u>5.0</u>	<u>5.3</u>	<u>9.4</u>	<u>9.9</u>
MARINE PRODUCTS					
o Shrimp/prawn, frozen	0.1	0.5	0.9	4.7	14.4
o Tuna, preserved	-	-	1.3	3.6	6.8
o Tuna, fresh/frozen	-	0.4	3.1	1.1	1.3
o Seaweeds	-	0.1	0.4	1.5	2.3
<u>Subtotal</u>	<u>0.2</u>	<u>0.9</u>	<u>5.3</u>	<u>9.4</u>	<u>22.4</u>
Coffee	-	0.2	2.0	5.3	2.6
Logs	20.2	11.4	4.1	3.0	-
Lumber	1.0	1.9	8.1	6.9	8.5
Mangoes, fresh	nil	0.1	0.7	0.6	1.1
Cocoa Butter	nil	0.1	0.7	0.6	0.8
Natural Rubber	0.1	nil	0.4	0.8	0.6

Source of Basic Data: NSO

TABLE 11. NUMBER OF FARMS AND PRODUCTIVE TREES AND AREA HARVESTED\1, 1980
BY CROP AND SIZE OF FARM

CROP	SIZE OF FARM (HA)				
	All Farms	< 7	7 - 10	10 - 25	25 & over
PALAY					
No. of Farms	1,867,206	1,769,249	38,910	51,614	7,433
Area Harvested	36,499	31,820	1,428	2,342	909
CORN					
No. of Farms	1,273,798	1,185,985	34,808	47,945	5,060
Area Harvested	24,669	20,563	1,309	2,178	619
SUGARCANE					
No. of Farms	68,859	58,744	2,416	4,881	2,818
Area Harvested	2,988	804	103	477	1,604
BANANA					
No. of Farms	1,071,646	993,462	31,072	42,016	5,096
No. of Productive Trees	81,909,001	45,521,077	3,373,823	5,847,097	27,167,004
PINEAPPLE					
Number of Farms	76,398	67,931	3,013	4,826	628
No. of Productive Trees	683,027,017	21,195,020	1,013,431	1,745,488	659,073,078
COCONUT					
Number of Farms	1,610,773	1,455,169	59,627	84,325	11,652
No. of Productive Trees	320,908,681	207,245,509	24,759,707	62,470,630	26,432,835
CACAO					
Number of Farms	79,963	69,062	3,885	6,227	789
No. of Productive Trees	5,365,965	4,176,411	327,458	583,031	279,065
COFFEE					
Number of Farms	306,174	271,363	13,446	19,019	3,346
No. of Productive Trees	102,616,889	80,436,688	6,511,644	12,005,235	3,663,322
RUBBER					
Number of Farms	5,022	3,774	347	777	124
No. of Productive Trees	3,260,950	1,240,842	220,075	843,472	956,561

\1 In hundred hectares

Source: 1980 Census of Agriculture

TABLE 12. KEY PLAYERS IN AGRIBUSINESS IN THE PHILIPPINES, BY BUSINESS GROUP

<u>BUSINESS GROUP</u>	<u>AGRIBUSINESS ACTIVITIES</u>	<u>NON-AGRIBUSINESS ACTIVITIES</u>	<u>REMARKS</u>
SAN MIGUEL CORPORATION (Controlled by the Presidential Commission on Good Government-PCGG)	<u>Divisions:</u> - Dairy Products & Ice Cream - Fruit Purees & Juices - Animal & Aqua Feeds - Poultry Products - Aquaculture Production & Exports - Coffee Plantation (Bukidnon) <u>Subsidiaries/Affiliates</u> - Monterey Farms (Cattle/Hog Raising; Meat Processing) - Philippines Dairy Products Corp. (Dairy Cattle) - Nestle Phil. (Milk/Cereal/Coffee Products) - Ramie Textile Mills (Ramie Growing and Processing)	Beer Soft drinks (Coca-Cola) Packaging Products Glass Products Spirits (La Tondena)	
AYALA CORPORATION (Zobel family)	<u>Subsidiaries/Affiliates:</u> - Purefoods Corp. (Poultry & Hogs; Meat Processing; Flour Milling-under construction; Canned Tuna; Prawn Processing & Export; Fast Food Outlets)	Real Estate Commercial/Housing Dev. Banking & Financial Services (Bank of the Phil. Islands) Hotels (Intercontinental) Semiconductors (IMI) Telecomm. (Globe McKay) Insurance (Life & Non-Life) Transport (Ferries & Barges) Computer Software Services	Licensee: Hormel, Spam, Smokey's Banking tie-up with Morgan Guaranty
RFM CORPORATION (Concepción & Server families)	<u>Divisions:</u> - Grocery (Baby Foods; Cereal Products; Pork & Beans; Hamburger Patties) - Animal Feeds - Chicken Broilers & Eggs - Hog Raising - Flour <u>Subsidiaries/Affiliates:</u> - Selecta Ice Cream	Soft drinks (Cosmos Bottling) Electric Motors Poultry Equipment Household Appliances Lighterage	Licensee: Swift's, Gerber, Hunt's, Peterson

TABLE 12. KEY PLAYERS IN AGRIBUSINESS IN THE PHILIPPINES, BY BUSINESS GROUP (Continued-2)

<u>BUSINESS GROUP</u>	<u>AGRIBUSINESS ACTIVITIES</u>	<u>NON-AGRIBUSINESS ACTIVITIES</u>	<u>REMARKS</u>
UNIVERSAL ROBINA CORPORATION (Gokongwei family)	Poultry & Hogs Meat Processing Animal Feeds Coffee Products	Real Estate Hotel(s) Shopping Centers Department Stores (Robinson's) Banking (PC/Bank)	
VITARICH CORPORATION (Sarmiento family)	Poultry & Hogs Animal Feeds Processed Meat Aquaculture Feeds Prawn Culture	Plywood Products Hotel (Danarra)	Licensee: Cobb-Babcock
GENERAL MILLING CORPORATION (Uytengsu family/ GF Equity, Inc.)	<u>Divisions:</u> - Flour Milling - Animal Feeds - Poultry & Hogs - Corn Starch - Fruit Purees & Juices <u>Subsidiaries/Affiliates:</u> - Holland Milk Products - Hills Bros. Phil., Inc. (Instant Coffee) - Basic Foods Corp.		Licensee: Hills Bros. Coffee
ANDRES SORIANO CORPORATION (Soriano & Roxas families)	<u>Subsidiaries/Affiliates</u> - Atlas Fertilizer Corp. (Fertilizer Mfg.; Industrial Chemicals) - AFR Agribusiness Corp. (Aquaculture; Mango Plantation; Fruit Processing) - San Miguel Corp. - Paper Industries Corp. of the Phil. (PICOP)	Copper & Gold Mining (Atlas Mining) Banking & Financial Services (Anscor Capital; Asian Bank; Far East Bank)	

TABLE 12. KEY PLAYERS IN AGRIBUSINESS IN THE PHILIPPINES, BY BUSINESS GROUP (Continued-3)

<u>BUSINESS GROUP</u>	<u>AGRIBUSINESS ACTIVITIES</u>	<u>NON-AGRIBUSINESS ACTIVITIES</u>	<u>REMARKS</u>
NESTLE PHILIPPINES (Joint Venture of San Miguel Corp. & Nestle S.A. Switzerland)	Milk Products Breakfast Drinks Coffee Products		
DOLE PHILIPPINES (Castle & Cooke, Hawaii)	Pineapple Plantation, Canning & Export Banana Plantation & Export Fruit Juices Prawn Hatchery & Processing Asparagus Production Cut Flower Production Tuna Exports		
DEL MONTE PHILIPPINES, INC. (Del Monte, USA)	Pineapple Plantation, Canning & Export Banana Plantation & Export Fruit Juices		
JVA GROUP (Jesus Ayala family)	<u>Subsidiaries/Affiliates:</u> - Davao Fruits Corp. (Banana/Cacao Plantations) - Hijo Plantations (Banana/Cacao) - Twin River Plantations (Banana/Cacao/Coconuts) - Intrade (Trading of fertilizers, agrichemicals, cacao, prawn feeds)		40%-owned by Sumitomo (Japan)
MARSMAN & CO., INC. (Drysdale family & Others)	Banana Plantation Mango Plantation Fruit Processing Agrichemicals	Pharmaceuticals Industrial Chemicals	Banana Plantation in Costa Rica

TABLE 12. KEY PLAYERS IN AGRIBUSINESS IN THE PHILIPPINES, BY BUSINESS GROUP (Continued-4)

<u>BUSINESS GROUP</u>	<u>AGRIBUSINESS ACTIVITIES</u>	<u>NON-AGRIBUSINESS ACTIVITIES</u>	<u>REMARKS</u>
GAMBOA HERMANOS, INC. (Ledesma family)	Sugar Plantations Aquaculture Black Pepper Plantation & Contract Growing Salt Beds Rice Farming & Milling	<u>Affiliates:</u> - Negros Navigation Shipping Co., Inc. (Inter-island Shipping) - WESCON (Engineering Fabrication & Services) - NENACO Sales (Trading)	
	<u>Affiliate:</u> - San Carlos Milling Corp. (Sugar Milling)		
SIME DARBY PHILIPPINES, INC. (Sime Darby Berhad, Malaysia)	Rubber Plantations <u>Affiliate:</u> - Philippine Cocoa Estates Corp. (Cacao under Coconuts)	Tire Manufacturer Ford Tractors-Distribution Management Services	<u>Ownership:</u> - 40% Sime Darby Malaysia - 60% Benguet Management Corp.
MENZI AGRICULTURAL CORPORATION	Rubber Plantations Coffee Plantations Black Pepper Plantations Cacao Plantations Pomelo Plantations Cashew Plantations		
BENGUET MANAGEMENT CORPORATION (Benguet Corporation - A Publicly-traded company listed in the Stock Exchanges)	Orange Plantations Mango Plantations <u>Subsidiary:</u> - Philippine Cocoa Estates Corp. (See above)	<u>Affiliates:</u> - Benguet Corp. (Gold & Copper Mining) - Engineering Equipment Inc. (Fabrication & Services) - Philippine Shipbuilding Corp. (Shipbuilding & Repairs)	

TABLE 12. KEY PLAYERS IN AGRIBUSINESS IN THE PHILIPPINES, BY BUSINESS GROUP (Continued-5)

BUSINESS GROUP	AGRIBUSINESS ACTIVITIES	NON-AGRIBUSINESS ACTIVITIES	REMARKS
LUCIO TAN GROUP OF COMPANIES	Piggery (Foremost Farms) Tobacco Processing (Northern Tobacco Redrying Plant & Virginia Tobacco Redrying Plant)	Fortune Tobacco Corporation Asia Brewery (Beer) Allied Banking Corp. Tanduay Distillery (Rum) Overseas Banking (CANADA, USA) Hotels (Century Park Sheraton & Charter House) Textile Mills Many Others	
DACON (Consunji family)	Rubber Plantation Cacao Plantation Fruit Processing Fruit Marketing Coconut Milk Logging Plywood Mfg.	Construction Real Estate Rural Banking	
NDC-GUTHRIE PLANTATIONS/ NDC-GUTHRIE ESTATES (Joint ventures of National Development Corp. & Kumpulan Guthrie (Malaysia))	Oil Palm Plantation Palm Oil Processing		
TAGUM AGRICULTURAL DEVELOPMENT CORPORATION (TADECO) (Floirendo family)	Banana Plantation <u>Subsidiary:</u> - Nenita Farms (Piggery)	Automotive Dealership	
LAPANDAY HOLDINGS (Lorenzo family)	Banana Plantations	Soft Drinks (Pepsi-Cola) Cigarette Mfg. (Sterling Tobacco)	

TABLE 12. KEY PLAYERS IN AGRIBUSINESS IN THE PHILIPPINES, BY BUSINESS GROUP (Continued-6)

<u>BUSINESS GROUP</u>	<u>AGRIBUSINESS ACTIVITIES</u>	<u>NON-AGRIBUSINESS ACTIVITIES</u>	<u>REMARKS</u>
SHEMBERG GROUP (Dakay family)	Seaweed & Carageenan Processing Food Products (Carageenan-based)	Mosquito Coils Jute Bags	
FIRST FARMERS GROUP OF COMPANIES (Owned by a broad group of sugar farmers)	Sugar Milling Animal Feeds Poultry Grow-out & Contract Growing Poultry Processing Aquaculture Prawn Processing	Tire Recapping Engineering Fabrication & Services General Trading Management Services	
VICTORIAS MILLING CORPORATION (Majority-owned by the Employees Pension Fund)	Sugar Farming Sugar Killing & Refining Fish Canning Aquaculture Pilot Projects in many agricultural crops	Engineering Fabrication & Services Management Services General Trading	
PAPER INDUSTRIES CORPORATION OF THE PHILIPPINES (Government- controlled)	Industrial Tree Plantation Kraft Paper & Newsprint Plant		

Source: CRC Agribusiness Unit Data Bank

TABLE 13. KEY PLAYERS IN AGRIBUSINESS IN THE PHILIPPINES, BY COMMODITY

INDUSTRY	PRODUCTION	PROCESSING/MILLING	EXPORT
CROPS			
=====			
COCONUT OIL	Primarily Small Farmers	Lu Do & Lu YM Corp. Legaspi Oil Co. Interco Mfg. Corp. Soloil, Inc. Cagayan de Oro Oil Co. Countryside Millers Malabon Soap & Oil Co. Pacific Oil Products Central Vegetable Oils Philippine Refining Co. Philippine Mfg. Co. (Procter & Gamble	Lu Do & Lu YM Corporation Legaspi Oil Company Interco Mfg. Corporation Soloil, Inc.
DESSICATED COCONUT	Primarily Small Farmers	Franklin Baker Co., Inc. New Sunripe Coco. Products, Inc. Peter Paul Phil., Inc. Red V Coco. Prod. (Phil.), Inc. Fiesta Brands, Inc. Blue Bar Mfg. Co. Inc.	Franklin Baker Co., Inc. New Sunripe Coco. Products, Inc. Peter Paul Phil., Inc. Red V Coco. Prod. (Phil.), Inc. Fiesta Brands, Inc. Blue Bar Mfg. Co. Inc.
COCONUT CHEMICALS		United Cocochemicals, Inc. Pilipinas Kao, Inc. Phil. Refining Co. Phil. Mfg. Co. (Procter & Gamble)	United Cocochemicals, Inc. Pilipinas Kao, Inc. ?????? ??????
SUGAR	Primarily Small and Medium Farmers	Victorias Milling Co., Inc. First Farmers Corp. Central Azucarera de Carlota Hawaiian Phil. Co., Inc. Central Azucarera de Tarlac AIDSISA Bukidnon Sugar Milling Co., Inc. San Carlos Milling Co., Inc. Lopez Sugar Corp. United Planters Sugar Milling National Sugar Refineries Corp. Binalbagan-Isabela Sugar Co., Inc. Pampanga Sugar Dev. Co., Inc. Bogo-Medellin Milling Co., Inc. Central Azucarera de Bais	Some of the Bigger Sugar Mills (e.g., Victorias Milling) and Medium Sugar Traders

TABLE 13. KEY PLAYERS IN MAJOR AGRIBUSINESS OUTPUTS IN THE PHILIPPINES, BY COMMODITY (Continued - 2)

INDUSTRY	PRODUCTION	PROCESSING/MILLING	EXPORT
CROPS			
=====			
BANANA	Tagum Agri. Dev. Co. (TADECO) Davao Fruits Corp. (JVA) Hijo Plantations (JVA) Twin Rivers Plantations (JVA) Lapanday Agri. & Dev. Corp. Nueva Vista (Marsman) Plantations Farmington Agro-Dev., Inc. AMS Farming Corp. Evergreen Farms Guihing Agri. & Dev., Inc. Dole Phil., Inc.	nil	Dole Phil., Inc. Del Monte, Phil, Inc. JVA Group TADECO
COFFEE	Primarily Small Farmers San Miguel Corp. Menzi Agri. Corp.	Nestle Phil., Inc. Universal Robina Corp. Commonwealth Foods Corp. Hills Bros. Phil. Corp.	Nestle Phil., Inc. Pearl Island Mktng. Pan Asean Commodities Sucrex Mktng. MSP Mercantile Corp. San Miguel Corp. Evrite Enterprises ECI Trading
CACAO	Phil. Cocoa Estates Corp. Menzi Agri. Corp. Cocoa Investors, Inc. (ECJ) Eduardo Cojuangco, Jr. JVA Group Tagnanan Estates, Inc.	Phil. Cocoa Estates Corp. Serg's Products, Inc. Commonwealth Foods Corp.	Phil. Cocoa Estates Corp. Serg's Products, Inc. Commonwealth Foods Corp.
RUBBER	Sime Darby, Phil. Menzi Agri. Corp. Goodyear Phil. Rubber Project Philtread Tire & Rubber Corp. UP Land Grant Pamintuan Dev. Corp. Marcelo Tire & Rubber JCA Rubber Dev. Corp. Juan Ponce-Enrile	Sime Darby, Phil. Menzi Agri. Corp. Goodyear Phil. Rubber Project Philtread Tire & Rubber Corp. UP Land Grant Pamintuan Dev. Corp. Marcelo Tire & Rubber JCA Rubber Dev. Corp. Juan Ponce-Enrile	Sime Darby, Phil. Menzi Agri. Corp. Goodyear Phil. Rubber Project Philtread Tire & Rubber Corp. Pamintuan Dev. Corp. ICOMA Phil. Sales
INEAPPLES	Del Monte Phil., Inc. Dole Phil., Inc. Crown Fruits Corp.	Del Monte Phil., Inc. Dole Phil., Inc. Crown Fruits Corp.	Del Monte Phil., Inc. Dole Phil., Inc. Crown Fruits Corp. (?)

TABLE 13. KEY PLAYERS IN MAJOR AGRIBUSINESS OUTPUTS IN THE PHILIPPINES, BY COMMODITY (Continued - 3)

<u>INDUSTRY</u>	<u>PRODUCTION</u>	<u>PROCESSING/MILLING</u>	<u>EXPORT</u>
LIVESTOCK			
=====			
HOGS	Monterey Farms Foremost Farms Holiday Hills Farms Springside Farms Purefoods Corp. RFM Corp. Universal-Robina Corp. Vitarich Corp. Console Farms Menita Farms Meralco Corfarm Bibisara Farms Reliance Agri. Corp. Nest Farms	Purefoods Corp. RFM Corp. Monterey Farms Universal-Robina Corp. Vitarich Corp. California Mfg. Co., Inc. Liberty Flour Mills Superior Food Products Reno Food Products Virginia Farms, Inc. King Sue Ham Factory Philips Food Corp. International Ham & Sausage Mfg. Co., Inc.	nil
POULTRY			
=====			
CHICKEN BROILERS	Integrators and Their Contract Growers	San Miguel Corp. Purefoods Corp. Universal-Robina Corp. RFM Corp. Vitarich Corp. General Milling Corp.	nil
EGGS	RFM Corp. Vitarich Corp. Lorenzo Farms Minalin Poultry Coop. Universal-Robina Corp. and Their Contract Growers	nil	Lorenzo Farms

TABLE 13. KEY PLAYERS IN MAJOR AGRIBUSINESS OUTPUTS IN THE PHILIPPINES, BY COMMODITY (Continued - 4)

INDUSTRY	PRODUCTION	PROCESSING/MILLING	EXPORT
FISHERY			
=====			
OCEAN FISHING	Frabelle Fishing Corp. Orient Marine & Fishery Resources, Inc. Mar Fishing Co., Inc. RBL Fishing Corp. Frabal Fishing & Ice Plant Corp. SMI Fish Industry, Inc.	<u>Tuna:</u> Mar Fishing Co., Inc. Purefoods Corp. Century Canning Corp. Phil. Tuna Canning Corp. Sancanco Canning Corp. Permex Producer & Exporter Premier Indust. & Dev. Corp. Diamond Seafoods Corp. Judric Canning Corp. <u>Sardines:</u> Century Canning Corp. Sta. Monica Canning Corp. Bagumbayan Indust. Corp. Alliance Food Corp. Finest Food Products Pioneer Food Mfg. Center Three Golden Star Canning Pan Asean Food Mfg., Inc.	<u>Tuna:</u> Mar Fishing Co., Inc. Purefoods Corp. Century Canning Corp. Phil. Tuna Canning Corp. Sancanco Canning Corp. Permex Producer & Exporter Premier Indust. & Dev. Corp. Diamond Seafoods Corp. Judric Canning Corp.
SEAWEEDS	Small Farms in Tawi-Tawi, Sulu and Bohol	Shenberg Mktng. Corp. Marine Colloids Phil., Inc. Sanofi Phil. Marcel Trading Corp. King Agro-Marine Int'l., Inc.	Shenberg Mktng. Corp. Marine Colloids Phil., Inc. Sanofi Phil. Marcel Trading, Inc. King Agr(?????)
QUACULTURE (Mainly Prawns)	San Miguel Corp. Purefoods Corp. Dole Phil., Inc. Vitarich Corp. and Small to Big Private Farms	AA Export-Import Corp. San Miguel Corp. Purefoods Corp. Orient Marine & Fishery Resources, Inc. SMI Fish Industries, Inc. and Medium Traders	AA Export-Import Corp. San Miguel Corp. Purefoods Corp. Orient Marine & Fishery Resources, Inc. SMI Fish Industries, Inc. and Medium Traders

Source: CRC Agribusiness Unit Data Bank

TABLE 13. KEY PLAYERS IN MAJOR AGRIBUSINESS INPUTS IN THE PHILIPPINES, BY COMMODITY

INDUSTRY	PRODUCTION/PROCESSING/MILLING	EXPORT
FEED MILLING (Poultry & Hogs)	San Miguel Corp. Vitarich Corp. RFM Corp. General Milling Corp. Universal-Robina Corp. Champion Feed Mills, Inc Far East Agri. Supply Manlo Feeds, Inc. Phil. Super Feed Co., Inc. First Farmers Corp.	nil
AQUACULTURE FEEDS	San Miguel Corp. (B-Meg) Fuji-Triumph Feeds Vitarich Corp. Tateh Feeds Chuen Shin Feeds	
SEEDS/SEEDLINGS	Pioneer Overseas Ayala Agri. Dev. Corp. East-West Seed Co. Pilipinas Kaneko Seeds Cargill Seeds	
FERTILIZERS	Atlas Fertilizers Corp. Phil. Phosphate Fertilizer Corp. Planters Products, Inc.	Phil. Phosphate
AGRICULTURAL CHEMICALS	Shell Chemicals Co., Inc. Jardine Davies (ICI Chemicals) Bayer Phil., Inc. Ciba-Geigy (Phil.), Inc. Agchem Mfg. Corp. Hoechst Far East Mktg. Cyanamid Phil. Inc. Union Carbide Phil., Inc.	

Source: CRC Agribusiness Unit Data Bank

TABLE 14. TYPOLOGY OF CORPORATE-SMALL FARMER LINKAGES

=====

Production Process	Company-farmer linkages	
	Weaker	Stronger
Less Integrated	Traditional: small traders purchase and distribute crops	Bulk purchasing: firm buys what it needs on open market
More Integrated	Plantation: firm produces its own raw materials using hired labor	Core-satellite: firm uses production contracts with small farmers.

Source: Goldsmith (1987).

TABLE 15. CASE STUDIES IN CONTRACT FARMING: PHILIPPINES

Subsector	Product	Company
CROPS	Hybrid corn seeds	Ayala Agricultural Devt. Corp
	Vegetable seeds	East West Seed Company
	Rice	Meralco Corfarm, Inc.
	Cucumber	California Manufacturing Co.
	Tomato	Northern Foods Corporation
	Tomato	Philippine Fruit & Vegetable Industry, Inc.
	Soybeans	Nestle Philippines
	Oil Palm	Kenram Philippines
	Papaya	Del Monte Philippines
	Okra for export	Unimer Export Corporation
	Asparagus	Dole Philippines, Inc.
	Passion Fruit	San Miguel Corporation
	Passion Fruit	AFC Agribusiness Corporation
	Cavendish Bananas	Standard Fruit Company (Dole)
Pepper(P. Nigrum)	High Grains Farms (Gamboa Hermanos, Inc.)	
Burley Tobacco	Philip Morris Philippines	
POULTRY	Chicken Broiler	San Miguel Corporation
		RFM Corporation
		Purefoods Corporation
		Vitarich Corporation
		General Milling Company
LIVESTOCK	Hogs	Monterey Farms
	Cattle Fattening	Sarangani Agricultural Corp.
AQUACULTURE	Prawns	San Miguel Corporation
	Prawns	Dole Philippines, Inc.
	Seaweeds	Shemberg Marketing Corp.
	Seaweeds	Marine Colloids Philippines
FORESTRY	Pulpwood	Paper Industries Corporation of the Philippines (PICOP)

Source: CRC Agribusiness Unit

TABLE 15. CASE STUDIES IN CONTRACT FARMING: PHILIPPINES
(continuation)

Type	Product	Company	Agents Involved
Contract Farming:			
	Hybrid corn seed	Ayala Agri	Firm, Farmers
	Vegetable seeds	East West	
	Cucumber	California	Firm, Middleman, Farmers
	Tomato	Northern Food	Firm, Farmers
	Tomato	Phil. Fruits	Firm, Farmers
	Soybeans	Nestle Phil	Firm, Farmers
	Okra	Unimer	Firm, Mediator Farmers
	Bananas	Standard Fruit	Firm, Farmers
	Asparagus	Dole Phils.	Firm, Farmers
	B. Tobacco	Philip Morris	Firm, Farmers, Tobacco Agency
	Chicken Broiler	San Miguel	Firm, Growers
		RFM Corp	Firm, Growers
		Purefoods	Firm, Growers
		Vitarich	Firm, Growers
		Gen. Milling	Firm, Growers
		First Farmers	Firm, Growers
	Hogs	Monterey	Firm, Growers
	Cattle	Sarangani	Firm, Growers
	Prawns	San Miguel	Firm, Growers
	Prawns	Dole Phils.	Firm, Growers
	Seaweeds	Shemberg	Firm, Growers Middlemen
		Marine Colloids	Firm, Growers
Nucleus Estate-Outgrowers:			
	Oil Palm	Kenram	Firm, Growers
	Pulpwood	PICOP	Firm, Growers, Bank
	B. Pepper	High Grains (Gamboa Hermanos)	LEAD Type
Linkage Farming:			
	Rice	Meralco	Firm, Farmers, Cooperative, Irrigation Agency, Bank
LEAD Program:			
	Papaya	Del Monte	Firm, Farmers, Cooperative, Bank, DA, MAP
	Passion Fruit	San Miguel	----do-----
	Passion Fruit	AFC Agri	----do-----
	B. Pepper(a)	High Grains	----do-----

TABLE 16. LAND ELEVATION AND CLIMATE IN SOUTHERN MINDANAO, BY PROVINCE/CITY

	DAVAO CITY	GENERAL SANTOS	DAVAO DEL NORTE	DAVAO DEL SUR	DAVAO ORIENTAL	SOUTH COTABATO	SURIGAO DEL SUR	TOTAL
<u>ELEVATION in Meters</u>								
<u>Above Sea Level</u>								
Less than 100	16,472	16,275	191,736	80,835	59,068	112,759	99,772	576,917
100-300	29,255	31,378	124,059	47,595	68,972	141,554	89,432	532,245
300-500	94,809	6,682	160,369	83,271	194,245	176,276	191,766	907,418
500-1,000	55,972	0	177,224	96,749	127,773	190,037	74,746	722,501
1,000-2,000	44,094	0	121,310	50,739	65,894	108,019	0	390,056
Above 2,000	3,398	0	35,656	588	494	517	0	40,653
Total	244,000	54,335	810,354	359,777	516,446	729,162	455,716	3,169,790
<u>ANNUAL RAINFALL (mm)</u>								
Lowest	1,735	824	1,971	1,500	1,374	1,781	3,883	-
Highest	2,214	848	2,204	2,000	3,810	2,581	5,077	-
Average	1,975	836	2,088	1,750	2,592	2,181	4,480	-
<u>TEMPERATURE (Degrees C)</u>								
High	32.2	32.0	33.1	37.3	32.9	37.1	32.0	-
Low	23.2	22.5	19.8	23.2	22.5	22.6	22.1	-

Source: Land Use Information System (LUIS) of Region XI, Department of Agriculture, 1988 as quoted in RAPID Vision Strategy and Prospects for Southern Mindanao, June 1989

94

TABLE 17. LAND USES IN SOUTHERN MINDANAO, 1987 ('000 ha)

	DAVAO DEL NORTE	DAVAO DEL SUR	DAVAO ORIENTAL	SOUTH COTABATO	SURIGAO DEL SUR	TOTAL
<u>Forest and Non-Forest</u>						
Pine Forest	0	0	0	0	0	0
Mossy Forest	7	0	1	0	2	10
Dipterocarp Forest						
Closed	62	67	68	66	58	321
Open	193	54	113	115	162	637
Mangrove	0	0	2	0	6	8
Other	0	0	0	0	0	0
Total Forest	262	121	184	181	228	976
Non-forest	552	517	332	275	518	2,194
Unclassified	0	0	0	0	0	0
Total Land	814	638	516	456	746	3,170
<u>SPOT Cultivated Area</u>						
<u>Estimates</u>						
In Forest	1	1	0	1	1	4
Grassland	1	3	0	24	0	28
Mixed Extensive	96	100	70	99	23	388
Plantations						
Coconut	21	40	14	8	1	84
Others	18	5	0	12	0	35
Arable Crops	29	20	5	44	23	121
Crops and Coconut	111	88	56	15	81	351
Crops and Others	17	3	16	50	6	92
Fishponds						
Mangrove	1	2	1	0	1	5
Other	0	0	0	0	0	0
Total	295	262	162	253	136	1,108
<u>SPOT Farming Land</u>						
<u>Use Percentages</u>						
Total Cultivated	36%	41%	32%	56%	18%	35%
Upland/Extensive	12%	16%	14%	27%	3%	13%
Tree Crops	13%	14%	10%	12%	6%	11%
Annual Crops	11%	10%	8%	17%	9%	11%
Fishponds	0%	0%	0%	0%	0%	0%

Source: S.S.C., 1988 as quoted in World Bank, Philippine: Environment and Natural Resource Management Study, September 1989.

TABLE 18. AGRICULTURAL LAND AREAS IN SOUTHERN MINDANAO, BY PROVINCE/CITY (ha)

PROVINCE/CITY	TOTAL ACTUAL AREA [a]	FOR REHABILITATION [b]	POTENTIAL FOR EXPANSION [b]
DAVAO CITY	100,916	13,024	44,255
DAVAO DEL NORTE	166,885	34,148	62,780
DAVAO DEL SUR	247,218	12,437	249,233
DAVAO ORIENTAL	184,000	20,038	77,425
SURIGAO DEL SUR	158,406	3,369	136,741
SOUTH COTABATO	196,977	42,912	191,799
GENERAL SANTOS CITY	22,734	3,570	2,730
TOTAL	1,077,136	129,498	764,963

Sources : (a) Land Use Assessment for Potential Agro-Environment Development and Investment for Region XI, Bureau of Soils, August 1988

(b) Land Use Information System (LUIS) of Region XI, Department of Agriculture, 1988

as both quoted in RAPID Vision Strategy and Prospects for Southern Mindanao, June 1989

TABLE 19. SOUTHERN MINDANO'S SHARE IN PRODUCTION OF SELECTED AGRICULTURAL COMMODITIES

COMMODITY	YEAR*	SHARE IN :	
		MINDANAO	PHILIPPINES
<u>Major Crops</u>			
Palay	CA 1989	30.6% [a]	7.6%
Corn	CA 1989	47.6% [a]	28.6%
Coconut (Copra)	CA 1989	56.8% [a]	32.6%
Sugarcane	CA 1989	24.0%	1.3%
Banana	CA 1989	52.0%	41.7%
Export Banana	CR 1987	100.0%	100.0%
<u>"Minor Crops"</u>			
Pineapple	CA 1989	47.0%	41.9%
Coffee	CA 1989	33.0%	29.6%
- Arabica	CA 1987	45.9%	33.0%
- Robusta	CA 1987	38.6%	27.6%
Mango	CA 1989	30.0%	4.8%
Rubber	CA 1989	7.3%	7.3%
Cacao	CA 1989	85.0%	65.0%
Abaca	CA 1989	22.0%	8.2%
Ramie	CR 1987	97.4%	74.8%
Citrus	CR 1987	45.1%	21.3%
Guayabano	CR 1987	60.7%	11.2%
Papaya	CR 1987	29.7%	5.9%
Soybean	CR 1987	77.3%	71.3%
<u>Livestock & Poultry</u>			
Carabao Population	CA 1988	31.1%	7.9%
Cattle Population	CA 1988	23.6%	5.8%
Hog Population	CA 1988	40.3%	10.3%
- Backyard	CA 1988	34.9%	9.5%
- Commercial	CA 1988	82.4%	14.4%
Chicken Population	CA 1988	35.7%	7.6%
- Backyard	CA 1988	37.4%	9.7%
- Commercial	CA 1988	70.9%	5.2%
<u>Aquaculture</u>			
Marine (Seaweeds, Mussels, Oysters)	CA 1987	nil	nil
Milkfish	CA 1987	14.6%	3.2%
Prawns	CA 1987	39.3%	1.0%

* CA = Calendar Year; CR = Crop Year
[a] CR 1987

Source : Bureau of Agricultural Statistics (BAS)

TABLE 20. PRODUCTION AND AREA TRENDS OF SELECTED CROPS IN THE PHILIPPINES
Calendar Years 1980-1989

Crops	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Ave. Annual Growth
<u>Production ('000 MT)</u>											
Palay (Rice)	7,646	7,911	8,334	7,295	7,828	8,806	9,247	8,540	8,971	9,459	2.3%
Corn	3,050	3,296	3,404	3,134	3,250	3,863	4,091	4,278	4,428	4,522	4.8%
Coconut	13,369	14,190	13,146	12,368	11,738	12,828	14,335	3,730	12,482	11,810	-.8%
Sugarcane	22,326	22,651	24,434	24,014	23,944	17,542	14,831	13,797	15,721	17,591	-5.5%
Abaca	108	93	100	84	86	81	84	82	84	89	-2.1%
Banana	3,283	3,201	3,364	3,016	3,058	3,127	3,193	3,157	3,067	3,190	-.4%
Cacao	4	4	5	6	6	7	8	9	9	9	11.3%
Coffee	110	121	122	122	122	137	145	140	142	156	3.4%
Mango	319	317	322	303	339	356	373	367	361	369	2.2%
Rubber	96	100	98	96	141	140	146	147	156	172	7.3%
Camote	934	925	863	731	693	702	726	717	695	660	3.6%
Cassava	1,741	1,680	1,531	1,152	1,491	1,687	1,724	1,784	1,866	1,847	2.1%
Garlic	13	15	20	15	13	15	15	15	14	17	.7%
Onion	38	34	44	42	53	55	54	61	46	65	5.9%
Pineapple	797	972	1,010	907	1,036	1,030	1,273	1,303	1,181	1,179	4.3%
Tobacco	73	77	86	86	98	74	74	83	76	80	.2%
Tomato	132	131	134	133	149	150	166	167	168	179	3.9%
<u>Area ('000 Hectares)</u>											
Palay (Rice)	3,470	3,419	3,351	3,054	3,162	3,306	3,464	3,256	3,393	3,502	.2%
Corn	3,201	3,242	3,367	3,077	3,382	3,462	3,927	4,009	3,769	3,691	2.4%
Coconut	3,264	3,224	3,204	3,201	3,223	3,270	3,284	3,252	3,222	3,110	.2%
Sugarcane	402	400	416	411	410	369	300	269	216	262	-6.7%
Abaca	157	154	146	132	125	120	117	115	108	108	-4.5%
Banana	277	281	283	278	286	290	293	299	295	296	.8%
Cacao	10	11	12	13	14	16	17	17	18	18	7.6%
Coffee	116	121	128	132	138	137	141	143	142	143	2.4%
Mango	48	49	51	52	53	54	54	55	56	56	1.8%
Rubber	65	66	74	77	78	81	83	84	85	85	3.1%
Camote	180	179	174	151	150	150	155	150	144	139	-2.7%
Cassava	198	200	203	176	202	205	211	210	217	214	1.2%
Garlic	5	6	7	6	6	6	7	6	6	6	1.3%
Onion	5	5	6	7	8	7	7	7	6	7	2.1%
Pineapple	63	61	59	61	59	58	61	63	61	61	-.3%
Tobacco	61	68	70	67	70	60	64	69	61	63	-.5%
Tomato	16	15	16	15	16	17	18	18	18	20	2.6%

Source: Bureau of Agricultural Statistics

TABLE 20. PRODUCTION AND AREA TRENDS OF SELECTED CROPS IN SOUTHERN MINDANAO (continuation -2)
Calendar Years 1980-1989

Crops	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Ave. Annual Growth
<u>Production ('000 MT)</u>											
Palay (Rice)	573	490	512	459	577	542	653	624	683	723	4.0%
Corn	994	1,002	1,068	1,039	1,052	1,108	1,203	1,319	1,284	1,294	3.5%
Coconut	3,491	3,693	3,600	3,525	3,440	3,829	4,283	4,166	3,873	3,850	1.6%
Sugarcane	184	193	275	282	216	220	233	180	206	230	-.1%
Abaca	10	8	10	10	9	9	7	5	6	7	-5.7%
Banana	1,341	1,278	1,400	1,233	1,222	1,249	1,244	1,258	1,243	1,330	-.4%
Cacao	2	2	3	3	4	4	5	6	6	6	13.9%
Coffee	30	33	34	33	35	37	40	37	44	46	4.5%
Mango	25	21	19	20	16	16	17	17	17	18	-3.3%
Rubber	6	7	8	8	8	9	9	10	11	13	7.2%
Camote	n.a.										
Cassava	n.a.										
Garlic	n.a.										
Onion [a]	0	0	0	0	0	2	0	0	0	0	2.3%
Pineapple	278	497	447	403	390	364	569	600	522	494	4.9%
Tobacco	n.a.										
Tomato	n.a.										
<u>Area ('000 Hectares)</u>											
Palay (Rice).	211	186	193	175	186	174	197	188	203	210	.4%
Corn	732	749	798	750	764	767	778	770	778	773	.4%
Coconut	571	568	566	566	566	574	576	571	564	562	-.1%
Sugarcane	5	5	7	6	6	6	6	6	5	6	.3%
Abaca	16	13	13	13	13	11	8	8	4	4	-13.5%
Banana	46	46	46	47	47	47	47	47	49	52	1.0%
Cacao	6	6	7	7	7	8	8	8	8	9	3.7%
Coffee	31	32	32	34	35	36	38	38	39	39	3.1%
Mango	3	3	3	3	3	3	3	3	3	3	-.1%
Rubber	4	5	5	5	5	5	5	5	6	6	2.6%
Camote	n.a.										
Cassava	n.a.										
Garlic	n.a.										
Onion	0	0	0	0	0	0	0	0	0	0	-.7%
Pineapple	25	23	24	24	21	19	20	21	18	18	-3.6%
Tobacco	n.a.										
Tomato	n.a.										

[a] 0 means less than 300 MT for production; less than 100 ha for area

Source : Bureau of Agricultural Statistics (BAS)

TABLE 21. KEY PLAYERS IN AGRIBUSINESS IN SOUTHERN MINDANAO, BY PROVINCE/CITY

PROVINCE/CITY	COMPANY	PRODUCT LINES	OUTGROWERS	
			Number	Area
DAVAO DEL NORTE	Tagum Agricultural Dev. Co.	Banana	None	
	Hijo Plantations (JVA Group)	Banana, Cacao	None	
	Twin Rivers Plantations (JVA)	Banana, Cacao, Coconut	None	
	Marsman Plantations	Bananas	None	
	Tagnanan Estates, Inc.	Coconut, Cacao	None	
	Evergreen Farms	Banana	None	
	Nestle Phil., Inc.	Soybean	Yes, No Info *	
	Delta Farms (Lapanday)	Banana	None	
	Eden Fruit Corp.	Banana	None	
	Sarmiento Phil., Inc.	Banana	None	
	Stanfilco (Dole)	Banana	None	
	Nova Vista (Marsman)	Banana	None	
	Farmington (Lapanday)	Banana	None	
	Valderrama Lumber	Logging/Wood Processing	None	
	Consolidated Plywood, Inc.	Wood Processing	None	
Super Plywood Corp.	Wood Processing	None		
DAVAO ORIENTAL	Menzi Agricultural Corp.	Citrus, Cashew	None	
	Benguet Management Corp.	Cacao under Coconut (Drip-irrigated)	None	
	Nestle Phil., Inc.	Soybean	Yes, No Info *	
	Interco	Coconut Processing	None	
	Norcamco	Wood Processing	None	
DAVAO DEL SUR	DACON	Coconut, Cacao, Coffee, Fruits Fruit Processing, Cattle Raising		
	Philippine Cocoa Estates Corp.	Cacao under Coconut (Drip-irrigated)	None	
	JVA Cutflowers, Inc.	Cutflowers		
	Fuentespina Farms	Orchids	No Info	
	Dealing Orchids	Orchids	No Info	
	Davao Sugar Central, Inc.	Sugar	Yes, No Info	
	Cocoa Investors, Inc.	Cacao under Coconut	None	
	Guihing Agri. & Dev. Corp.	Banana	No Info	
	Nestle Philippines, Inc.	Soybean	Yes, No Info *	
	Franklin Baker	Dessicated Coconut	None	
	Aqua Cultural Corp.	Prawns	None	
Eduardo Cojuangco, Jr. (ECJ)	Prawns	None		
Balete Farms (ECJ)	Cacao under Coconut	None		

* Total for 3 Provinces : 400 ha

TABLE 21. KEY PLAYERS IN AGRIBUSINESS IN SOUTHERN MINDANAO, BY PROVINCE/CITY (Continued - 2)

PROVINCE/CITY	COMPANY	PRODUCT LINES	OUTGROWERS	
			Number	Area
DAVAO CITY	Davao Fruits Corp.	Banana	None	
		Cacao	about 300	n/a
	Lapanday Agri. Dev. Corp.	Banana	No Info	
	Eden Enterprises	Fruits (Durian, etc)	None	
	AMS Farming	Bananas		
	Philippine Cocoa Estates Corp.	Cacao under Coconut (Drip-irrigated)	None	
	Crown Fruits Corp.	Pineapples	No Info	
	R7M Corp.	Chicken Broilers	58	600,000 birds
	Vitarich Corp.	Chicken Broilers, Feeds, Eggs, Hatchery	No Info	
	Nenita Farms	Hogs	None	
	Legaspi Oil	Coconut Oil	None	
	Phil-Japan Activated Carbon	Activated Carbon	None	
	Davao Central Chem. Corp.	Activated Carbon	None	
	Interco	Coconut Oil Processing	None	
	Mindanao Oil Co.	Coconut Oil Processing	None	
	TAG Fibers, Inc.	Ramie Degumming	None	
	Alcantara & Sons	Logging/Veneer & Plywood	None	
	Davao Plywood Co., Inc.	Logging/Veneer & Plywood	None	
	Earsun Co., Ltd.	Logging/Lumber	None	
	Pacific Oil Corp.	Coconut Oil Processing/Cooking Oil	None	
	Sta. Clara Housing & Ind'l.	Logging/Plywood	None	
	Pepsi Cola Bottling (Lapanday)	Softdrinks	None	
	Coca-Cola Bottling	Softdrinks	None	
	San Miguel Corp.	Ice Cream/Fruit Juices	None	
	Cosmos Bottling (RFM Corp.)	Softdrinks	None	
	Cam & Sons	Piggery/Meat Products	None	
	JVA Aquaculture	Prawns	None	
	Davao Rope Factory	Abaca Rope	None	
Mintrade	Logging/Wood Products	None		
Maguindanao Timber, Inc.	Logging/Wood Products	None		
SOUTH COTABATO	Nestle Phil., Inc.	Soybean	300	n/a
	Ayala Agri. Dev. Corp.	Hybrid Corn Seeds	about 300	about 350 ha
	Dole Philippines, Inc.	Banana	Yes, No Info	
		Fruit Juices	None	
		Asparagus	about 200	about 200 ha
		Prawn Hatchery & Culture	30-40	1,000 ha
		Cutflowers & Ornamentals	Planned	
	Saranggani Agri. Corp.	Cattle	Yes, No Info	
		Fruits (Pomelo & Banana)	None	
	Bibiara Farms	Hogs	None	
	Monterey Farms	Cattle	None	
	Purefoods Corp.	Tuna Canning & Cold Storage	None	
	Sta. Monica Canning Corp.	Tuna Canning & Cold Storage	None	
Ansa Farms	Cattle Raising	None		
Phil. Cotton Corp.	Cotton Ginning	None		

TABLE 21. KEY PLAYERS IN AGRIBUSINESS IN SOUTHERN MINDANAO, BY PROVINCE/CITY (Continued - 3)

PROVINCE/CITY	COMPANY	PRODUCT LINES	OUTGROWERS	
			Number	Area
SURIGAO DEL SUR	Paper Industries Corp. of the Phil. (PICOP)	Softwood	about 5,000	about 16,000 ha
	Nestle Phil., Inc.	Soybean	about 1,000	about 1,000 ha
	Surigao Dev. Corp.	Logging/Wood Products	None	
	Ventura Timber Corp.	Logging/Wood Products	None	
	Summit Timber Dev. Corp.	Logging/Wood Products	None	
	Aras-Asan Timber Co.	Logging/Wood Products	None	
	Anchorage Wood Ind., Inc.	Logging/Wood Products	None	
	Lianga Bay Logging Co., Inc.	Logging/Wood Products	None	
OUTSIDE THE REGION (But Economically-Influenced)				
AGUSAN DEL SUR (Region 10)	NDC-Guthrie Estates, Inc. *	Oil Palm - 4,000 ha	None	
		Palm Oil Processing	None	
	NDC-Guthrie Plantations, Inc. *	Oil Palm - 4,000 ha	None	
		Palm Oil Processing	None	
JER Rubber Dev. Corp. (DACON Group)	Rubber Planting/Processing	None		
NORTH COTABATO (Region 12)	Philtread Tire & Rubber (formerly Firestone) **	Rubber Plantations - 1,000 ha	None	
		Rubber Processing	None	
SULTAN KUDARAT (Region 12)	Kenram Phil., Inc.***	Oil Palm - 1,000 ha	35	3,000 ha
		Palm Oil Processing		
	DACON Group	Logging/Wood Processing	None	
		Coffee Plantation	None	
Sarmiento Group	Logging/Wood Processing	None		

* About 60-70 km from Davao del Norte boundary

** About 30 km from Davao del Sur boundary

*** Near South Cotabato boundary

Source : CRC Agribusiness Unit Data Bank

TABLE 22. SELECTED EXPORT COMMODITIES : KEY COUNTRY PLAYERS
1988

COMMODITY	MAJOR PRODUCING COUNTRIES [a]		MAJOR EXPORTING COUNTRIES [a]	
COPRA/ COCONUT OIL	Philippines	(43%)	Philippines	(66%)
	Indonesia	(26%)	Malaysia	(3%)
	India	(8%)	Sri Lanka	(2%)
COFFEE	Brazil	35%	Brazil	(28%)
	Colombia	(12%)	Colombia	(15%)
	Indonesia	(6%)	Indonesia	(7%)
	Ivory Coast	(5%)	Ivory Coast	(6%)
			Philippines	[b]
CACAO	Ivory Coast	(30%)	Ivory Coast	(30%)
	Brazil	(19%)	Brazil	(19%)
	Ghana	(10%)	Ghana	(10%)
	Malaysia	(10%)	Malaysia	(10%)
			Philippines	[c]
BANANA	No Data		Ecuador	(19%)
			Costa Rica	(12%)
			Honduras	(12%)
			Colombia	(12%)
			Philippines [d]	(10%)
RUBBER	Malaysia	(34%)	Malaysia	(42%)
	Indonesia	(23%)	Indonesia	(26%)
	Thailand	(18%)	Thailand	(20%)
	India	(5%)	Sri Lanka	(3%)
	China	(4%)		
	Sri Lanka	(3%)		
BLACK PEPPER	No Data		Indonesia	(30%)
			Brazil	(22%)
			India	(22%)
			Malaysia	(18%)

- [a] World Share in parenthesis
 [b] 0.8% of Total World Exports
 [c] Minor Producer/Exporter
 [d] Has 80%-90% of the Japanese Market

Note: The above are the author's estimates.

TABLE 23. MARKET PERFORMANCE AND PROSPECTS FOR EXPORT
COMMODITIES

COMMODITY	World Imports: Average Annual Growth		World Bank Price Forecasts	
	1970-1986 (Actual)	1987-2000 (Projected)	1995 (US \$ Per Ton)	2000
COCONUT (Oil Equivalent)	0.7%	0.7%	769	847
COFFEE	1.4%	1.1%	2,210 [a]	2,790 [a]
CACAO	1.8%	1.9%	1,880	2,600
BANANA (Cavendish)	1.0%	1.1%	561	657
NATURAL RUBBER	1.3%	2.0%	2,007	2,391
PALM OIL	10.8%	4.4%	592	671
PRAWNS [b]	No data	2.0-3.0%	-	-
BLACK PEPPER [b]	3.0-4.0%	3.0-4.0%	-	-

[a] Mild Arabica Price less 40% Discount

[b] Author's Estimates

Source: World Bank, Price Prospects for Major Primary Commodities, November 1988.

Note: The WorldBank's price projections are confidential and are intended for the private use of USAID only.

TABLE 24. DOMESTIC DEMAND PERFORMANCE AND PROSPECTS
FOR SELECTED COMMODITIES

COMMODITY	<u>Average Annual Growth</u>	
	1980-1989 (Actual)	1990-2000 (Projected)
RICE	3.1%	3.0%-3.5%
CORN	3.8%	5.0%-6.0%
POULTRY	7.8%	5.0%-6.0%
HOGS	4.2%	4.0%-5.0%
BEEF	No Data	5.0%-6.0%

Source: Bureau of Agricultural Statistics (BAS)

Note: Projections are author's estimates.

ANNEX D

LIST OF PERSONS MET/PERSONAL CONVERSATIONS

Persons Met During Mission:

Jose Cam : Executive Director
Kauswagan sa Timog Mindanao Foundation
(Southern Mindanao Development Foundation)

Luis Goduco : Director for Industrial Relations
Dole Philippines, Inc

Antonio Laurel : President
Ayala Agricultural Development Corporation

Diego Locsin : Senior Vice President
Sime Darby Pilipinas
(Managers, Philippine Cocoa Estates Corp)

Dave Santos : Manager, Agricultural Services
Nestle Philippines, Inc.

Personal Conversations in Recent Past:
(On Related Subjects)

Onofre Grino : President
Menzi Agricultural Development Corp
President
Federation of Rubber Growers

Hector Quesada : President
NDC-Guthrie Estates, Inc.
NDC-Guthrie Plantations, Inc.

Carlos Dominguez: Former Secretary
Department of Agriculture
Presently: Chairman
Republic Planters Bank

Manuel Lim : President
JVA Management Corp.

Daniel Lacson, Jr: Governor
Negros Occidental
Prawn and Sugar Farmer