

PN-ARL-987
78791

COOPERATIVE AGREEMENT ON SETTLEMENT AND RESOURCE SYSTEMS ANALYSIS

THE CORN MARKETING SYSTEM --
A RAPID MARKETING APPRAISAL IN THE BICOL REGION OF THE PHILIPPINES

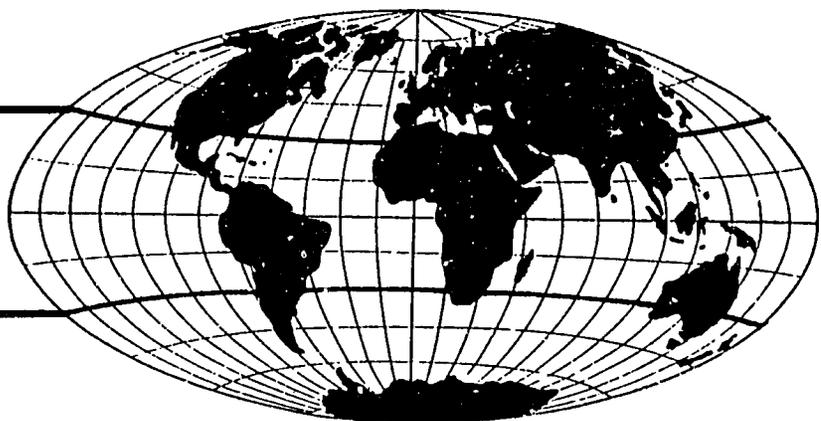
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Settlement and Resource Systems Analysis (SARSA)
Cooperative Agreement -- USAID
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April 1987

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PREFACE

This report reflects the results of one in a series of studies based on the application of the "Marketing Assessment Methodology" in Asia. In mid-1985 the Rainfed Resources Development Project (RRDP), a Ministry of Agriculture and Food (MAF) of the Philippines and USAID/Manila project, began assessment studies of the corn, sweet potato, and pineapple commodity systems in the Bicol Region.

The technical assistance for the development and introduction of this innovative approach to agricultural marketing research was provided to the RRDP by the Small Farmer Marketing Access Project (SFMA) of USAID/Washington during the initial design and preparation stages. In September-November, 1985 the Asia Bureau of USAID/Washington financed the technical assistance for the initial field work in these assessments. Subsequently, in June-July 1986 the Settlements and Resource Systems Analysis Project (SARSA) of USAID/Washington and Winrock International (contractor for RRDP) provided the technical assistance support for the follow-up phase for corn and the initial study phases on the coffee commodity system. The MAF at the regional and national levels, together with other government agencies, deputed several of their staff as members of the assessment teams in the various stages of the studies.

After the field team collected, tabulated, analyzed, and presented the information on the corn commodity system, a draft report was written. This interim report on the findings and progress to-date on the corn assessment is sponsored by the SARSA project.

ACKNOWLEDGEMENTS

The author would like to thank the Rapid Marketing Appraisal team members; Antonio Celino who provided the overall leadership for the team; Teresita Planas and Lydia Martinez, the members of the Market Assistance Program (MAP) core staff, who contributed time and insights for this effort; Yolanda Fajardo and Jose General who drafted much of the original materials; and Bernardo Asitre and Teodoro Competente, who endured the trials and perils of collecting information during this volatile period.

The administrative and logistical support of Rachel Quero and Rosa Calilung provided by the Ministry of Agriculture and Food (MAF) through the Agricultural Projects Preparation Unit and Roger Perez and Inocencio Bolo of the Farming Systems Research and Development Project - Regional Integrated Agricultural Research Systems (FSRDP - RIARS) are very much appreciated. Acknowledgement is also given for the additional insights on the market collapse, National Food Authority (NFA) procurement procedures, the Expanded Corn Production (ECP) program, and trader credit as provided by Rachel Quero, Virgilio Monge, Ma. Isabel Barlaan, and Teresita Planas, respectively. Since the team members did not have the opportunity to review this text, the usual disclaimer applies, i.e., they are not responsible for what the author has written here.

EXECUTIVE SUMMARY

While Bicol is not among the major corn producing regions of the Philippines, corn does rank third in terms of crop production for this region. Its role includes being an important source of regional income when shipped to buyers in Manila, Bulacan, and Batangas and a valuable source of raw material for the expanding, local feedmill industry. The focus of this study is on yellow corn which constitutes the bulk of the region's corn production and is the major commercial form of corn. Demand for fresh yellow corn as snack food and other uses is very small in comparison to feed uses. Since white corn is primarily grown for household food use and its production area is largely confined to the island of Masbate, it was not included in this commodity assessment.

This report is the initial paper in a series based on the first application of a Marketing Assessment in the Philippines. Key questions at this point include: who are the marketing participants in this commodity system; how and why the system is organized and operating as it is; and what is inhibiting the expansion of corn production in this region given the strong market demand? The descriptive overview of this system and the initial diagnosis of its problems are presented according to following components of the Bicol corn system:

- technical characteristics of the crop and commodity,
- demand patterns,
- marketing system organization and spatial network,
- marketing system operation,
- economics of marketing system,
- infrastructure, and
- institutions and power.

Technical Characteristics of the Crop and Commodity

Technical characteristics of this crop/commodity which particularly affect the ability of the system to respond to the strong feed demand for yellow corn were the type of variety and seasonality. Hybrid varieties with an expensive package of practices were promoted by the government's Expanded Corn Production (ECP) program as the technological key to rapid expansion of domestic corn production as a substitute for the ever-increasing imports of corn. Yet, hybrid corn's vulnerability to unfavorable agro-climatic conditions common to Bicol during the rainy season and its requirement for high levels of cash inputs (seed, fertilizer, and pesticides) which are too expensive for most farmers during the current economic crisis, have resulted in its declining use in the Bicol Region, especially during the rainy season. Thus, improved open-pollinated varieties will have to take the lead in short run efforts to expand production in this region.

Seasonal concentration of harvests during March-April and August-September in addition to a relatively short-term storage period of two or so months for semi-dry corn causes a "shortage period" in the corn market from December to February for much of the Philippines. During this period, demand pressures from an emerging oligopolistic feed milling/animal raising industry have widened the doors to large scale imports. The most vocal demand for imports comes from the five large "Integrators" whose feedmilling, poultry/hog raising, and meat processing technologies are very modern and large-scale. They argue that corn imports are cheaper and more efficient to handle, i.e., more technologically compatible because imports are handled in bulk whereas the domestic market trades in bagged corn.

Demand Patterns

The dominant demand for Bicol corn comes from the large Integrators mentioned above. They are located in Manila, Batangas, and Bulacan. Demand also comes from a wide range of large feed millers and poultry/hog raisers north of Bicol. In Bicol there are five feedmills and several medium-scale poultry/hog raisers as well as hundreds of smaller commercial and thousands of backyard poultry/hog raisers who compete for local corn.

Marketing System Organization and Spatial Network

The regional marketing system is organized into three main sub-systems: a) the hierarchy of local traders based on numerous small compradors (traders) in the barangays (villages) and extending to the few large regional compradors who have written contracts with buyers outside the region; b) the viajeros or itinerant traders who bring truck loads of goods to the region and procure corn to fill their trucks as backhaul for large buyers North of Bicol; and c) the National Food Authority whose mandate to procure corn at the support price was invoked during the price collapse in August, 1985. Production credit, cash advances, and trust bind the local hierarchy of traders and farmers together, whereas most viajeros use only "price" to compete for corn from farmers or farm level traders. At the national level, the oligopoly of five Integrators is beginning to create procurement forces that will influence the organization of Bicol's corn system.

Marketing System Operation

The marketing system operates fairly well, meaning it rapidly procures the harvest, assembles and ships most of it outside the region, and meets the basic requirements of local feed mills and poultry/hog raisers. The high moisture

content of grain and occasionally impassable farm to market roads during the rainy season increase the costs of drying and losses from storage but do not seem to impose severe hardships on market participants.

Economics of Marketing System

The basic economic considerations were the price formation process and the structure of costs and returns. For farmers, the production costs and returns for corn were less favorable during the rainy season than in the dry season, and some incurred cash losses from their crop of hybrid corn during the rainy season. Traders, on the other hand, used volume discounts to account for quality differences between seasons to avoid serious operating losses. No indications of large margins were found in the sample.

Price discovery at various levels in the hierarchy occurs with reference to a few large, regional compradors who are considered "price barometers." Their daily posted price reflects pending contracts and an understanding of prevailing supply/demand conditions in Manila and its surrounding areas. These prices serve as "reference prices" for most local buyers. The bid price of viajeros is generally 5-10 centavos/kg above the reference price and consequently competes with the hierarchical system. Prices established through this system have been considered adequate by most farmers until the recent market collapse.

During August, 1985 the market price collapsed when a delay in shipments caused the warehouses of the large Integrators to be filled with imported corn during the major domestic harvest period. These Integrators stopped buying domestic corn, many viajeros no longer came to Bicol, and the regional compradors tried to restrict procurement only to their suki (persons with whom regular trading was done over time). Most compradors were caught by surprise,

withdrew from the market, and only entered after new buyers could be located. Consequently, the price fell from around 3 pesos/kg at the farm level to as low as 1.70 pesos/kg in some locations, with few compradors even buying at that price. When the National Food Authority finally entered the market at its 2.90 pesos/kg support price and different outside buyers began purchasing this cheap corn, the market price gradually recovered.

Infrastructure

Among several aspects of infrastructure that are important for the corn system in Bicol, the transportation network is the most crucial. The degree of barangay accessibility not only influenced transportation costs but also the presence of competing buyers and thereby the farmgate prices. Another aspect of infrastructure, the telephone network, is not functioning well, thus radio transceivers are the large compradors primary means of communicating with distant, prospective buyers on a daily basis. These transceivers may inhibit other traders access to more timely price information and thus adversely affect market transparency.

Institutions and Power

The institution/power dimension is very complex due to the interactions of: a) several different, sometimes conflicting, government interventions; b) the changing structure of the feedmilling industry; and c) the "hard times" confronting farmers and some local traders.

At the national level, the government's import policy and implementation procedures were unclear and unevenly applied: the floor price scheme as implemented by NFA had inadequate support; and the corn expansion program was designed and directed from the central level with little leeway for the unique

conditions in each region. The emerging oligopoly of feed millers had grown in power and influence and required services, such as bulking, which were not available in the domestic marketing system, thus creating strong reasons for more imports. With the additional responsibility to provide credit to farmers within the ECP program, the National Food Authority's activities had diversified so far beyond its original mandate, manpower, and resources that serious implementation problems arose.

At the regional level, the implementation of the corn promotion program, the floor price scheme of the NFA, and the worsening credit situation affecting many farmers require further attention. The design and implementation of the ECP program raised such questions as: a) What is the advisability of promoting an expensive, fragile technology, like hybrids, in a region with many poor farmers and erratic weather during the rainy season and many poor farmers? b) How effective can an overextended, non-credit institution such as NFA, be in providing and recovering farmer credit? and c) What scale of implementation, i.e., number of active participants, is adequate to achieve the targeted expansion?

The floor price scheme, as applied at the regional level by the NFA, presented two serious implementation questions:

a) Can a procurement scheme be effective in a region such as Bicol when it includes:

- i) requiring farmer passbooks;
- ii) giving farmers the responsibility to transport their corn to the few NFA buying centers;
- iii) establishing a new transaction scheme of price rather than volume discounting for high moisture content; and
- iv) paying by check rather than cash for values beyond a certain amount?

b) How many and what types of farmers can this procurement scheme actually reach?

The worsening farmer credit situation is a product of these uncertain times in Bicol. Farmers are living with a serious peace and order situation (restricted movement, informal taxes, incursions of combatants, etc.), experiencing sharp reductions in income as prices of their main crops continued to drop or have no buyers (coconut, abaca, and sugar cane), and beginning to default on comprador loans in an effort to "make ends meet." Several compradors are likewise caught in those first two conditions, to some extent, and are losing money as more farmers default on loans. Thus, there is little likelihood that they will be willing/able to extend the same levels of credit in the near future as their base of working capital erodes. The pervasiveness and consequences of this pattern of change are difficult to know or anticipate.

In conclusion, the corn marketing system has not been effective in stimulating a rapid expansion in corn production in Bicol for a wide variety of inter-related reasons. The economic depression and political instability in the region make such a task especially difficult, while inconsistent policies/interventions, unstable farmgate prices, and an inappropriate crop promotion program eliminate most chances of accomplishing that task. A major question is what government import policies/implementation procedures are consistent with programs to expand and support domestic production while providing price stability during the peak harvest period? Another question is whether bulk handling facilities at key ports and/or related transportation vehicles are needed to service the large Integrators and thereby reduce pressures for more imports? Likewise, is the expansion of regional or national level storage capacity feasible and warranted to handle periodic domestic surpluses? Also, how can a crop promotion program interface with input and output marketing realities and can credit to local compradors, a key part of that reality, be an effective component of that program? The prioritization of these and related

questions will be the starting point for Phase III's focused, in-depth research.

I. INTRODUCTION

This report is an output of the Rapid Marketing Appraisal (RMA) approach as implemented in the Philippines. Its four interrelated sections are: a) the background to the country, region, and crop/commodity; b) the research design; c) the overview and problems/constraints of the corn system; and d) an agenda for research and action. However, first it is important to explain the conceptual framework for and the features of the RMA approach as applied in research environments where vital information is relatively scarce or difficult to obtain.

1.0 Systems Framework

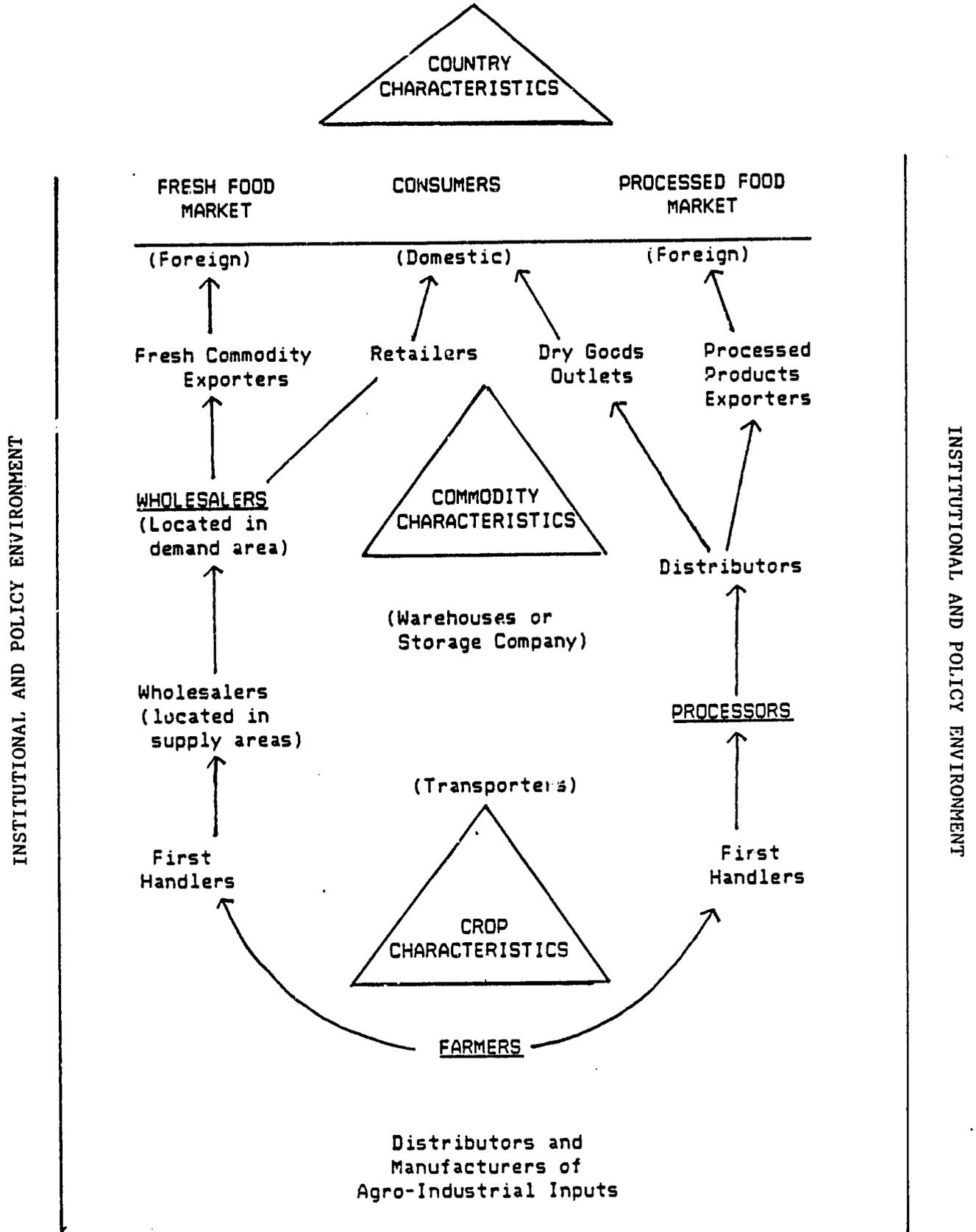
The "systems framework" is envisioned as flexible and able to utilize a wide range of data gathering and analytical approaches as conditioned by the time, personnel, and resource constraints encountered within each research environment. According to Cox, "What's needed ... is a simplified systems approach that, while less than perfect, would allow the planners to view the whole system so that a large number of variables and their interactions can be considered simultaneously."¹ A schematic representation of the marketing participants within this systems framework is shown in Figure 1.

The analytical approach used within that general framework is an adapted version of the Structure-Conduct-Performance (SCP) paradigm which was developed by industrial organization theorists and applied primarily within the United

¹ Cox, M.L., "A Simplified Approach to Agricultural Systems," International Agricultural Development Service, New York, NY; 1979.

FIGURE 1

ILLUSTRATION OF SYSTEM PARTICIPANTS IN AN AGRICULTURAL PRODUCTION-DISTRIBUTION - PROCESSING - CONSUMPTION SYSTEM



States. The RMA adaptation attempts to operationalize that paradigm under developing country research conditions by asking such questions as:

- a) How is a commodity system organized (such as the types, number and size distribution of firms within the processed products and/or fresh commodity branch of the commodity system)?
- b) What are the marketing operations and how do they take place within the system (such as the transformation/coordination functions ranging from input production/distribution to final consumption and including managing risks)?
- c) What outcomes occur relative to those outcomes most desired?

The examination of the commodity system includes the research components of a Marketing Appraisal Wheel (Figure 2). The symbol of a "wheel" represents the sequential and often iterative, research process needed for the RMA approach because the knowledge and understanding of the system is often gained through repeated examination of information and insights as the investigation progresses beyond descriptive facts into motives and incentives for behavior. The research components of the wheel include the following:

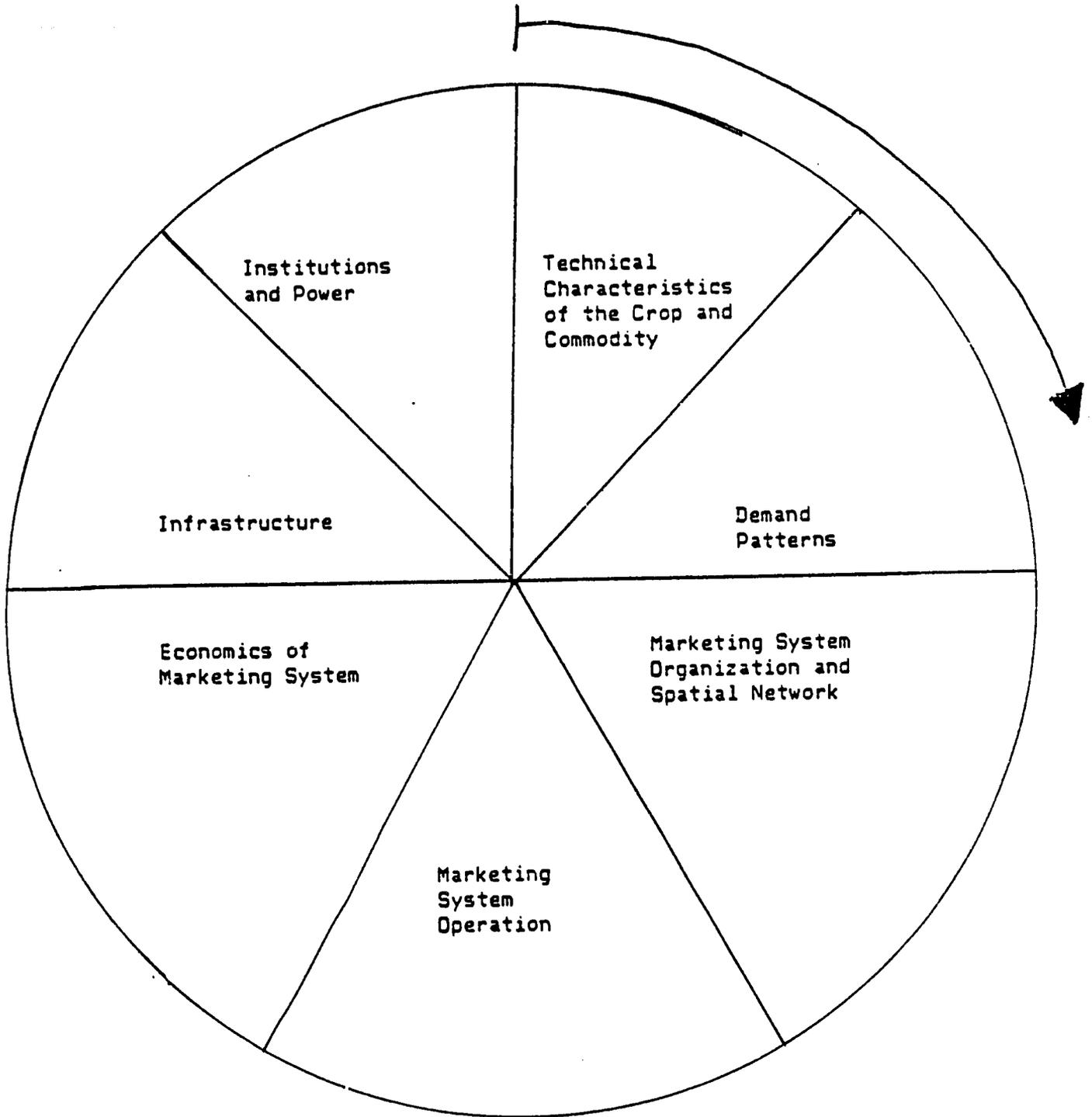
- a) technical characteristics of the crop and commodity,
- b) demand patterns,
- c) marketing system organization and spatial network,
- d) marketing system operation,
- e) economics of marketing system,
- f) infrastructure, and
- g) institutions and power.

2.0 Rapid Marketing Appraisal

A Rapid Marketing Appraisal is an inter-disciplinary research technique to be completed within a relatively short period and designed to provide an overview of the organization, operation, and outcomes of a commodity system in

FIGURE 2

COMPONENTS OF A MARKETING APPRAISAL WHEEL



(Adapted From)
SOURCE: Small Farmer Marketing Access Project Team

action. A primary objective is to identify problems, constraints, and opportunities for improved outcomes. Its main features include: a) the active involvement of marketing participants, host country research/action professionals, and key informants in the research process; b) a manageable research agenda, given the time and resource constraints commonly encountered by research/action organizations and agencies; and c) a balance of dynamic and static perspectives of the commodity system components examined.

Participation

Active participation of host country professionals (preferably a balance of researchers and personnel from action agencies) in the RMA team is critical for access to information, interpretation of behavior and events in terms of the local ways-of-doing-things, and commitments for follow-up actions based on the research. That participation begins with the formation of a "review or advisory committee" of interested persons from relevant institutions or other local groups, for example, officials of the Ministry of Agriculture and members of the Chamber of Commerce. Such a committee insures the recognition of local priorities, the widespread awareness of this research effort, the identification and access to prior studies, and the alignment of output expectations with the level and quality of research inputs. It also serves as a foundation for informed critiques, rapid distribution, and effective use of the findings.

Interviews with marketing participants and key informants who are knowledgeable about the inner workings of the marketing system provide vital information and insights regarding the existing system as well as feasible and desirable changes that could improve outcomes. These interviews also improve the communication process and expand the interest base among participants whose support may be crucial for subsequent corrective actions and/or interventions.

In short, this approach to marketing research endorses not only "market-orientation" but also "people-orientation." "People" meaning not only researchers/change agents who attempt to understand and improve the outcomes of the agricultural commodity systems being investigated but also the marketing participants in that system who benefit or lose because of the resultant changes and/or interventions.

Manageable

Research which is "manageable," given the many constraints often encountered in a specific research environment, is urgently needed. Data intensive, long-term, high cost, and generalized research often do not meet the specific needs of policymakers, project managers, and/or managers of firms who must decide strategies, programs, projects, and policies now, not two to three years from now. The RMA technique should not only meet the demands of the aforementioned persons but also can serve as a starting-point for researchers who are searching for an orientation to longer term, yet relevant, in-depth research. To meet those demands, the types of information needed and the investigation process should be spelled out; specifically adapted to local research environments via intensive, preparatory workshops/training sessions; and implemented by interested, skilled investigators.

The geographic boundary for a RMA would usually be a region or sub-area within a country. The time frame would include: a) about 1-2 weeks of preparatory sessions; b) 4-5 weeks of field trips and intensive interviews; and c) 2-3 weeks of analysis, write-up sessions, presentations, and draft report. Variations in this schedule depend on such factors as, the terrain, logistical support, heterogeneity of the research environment, knowledge and skill of the team members, and type of commodity.

The expertise of the interdisciplinary team will directly affect the quality and timing of the output. A team consisting of an agricultural marketing specialist/agricultural economist, post harvest specialist, economic anthropologist (economic geographer), and plant scientist (extensionist) would be ideal but is seldom available. Skills in observation and in communicating with a wide variety of people, experience in survey work, and an understanding of marketing systems research are desirable.

Balanced Perspectives

An understanding of how and why a specific commodity system is organized and operates as it does and insights into the expected outcomes require a balanced interpretation of variables from dynamic and static perspectives. Historical and seasonal factors tell us much about how the system arrived at this point in time while spatial, form, and ownership patterns recount where the system presently is in its evolution.

In summary, the social-economic-political forces affecting a commodity system, generally condition the direction of changes to come unless major events realign such forces. In this rapid appraisal there is only time to examine proxies for those forces and solicit insights/judgments from key informants rather than collect more objective, quantifiable measurements and apply refined models. Yet, decision-makers confronted with serious time, personnel, and resource constraints can rely on those proxies or indicators as a **first approximation** of present conditions and likely future changes. As more information becomes available that approximation can be improved.

II. BACKGROUND

1.0 Country

The Philippines, one of the largest island groups in the world with 7,100 islands, lies 966 kilometers off the southern coast of Asia. The greatest breadth east to west is 1,107 kilometers. The archipelago is bounded in the west by the South China Sea, in the east by the Pacific Ocean, in the south by the Sulu and Celebes Seas and in the north by the Bashi Channel.

The total land area of the archipelago is approximately 300,000 square kilometers. The Philippines is divided into three major island groups: (a) Luzon, with an area of 141,395 square kilometers; (b) Visayas with 56,606 square kilometers; and (c) Mindanao with 101,999 square kilometers. This area is divided into 72 provinces.

This medium-sized country with approximately 48 million people in 1980 and a moderate rate of population growth (2.78 percent between 1975-80) has been encountering serious economic problems in recent years. The unfavorable terms of trade, worsening balance of payments, weakening export markets for principal agricultural commodities, recently high interest rates, and the like have severely depressed the economy by the mid-1980s.

A consequence of this situation is that the rural areas have been especially depressed with few prospects for significant improvement in the near future. Such conditions have contributed to political unrest and conflicts which further heighten the risks and uncertainties of making major investments in these areas. New opportunities to revive the agricultural sector are urgently needed.

2.0 Region

The Bicol Region is located southeast of the nation's capital, Manila (Map 1) and is comprised of six provinces: Albay, Camarines Norte, Camarines Sur, Catanduanes, Masbate, and Sorsogon. It is among the poorest regions, as measured by GDP per capita, is one of the smallest in terms of land area, and has a population density ranking fourth among all regions. The 1980 Census of Population and Housing reported Bicol's population at about 3.5 million with about 920,000 of its adults (15 years and over) gainfully employed. Sixty-five percent or approximately 600,000 are employed in agriculture, fishery, and forestry.

The major crops of the Bicol Region, in terms of area planted in 1983, are coconut, rice, corn, abaca, sweet potato and cassava, respectively (Table 1). Coconut covered a total area of 335 thousand hectares, or about 19 percent of total regional land area. Area planted to rice was estimated at 275 thousand hectares, or 15.6 percent of total land area. The third major crop is corn with over 155 thousand hectares. It is cultivated as either a primary or secondary crop, i.e., after rice in rainfed and upland areas, or intercropped with permanent crops, such as coconut.

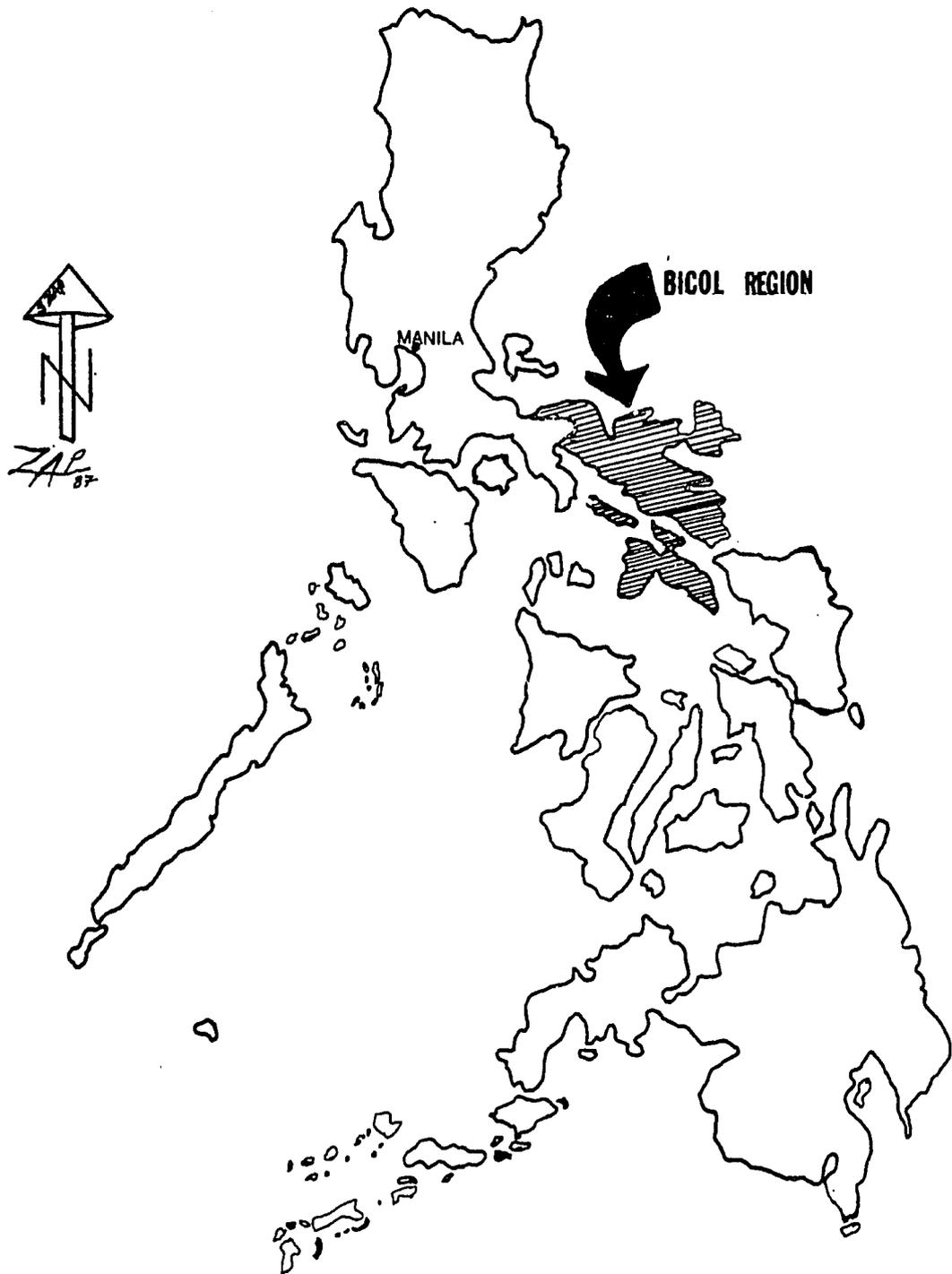
Abaca, a traditional export crop, exhibits a decline in area planted primarily because of the uncontrolled spread of Abaca Mosaic and Bunchy Top diseases plus a depressed world market price. As of 1983, area planted to abaca was only about 63 thousand hectares.

Area planted to sweet potato and cassava was estimated at 35 and 32 thousand hectares, respectively. Sweet potato is consumed by households, mainly as a substitute for cereals, especially during lean months. Cassava, on the other hand, is processed into starch.

MAP 1

THE PHILIPPINES:

Showing The Location Of The Bicol Region



Source: Adapted from "Spatial Planning and Rural Settlements Access to Services and Facilities: Methods and Applications in the Philippines (Bicol River Basin Study)" by E.I. Astillero.

TABLE 1

SIX LEADING CROPS IN TERMS OF AREA PLANTED, BICOL REGION: 1979-1983
(in thousand hectares)

| CROP | 1979 | | 1980 | | 1981 | | 1982 | | 1983 | |
|-----------------|--------|------|--------|------|--------|------|--------|------|--------|------|
| | Number | Rank |
| 1. Coconut | 273.80 | 2 | 353.10 | 1 | 353.50 | 1 | 329.90 | 1 | 335.00 | 1 |
| 2. Rice | 293.60 | 1 | 329.42 | 2 | 307.93 | 2 | 301.75 | 2 | 275.06 | 2 |
| 3. Corn | 160.04 | 3 | 163.77 | 3 | 179.04 | 3 | 164.21 | 3 | 155.16 | 3 |
| 4. Abaca | 88.60 | 4 | 91.27 | 4 | 96.10 | 4 | 81.45 | 4 | 62.60 | 4 |
| 5. Sweet Potato | 37.74 | 5 | 38.78 | 5 | 40.57 | 5 | 36.74 | 5 | 34.95 | 5 |
| 6. Cassava | 28.82 | 6 | 32.44 | 6 | 33.32 | 6 | 32.20 | 6 | 31.97 | 6 |

Source: Bureau of Agricultural Economics (BAEcon)

The major livestock and poultry raised in the Bicol Region are chicken, hog, carabao, duck, cattle, and goat. Production of animals which are highly dependent on commercial feeds tends to fluctuate in response to prices of feeds and market prices of dressed animals.

The population of carabao, duck, and goats, however, shows a rising trend primarily because these are less dependent on commercial feeds (Table 2). In fact, they normally are fed with grasses, crop by-products or waste, and other food sources not requiring cash outlays from the growers.

The Bicol Region has a total land area of 1,763,250 hectares. Based on the NCSO 1981 Census of Agriculture, about 945,534 hectares were classified as farm areas representing 53.6 percent of total regional land area (Table 3). Of the total farm area, land under permanent crops accounted for the highest share at 57.3 percent, or 542,122 hectares. Arable land, or area planted to temporary crops accounted for 30 percent, while area under permanent meadows and pastures accounted for 8 percent. The remaining 44,718 hectares or 4.7 percent, were classified under all other lands. In other words, land under permanent crops accounts for the largest share of total farm area, whereas temporary crops (annuals) occupy slightly over half as much farm land.

A preliminary estimate in the same census reported approximately 404,549 households (excluding Catanduanes) engaged in farming with an average of 5.75 persons per household and 0.3503 hectares per person of cropped land.

Within the Bicol River Basin Development Program Area approximately 47 percent of arable land planted to annual crops is irrigated. In absolute terms, irrigated area in the program area is estimated at 79,714 hectares of which 44,505 hectares are in Camarines Sur, 21,351 hectares in Albay and 13,858 hectares in Sorsogon.

TABLE 2

SIX LEADING LIVESTOCK AND POULTRY IN TERMS OF POPULATION, BICOL REGION: 1979-1983
(in thousand heads)

| ANIMAL | 1979 | | 1980 | | 1981 | | 1982 | | 1983 | |
|------------|---------|------|---------|------|---------|------|---------|------|---------|------|
| | Number | Rank |
| 1. Chicken | 2,977.2 | 1 | 3,720.3 | 1 | 2,971.9 | 1 | 2,885.6 | 1 | 3,312.1 | 1 |
| 2. Swine | 577.3 | 2 | 577.3 | 2 | 577.0 | 2 | 575.3 | 2 | 558.9 | 2 |
| 3. Carabao | 228.1 | 3 | 257.6 | 3 | 249.9 | 3 | 247.7 | 3 | 256.7 | 4 |
| 4. Duck | 195.3 | 4 | 248.9 | 4 | 184.0 | 4 | 196.7 | 4 | 280.6 | 3 |
| 5. Cattle | 112.4 | 5 | 131.8 | 5 | 115.7 | 5 | 117.5 | 5 | 116.3 | 5 |
| 6. Goat | 36.0 | 6 | 49.4 | 6 | 53.9 | 6 | 66.0 | 6 | 76.4 | 6 |

Source: BAEcon

TABLE 3

AREA OF FARMS BY LAND USE, BY PROVINCE
BICOL REGION: 1980

| LOCATION | Total Land Area in Hectares | L A N D U S E | | | | | Cropped Land Per Person (in Ha.) ^a |
|-----------------|-----------------------------|------------------|------------------|----------------------------|---|-----------------|---|
| | | Total Farm Area | Arable Land | Land Under Permanent Crops | Land Under Permanent Meadows and Pastures | All Other Lands | |
| PHILIPPINES | <u>30,000,000</u> | <u>9,034,354</u> | <u>4,487,679</u> | <u>3,313,054</u> | <u>610,125</u> | <u>623,496</u> | n.d.a. ^b |
| BICOL REGION | <u>1,763,250</u> | <u>945,535</u> | <u>282,982</u> | <u>542,112</u> | <u>75,721</u> | <u>44,717</u> | <u>0.3503^c</u> |
| Albay | 255,260 | 145,099 | 46,713 | 89,866 | 2,976 | 5,545 | 0.2263 |
| Camarines Norte | 211,250 | 106,469 | 14,556 | 84,201 | 2,982 | 4,729 | 0.4856 |
| Camarines Sur | 526,680 | 260,890 | 100,387 | 140,533 | 14,761 | 5,208 | 0.2915 |
| Catanduanes | 151,150 | 40,581 | 12,441 | 23,256 | 3,134 | 1,748 | n.d.a. ^b |
| Masbate | 404,770 | 259,201 | 84,974 | 104,556 | 49,299 | 23,372 | 0.4587 |
| Sorsogon | 214,140 | 133,295 | 23,911 | 102,700 | 2,569 | 4,115 | 0.5184 |

^a Based on preliminary hand tally.

^b No data available.

^c Estimation does not include Catanduanes

Source: 1981 Census of Agriculture

The Bicol Region is also well endowed with fishery resources because it is surrounded with 16 major marine fishing grounds. Six of these fishing grounds are considered the richest in the country, namely: Lagonoy Gulf, Lamon Bay, Ragay Gulf, Visayan Sea, Samar Sea, and Sibuyan Sea. It has also a number of lakes, rivers, and streams abounding with freshwater fishes. Brackish water fishponds have also provided its contribution to total fishery production in the region.

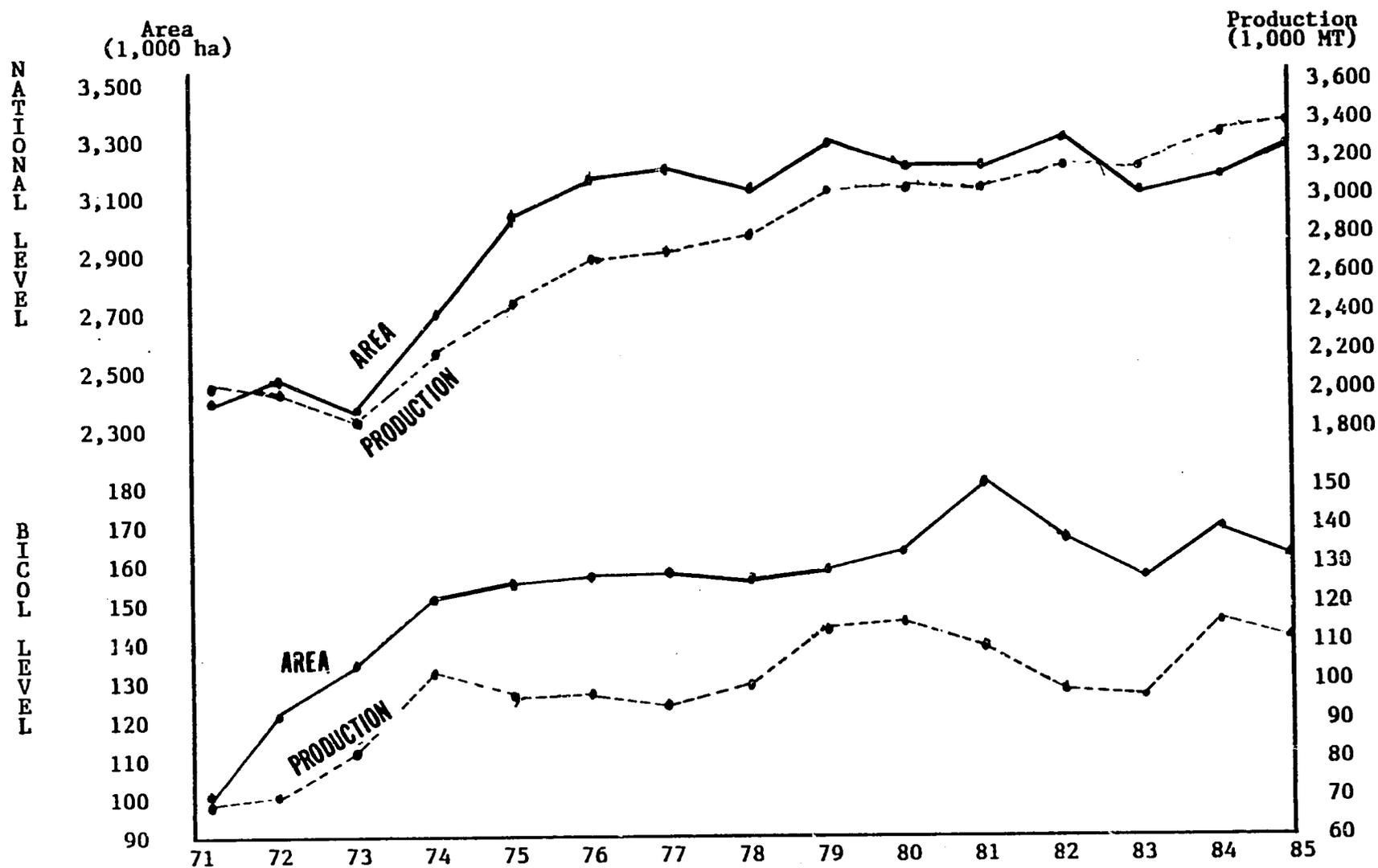
The agro-climatic environment of this region is quite diverse and erratic. Although temperature variations throughout the year are rather narrow, contrasting wind features result in wide variations in agro-climatic conditions at different places in the region at any given point in time. The region experiences an average of 8.6 typhoons per year, sometimes with substantial damage to standing crops. Even though rainfall patterns are somewhat regular with drier months in March-April and wetter months in November-December, wide differences in the amount of rainfall reaching each province spread planting times and choices of crops. In other words, this is a very heterogeneous and somewhat risky environment for crop production.

3.0 Crop/Commodity

Over the past 15 years, the area and production of corn in Bicol has remained at about 5 percent of the national area and production. In 1985 the Bicol Region ranked eighth in corn production among the twelve regions in the Philippines. Bicol's sharp increase in area and production of corn in the early 1970s quickly tapered-off by 1974, just as the national area and production began an upward trend (Figure 3).

FIGURE 3

AREA AND PRODUCTION FOR CORN IN THE PHILIPPINES AND BICOL, 1971 - 1985



Source: BAEcon.

Within the region, Masbate Province has been the largest producer of corn but it is primarily white corn for household consumption. Camarines Sur and Albay Provinces are the major production areas for yellow corn for feed use.

Besides those macro level changes, there has been a noteworthy pattern of change among the Bicol firms which process the corn grain, i.e., feed millers and hammer mills with grinders or rollers. There has been an increase from 1 to 5 feed mills whereas the number of hammer mills steadily declined from over 100 in 1975 to 86 by 1981, according to NFA statistics. This pattern suggests the increasing importance of commercial feeds and the decreasing prominence of the small-scale milling of corn for smaller poultry/hog raisers and/or human consumption.

III. Research Design

The research design for this RMA can be explained in terms of the preparation, team, sampling frame, and data requirements. The formation of an advisory group for the formulation of criteria for commodity and research site selection and for soliciting the involvement of local institutions was key to effective RMA preparation. The process of recruiting interested and available team members from several institutions, beginning the training process which continued throughout the research, and drafting presentation materials required more time and effort than anticipated. And, although straight-forward in principle, the sampling frame and data requirements required special adjustments due to the unstable "peace and order" condition, constrained logistical support, and competing job commitments of some members deputed to the team. The following expansion on those topics will provide insights to the conduct of a local RMA.

1.0 Preparation

Although the Ministry of Agriculture and Food (MAF) at the national level and USAID/Manila initiated and supported this effort, the regional MAF and its Farming Systems Research and Development Project - Regional Integrated Agricultural Research Systems (FSRDP-RIARS) project were key to its implementation and impact. The overall coordination of the institutions and arrangements for the planning documents, meetings, and logistics required considerable time and effort by the Agricultural Projects Preparation Unit (APPU) of MAF in conjunction with the FSRDP-RIARS project staff. Members of the regional and national MAF staff together with key persons from other regional institutions formed an advisory group and decided on the regional scope of the assessment, including the criteria for selecting the target commodities, personnel to join the team, research sites, and types of logistical support needed.

The corn commodity system was selected because it conformed with all but the last two of the following criteria: a) regional production potential; b) market potential (nature and extent of demand); c) included within a national crop promotion program; d) presence in existing farming systems; e) representative of a commodity within the crop categories of "grain," "fruit," or "tuber"; f) low level of cash costs for production; and g) minimal risk of typhoon damage. Two of those criteria, namely, presence of a strong market potential and a national crop promotion program, formed the basis for the team's appraisal of this commodity system's performance. In other words, deviations from the effectiveness of local corn production to substitute for large-scale imports of corn would be considered problems, especially given the government's support for increased production through the Expanded Yellow Corn Production program. The risks inherent in a depressed regional economy, violent acts of nature (typhoons), and disenchanted political factions, ("peace and order" condition referring to sporadic combat between the New Peoples Army and the military) were all part of the environment within which this commodity system was appraised.

2.0 Team

The research team assigned to this RMA consisted of five personnel from various government or semi-governmental agencies including: a) the regional director for the National Food Authority (NFA) as the principal investigator; b) two staff members of the (FSRDP-RIARS) Project of MAF; and c) a regional staff member of the Bureau of Agricultural Economics. Guidance and support were provided by a marketing specialist from NFA's central office, a project analyst from USAID/Manila, and a marketing consultant from a USAID/Washington project. Team building began with about a week of training sessions, pretesting questions, and scheduling field work. The training, fieldwork,

presentations, and initial write-up required only the **two and one-half months** from October to December, 1985.

3.0 Sampling Frame

The sample size and distribution followed from the sampling procedure used. The sampling procedure is referred to as the "tracing" or "snowball" approach in which those who bought the corn of select farmers are found and interviewed, then their buyers are interviewed, and so on through the channel until end-users are located. In other words, the system is followed from the farm level to the consumption level.

The geographic distribution of the "starting points" in the corn system, i.e., sampling sites, followed a simple formula: a) select two major corn producing provinces; b) within each sample province select two major municipalities known for corn production; c) within each target municipality chose two important corn producing barangays (villages) that are not adjacent to each other; and d) within each sample barangay divide corn growers into two dominant groups, if at all possible. Land tenure (tenants versus various types of land ownership), participation versus non-participation in the government's corn promotion program, large versus small size of farm, and monoculture cropping of corn vs planting under coconut trees were among the criteria used to segregate corn farmers into two meaningful groups per each barangay. The reasoning for selecting "twos" of each type of geographic site was based on the minimum size of sample in which the basic "compare and contrast" analytical method could be repeatedly applied. However, in the process of searching for the traders who buy from farmers in the original barangay sample, the sampling frame tends to expand rapidly.

Since yellow corn production was concentrated on the peninsular part of the region, the study focused on the two principal corn producing provinces in that

area, i.e., Camarines Sur and Albay Provinces. In the province of Camarines Sur the team interviewed market participants within the centers of Naga and Iriga, the municipalities of Pili, Ocampo, Tigaon, Baa, and Buhi, and the barangays of Pinit, May-ogob, Hanawan, Tambo, and Labawon. In Albay, the municipalities of Polangui, Ligao, Camalig, Daraga, and Tabaco as well as the barangays of Tuburan, Basag, Nasisi, San Isidro, and Hacienda were study sites. The study sites are depicted on Map 2.

The sampling frame is presented in two forms: a) the broad groupings of marketing participants according to aggregates of barangays, municipalities, and cities within each of the two provinces (Table 4); and b) the detailed classification of participants according to the specific locations visited (Appendices I and II). The number and types of marketing participants interviewed relative to the total numbers identified per location are given in the latter set of tables.

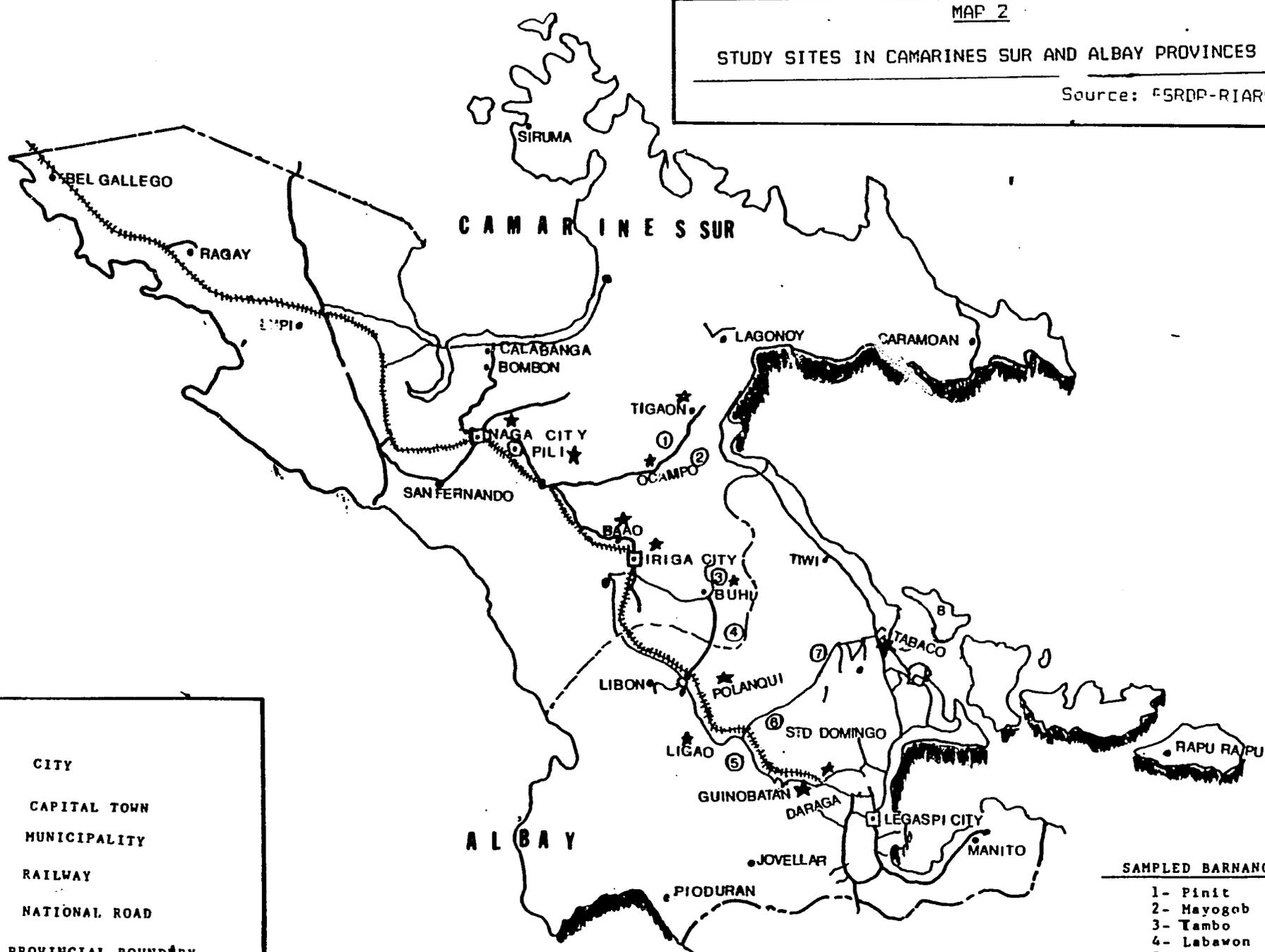
Given the team size, the unfavorable weather conditions in that season, and constraints in budget, time, and logistical support, the sample size of about 130 persons was quite adequate for an RMA. The array of different types of marketing participants who are active in the corn system is indicative of the complexity of this system.

4.0 Data Requirements

In place of formal questionnaires which tended to intimidate traders, lists of questions were committed to memory and an emphasis was given to probing questions. The basic framework for the questions asked of each type of marketing participant centered on: a) identifying the firm; b) learning about "competing" firms; c) asking about each firm's suppliers; d) exploring the firm's internal operations; e) asking about each firm's buyers; and f) probing for problems, along with their "perceived" causes. This framework was adjusted

STUDY SITES IN CAMARINES SUR AND ALBAY PROVINCES

Source: FSRDP-RIARS



| | | |
|--|---|------------------------------|
| | - | CITY |
| | - | CAPITAL TOWN |
| | - | MUNICIPALITY |
| | - | RAILWAY |
| | - | NATIONAL ROAD |
| | - | PROVINCIAL BOUNDARY |
| | - | SAMPLED POPULATIONS & CITIES |

SAMPLED BARNANGAYS

- 1- Pinit
- 2- Mayogob
- 3- Tambo
- 4- Labavon
- 5- Tuburan
- 6- Basag
- 7- San Isidro
- 8- Hacienda

TABLE 4

SAMPLING FRAME OF FARMS AND FIRMS INTERVIEWED DURING THE RAPID MARKETING APPRAISAL
OF THE CORN COMMODITY SYSTEM IN CAMARINES SUR AND ALBAY PROVINCES, BICOL REGION,
OCTOBER 1985

| <u>Locations</u> | MARKET PARTICIPANTS | | | | | | Total |
|---------------------------|---------------------|------------|--------------|----------------|-----------------------------|---------------------|-------|
| | Farmers | Compradors | Feed Millers | Hammer Millers | Feed Supply Store Operators | Poultry/Hog Raisers | |
| I. Camarines Sur Province | | | | | | | |
| Cities | | 7 | 2 | | 2 | | 11 |
| Municipalities | | 16 | 1 | 4 | 3 | 2 | 26 |
| Barangays | 26 | 8 | | 1 | | | 35 |
| II. Albay Province | | | | | | | |
| Cities | | | | | | | |
| Municipalities | | 12 | 2 | 2 | 5 | 2 | 23 |
| Barangays | 33 | 1 | | | | | 34 |
| TOTAL | 59 | 44 | 5 | 7 | 10 | 4 | 129 |

Note: (a) In addition to these marketing participants, the team interviewed such key informants as barangay captains, mayors, agricultural officers (municipal and provincial levels), extension workers, and NFA personnel.

(b) A detailed breakdown of interviews by specific locations is provided in Appendices I and II.

Source: Interviews

somewhat for farmers but followed a similar pattern. The seven components of the assessment wheel facilitated the organization and interpretation of the information collected, namely, technical characteristics of the corn crop and commodity, demand patterns, marketing system organization and spatial network, marketing system operation, economics of marketing system, infrastructure, and institutions and power. Each component contributes to: a) a multifaceted description of how and why a commodity system works as it does; b) a diagnosis of problem areas warranting priority attention; and c) insights for formulating in-depth research on corrective policies, strategies, and/or projects.

IV. CORN SYSTEM OVERVIEW

This system's overview begins with an understanding of select villages where yellow corn is grown and extends to areas where it is consumed. A key element of such marketing systems studies is the clear characterization of these initial locations of production as well as later specification of the major sites of final consumption. The former (production areas) represents the "starting points" for the commodity flow whereas the latter (consumption areas) is the origin of the "demand-pull" force which drives the system. The "barangay profile" is used to depict the "starting points" for this study.

Following the examination of the target barangays, each component of the corn commodity system will be analyzed in turn, before identifying priority problems/constraints and recommending an agenda for research and action. The system's components are arranged according to the sequence in the Marketing Appraisal Wheel.

1.0 Barangay Profile

The "village or barangay profile" is an analytical tool designed to provide the characterization and understanding of the "starting points" for the commodity system. With that understanding of a cross section of corn producing barangays, one can classify them by their characteristics and associate them with such factors as: a) patterns of exchange; b) length and composition of the marketing channels; c) credit arrangements between different types of farmers and compradors; d) the process of price formation at the farm level; and e) problems associated with different types of barangays within a commodity system.

The barangay profile depicts each sample barangay from both static and dynamic perspectives. Then, these profiles are used to compare and contrast barangays in the process of finding prominent characteristics while gaining

insights useful for determining their relative position in the region's transportation network. The eight barangays sampled (two within each of the four municipalities), were quite different in accessibility, size, agro-climatic environments, and tenure patterns of their farmers. First, the barangays are examined by province and municipality, and then according to access, presence of local traders, and dominant tenancy patterns.

The static and dynamic perspectives of the barangays in Ocampo and Buhi municipalities (Camarines Sur Province) indicate similarities within but substantial differences between municipalities (Table 5). Both municipalities are located several kilometers east of the national highway (Map 2). The barangays within each municipality differ in terms of terrain (Ocampo is fairly flat versus a more hilly Buhi), sources of water for crops (partly irrigated versus only rainfed), tenure patterns (mostly tenant versus some form of land ownership), priority crops (field crops versus tree and field crops), presence of indigenous compradors (one versus four compradors per barangay), and access to outside markets (newly cemented road versus poor roads to and from the poblacion, i.e., capital town in a municipality). Field observations of farmer living conditions and a proxy for barangay prosperity (recently built concrete houses) indicated much less prosperity in the Ocampo barangays than in the Buhi barangays. Thus, one could question whether tenure pattern is more relevant to barangay progress than better access to markets and a superior resource base. That question has implications for farmer dependency on others for cash inputs for corn production, ability and willingness to adopt innovative technologies, and vulnerability to debt whenever market prices become unexpectedly low.

TABLE 5

PROFILES OF TARGET BARANGAYS IN CAMARINES SUR PROVINCE

| <u>Perspectives</u> | <u>Ocampo Mun.</u> | | <u>Buhi Mun.</u> | |
|--|--|---|---|--|
| | <u>Mayagob Bar.</u> | <u>Pinit Bar.</u> | <u>Tambo Bar.</u> | <u>Labawon Bar</u> |
| <u>STATIC</u> | | | | |
| Size-Households(No.) | 250 | 800 | 700 | 130 |
| -Land Area (Ha) | 1,500 | - | 1,000 | 520 |
| Access-Distance to Town (Km) | 9 | 4 | 5 | 12 |
| Road Condition | 3 km poor gravel | all concrete | 4 km poor gravel | 7 km poor gravel |
| Terrain | fairly flat | fairly flat | sloping, undulating | sloping, undulating |
| Sources of Water | partly irri. | 60% irri. | rained | rained |
| Tenure Pattern | majority share tenant | majority share tenant | most CLT & owners | most CLT & owners |
| Major Enterprisas | corn, rice, sugarcane, rootcrops | rice, corn, sugarcane | corn, root-crops, rice coconut | corn, coco-nut, root-crops, abaca, rice |
| Commerce | 1 comprador 5 sari-sari 2 rice mills | 1 comprador 7 sari-sari 1 rice mill | 4 comprador 5 sari-sari | 4 comprador 6 sari-sari |
| <u>DYNAMIC*</u> | | | | |
| Reinforcing Growth | cemented highway | cemented highway | | |
| Reflecting Growth (recently built concrete houses) | few | very few | some | several |
| Inhibiting Growth | closure of sugar mill, poor roads during rains | closure of sugar mill | poor roads during rains, typhoons/drought | poor roads during rains typhoons/drought |

Note: Mun. means municipality, i.e., subdivision of a province.
 Bar. means barangay, i.e., subdivision of a municipality.
 CLT means Certificate of Land Title.

Source: Interviews with barangay captains or other barangay leaders.

* "Dynamic" Perspective at this barangay level focuses on recent changes (within 3-5 years) which affected a relatively large portion (25% or more) of the barangay households.

The barangays in Ligao and Tabaco municipalities (Albay Province) had more individual than common patterns on a municipality basis (Table 6). Tabaco is located along the eastern coast with the base of Mt. Mayon (active volcano) at one end of the municipality and islands at the other end. Barangay Hacienda is one among five barangays on San Miguel Island where serious confrontations between the large land owner and tenant farmers had recently been resolved with farmers obtaining Certificates of Land Title (CLT). The recent resettlement of this area, the expansion in its corn production area, the formation of a farmers' organization which handles much of the corn trade, and the incursion of a few corn buyers to establish buying relationships with new growers indicate volatile corn marketing channels which are still in the formative stage. Consequently, it is difficult to foresee or measure bottlenecks in these channels. Barangay San Isidro, at the other end of this municipality, has a few large haciendas partitioning the farm lands such that their three large owners and/or managers handle much of the tenant farmers' corn sales. However, a recently formed farmers' group in this area is competing for corn from some of these tenant farmers. Again, the traditional trading patterns are in a state of flux with major implications for future credit support for increased production.

A more settled pattern of trade exists in Ligao municipality, positioned across the national highway. Barangay Tuburan, a moderate-sized barangay straddling that highway, has locational features similar to the barangays in Ocampo but a land tenure pattern as in Buhi. Whereas Basag, several kilometers interior, is only accessible by a dirt road and reflects a very different set of locational features and tenure patterns. In other words, little can be

TABLE 6

PROFILES OF TARGET BARANGAYS IN ALBAY PROVINCE

| <u>Perspectives</u> | <u>Ligao Mun.</u> | | <u>Tabaco Mun.</u> | |
|--|--|--|--|--|
| | <u>Tuburan Bar.</u> | <u>Basag Bar.</u> | <u>San Isidro Bar.</u> | <u>Hacienda Bar.</u> |
| <u>STATIC</u> | | | | |
| Size-Households (No.) | 500 | - | 124 | - |
| -Land Area (Ha.) | - | 1,035 | - | 584 |
| Access-Distance to Town (Km.) | 2 | 8 | 9 | 1-1/2 hour by boat |
| Road Condition | all paved | 4 km. poor gravel | 3 km. poor gravel | only foot paths |
| Sources of Water | - | rained | 10% irri. | rained |
| Tenure Pattern | CLT dominant | share tenant dominant | share tenant dominant | CLT dominant |
| Major Enterprises | corn, rice vegetables | rice, corn, rootcrops | coconut, corn, rootcrops, rice, vegetables | corn, root crops, upland rice |
| Commerce | 0 comprador 5-6 sari-sari | 2+ comprador 3 sari-sari | 0 comprador 3 sari-sari | 0 comprador 2+ sari-sari |
| <u>DYNAMIC</u> ¹ | | | | |
| Reinforcing Growth | along highway and near to market center | widening of dirt road | emerging farmers group | strong farmer organization |
| Reflecting Growth (recently built concrete houses) | many | few | some | very few |
| Inhibiting Growth | -flooding after typhoons -peace and order constraints | -lack of access to land ownership -peace & order problems | -poor road -major eruptions of Mayon Volcano -peace & order problems | -typhoons & drought -inaccessible during bad weather (island) |

Note: Mun. means municipality, i.e. subdivision of a province
 Bar. means barangay, i.e. subdivision of a municipality
 CLT means Certificate of Land Title

Source of Information: Interviews with barangay captains or other barangay leaders.

¹ "Dynamic" perspectives at the barangay level focuses on recent changes (within 3-5 years) which affected a relatively large portion (25% or more) of the barangay households.

generalized on the basis of location within one rather than another municipality.

Grouping barangays by proximity to major highways and dominant tenure patterns provides insights worth noting from a marketing perspective:

a) interior barangays (dirt road access to the poblacion) tend to have more indigenous compradors who become one additional link and an added cost for the marketing channel, as in Tambu, Labawon, and Basag;¹

b) barangays on or along major highways had fewer indigenous compradors, better access to itinerate buyers and often did receive better prices, as will be noted later;

c) barangays with mostly tenants had markedly fewer concrete houses (proxy for prosperity) than those where land ownership or CLT arrangements dominated.² It was commonly observed that tenants are less able to adapt more costly production technologies without support from landowners or other sources of input credit; and

d) sari-sari stores are an integral part of barangays and often provide farmers with consumption/production credit and accept their harvests as repayment of debt.

Since most farmers brought their harvests home to sell, the barangay usually represents the "starting point" for marketing channels. However, the barangays sampled were too heterogeneous and few to verify basic patterns other than the following: a) accessibility of a barangay affects the length of the marketing channel and influences the farm-gate price; and b) tenure pattern, regardless of location, seems to reflect a level of farm income and by implication the farmer's ability or inability to finance additional inputs needed to increase corn productivity. Likewise, whether large or small, tenant or land owner, or

¹ San Isidro was exceptional in lacking indigenous compradors because the large land owners who lived in the poblacion took that role on behalf of their tenants.

² Hacienda was exceptional in its lack of prosperity, even though farmers had CLT status, because they recently received that ownership and are still recovering from the conflict between the landlord and the original tenants.

using progressive or traditional cultivation technologies, the size and location of the farmer's barangay affects his starting position in the channel and the costs required to market his output.

2.0 Technical Characteristics of Crop and Commodity

2.1 Corn as a Crop (Plant)

The technical characteristics of the yellow corn crop which had the most relevance for the field work during the Rapid Marketing Appraisal (RMA) were the type of variety and the planting/harvesting seasons.

The two distinct types of yellow corn varieties grown in Camarines Sur and Albay Provinces are "traditional varieties" and "hybrids." Traditional varieties generally referred to improved, open-pollinated varieties, such as IPB and DMR, or to second or third generation of hybrid seed. Hybrid varieties meant first generation, commercial seed materials as sold by such seed companies as Cargill, Pioneer, and SMC. Several key differences between the varieties are presented according to cultivation practices (Table 7) and technical characteristics (Table 8).

The extent of crop care, the costs of production, and vulnerability to agro-climatic conditions varied substantially between these two types of varieties even though they both earned the same price when sold. Hybrid varieties are recommended with a high technology package of practices in order to achieve the expected, high yield levels. That set of cultivation practices requires relatively larger amounts of labor and capital, intensive management, and favorable agro-climatic conditions in order to gain the full benefits of such yield potential. However, growers of hybrids who were interviewed during the second season crop did not achieve those expected yields, even given their effort to follow the package of practices (Table 8).

Improved open-pollinated varieties were less intensive in respect to management and input levels, cost less to produce, and were more adapted to local agro-climatic conditions, i.e., more tolerant of weather irregularities and

TABLE 7

CULTURAL PRACTICES FOR CORN BY TYPE OF CULTIVATOR IN
CAMARINES SUR AND ALBAY, OCTOBER 1985 ¹

| <u>Cultural Practices</u> | <u>Traditional Farmer</u> | <u>Progressive Farmer</u> |
|---------------------------------|--|---|
| "Distinct" Practices: | | |
| Land Preparation; | | |
| - Plowing | Twice | Two-three |
| - Harrowing | Once | One-two |
| Furrow Distance (row to row) | 1 - 1.25 meters | .75 meters |
| Basal Fertilizer | None | Mixture of urea & ammonium phosphate |
| Planting; | | |
| - Variety | Improved open-pollin- ated IPB or DMR, or 2nd - 3rd generation hybrid | F1 hybrid seed from Pioneer, Cargill or SMC companies |
| - Seed per hill | Two - three | One |
| - Seed spacing | .50 meters | .20-.25 meters |
| Fertilizer (side-dressings) | 1-2 bags | 3+ bags |
| Pest Control; | | |
| - Rainy Season | Once or twice | 2-3 times |
| - Dry Season | None or once | Once or twice |
| "Common" Practices: | | |
| Land preparation | - plow and harrow with carabao & man team | |
| Fertilization | - side dress and hill-up mixture of urea and ammonium phosphate of 15-20 days after planting | |
| Harvesting | - stalks are cut, cobs picked and husked | |
| | - stalks are either burned or left to decay | |
| Shelling | - hands, hand tools, or mechanical shellers | |
| Drying | - sundrying on mats or pavement | |
| Estimating moisture content | - observation, feeling a handful of grain or insert hand into a sack of corn, bite the grain, bounce the grain on on wooden or concrete floors | |
| Storage | - one to two months in the husk form | |

¹ Composite of interview information from;

| | | | |
|--|------------------------|---------|---------------|
| | (Barangays) | (Towns) | (Provinces) |
| | Pinit, May-ogob | Ocampo | Camarines Sur |
| | Tambo, Labawon | Buhi | " |
| | San Isidro, San Miguel | Tabaco | Albay |
| | Tuburan, Basag | Ligao | " |

Source: Interviews.

TABLE 8

TECHNICAL CHARACTERISTICS OF OPEN-POLLINATED AND HYBRID
VARIETIES OF CORN IN CAMARINES SUR AND ALBAY PROVINCES,
RAINY SEASON, OCTOBER 1986

| <u>Characteristics</u> | <u>Open-Pollinated (1)</u> | <u>Hybrid</u> |
|---------------------------|---|--|
| Yield Range (kg/ha) | | |
| - Expected | 3,000 - 4,000 | 4,000 - 6,000 |
| - Farmers' (2) | | |
| Best | 2,000 - 2,400 | 2,500 - 3,000 |
| Normal | 1,200 - 1,500 | 1,200 - 1,800 |
| Growth Period (3) | IPB 105-110 days | SMC, Cargill, Pioneer 100-115 days |
| Seed Rate | 30 - 50 kg/ha | 18 - 20 kg/ha |
| Hardiness (4) | Tolerant | Limited Tolerance |
| Susceptibility (5) | Semi-resistant (0-1 Application) | Limited Resistance (2-3 Applications) |
| Responsiveness (6) | Somewhat (0-2 bags/ha) | Very (4-6 bags/ha) |
| Seasonal Adaptability (7) | January to February for the first season planting and June to July for the second season in Albay; December to January (1st season) & May to June (2nd season) in Camarines Sur Province, regardless of variety. | |

-
- (1) Improved varieties include IPB and DMR.
 - (2) Information from farmer interviews during the rainy season October, 1985.
 - (3) Growth period is in terms of days from planting to harvest.
 - (4) Season adaptability is in terms of specific planting and/or harvesting months.
 - (5) Hardiness refers to tolerance to drought, heavy rainfall, waterlogging, etc.
 - (6) Susceptibility is in respect to resistance to insect infestations, diseases, etc., with consequences for the number of pesticide applications needed.
 - (7) Responsiveness means a plant's ability to increase yield at high levels of fertilizer application, better soil conditions, etc.

Source: Interviews.

less susceptible to diseases and pests. Consequently, during the second season (rainy period) which is characterized by weather disturbances and conditions favorable to high incidence of insects and diseases, the open-pollinated varieties performed closer to expectations than hybrids (Table 8). In fact, during this season growers of hybrid corn also complained of lodging with severe rodent damage and smaller/fewer harvestable ears. Likewise, serious corn borer infestation required much more pesticide for this season. On the other hand, farmers acknowledged that hybrids gave higher yields than the traditional varieties under the favorable conditions of the first season (dry season) as long as the fields were kept clean of weeds.

In summary, our field interviews indicated that the improved open-pollinated varieties were considered: a) more adapted to Bicol's agro-climatic environment during the rainy season, thus better able to withstand unexpected droughts/floods/insect and disease attacks; b) less costly to cultivate, an especially crucial factor during this year when cash flow and tight money were problematic for most farmers; and c) with less cash invested, farmers were less likely to incur serious cash losses whenever the market prices drop drastically as occurred in August, 1985. Since no sample farmer who grew hybrids during the second season of 1985 had yields over 3 m.t./ha (most incurred cash losses), this technology requires careful reexamination.

Seasonality varied substantially by location. The rainfall differences between Camarines Sur and Albay Provinces were substantial and corresponded to areas with similar micro climates rather than province-wide patterns (Figures 4a and 4b). Buhi and Guinobatan had more similar distributions and volume of rainfall than that noted for the other municipality in their respective provinces. Although one would expect high moisture content and therefore

FIGURE 4a

RAINFALL PATTERNS AND CORRESPONDING CROPPING PATTERNS FOR CORN IN BUHI AND OCAMPO MUNICIPALITIES, CAMARINES SUR PROVINCE

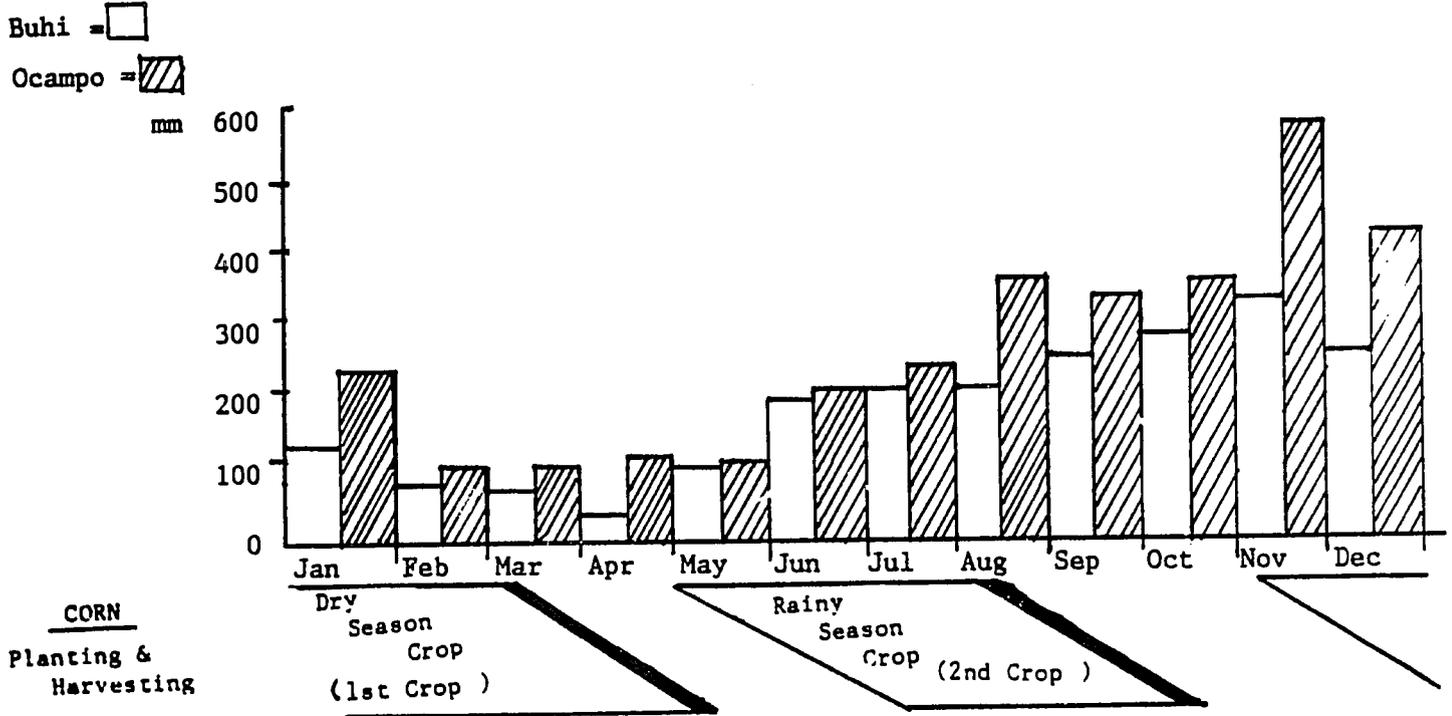
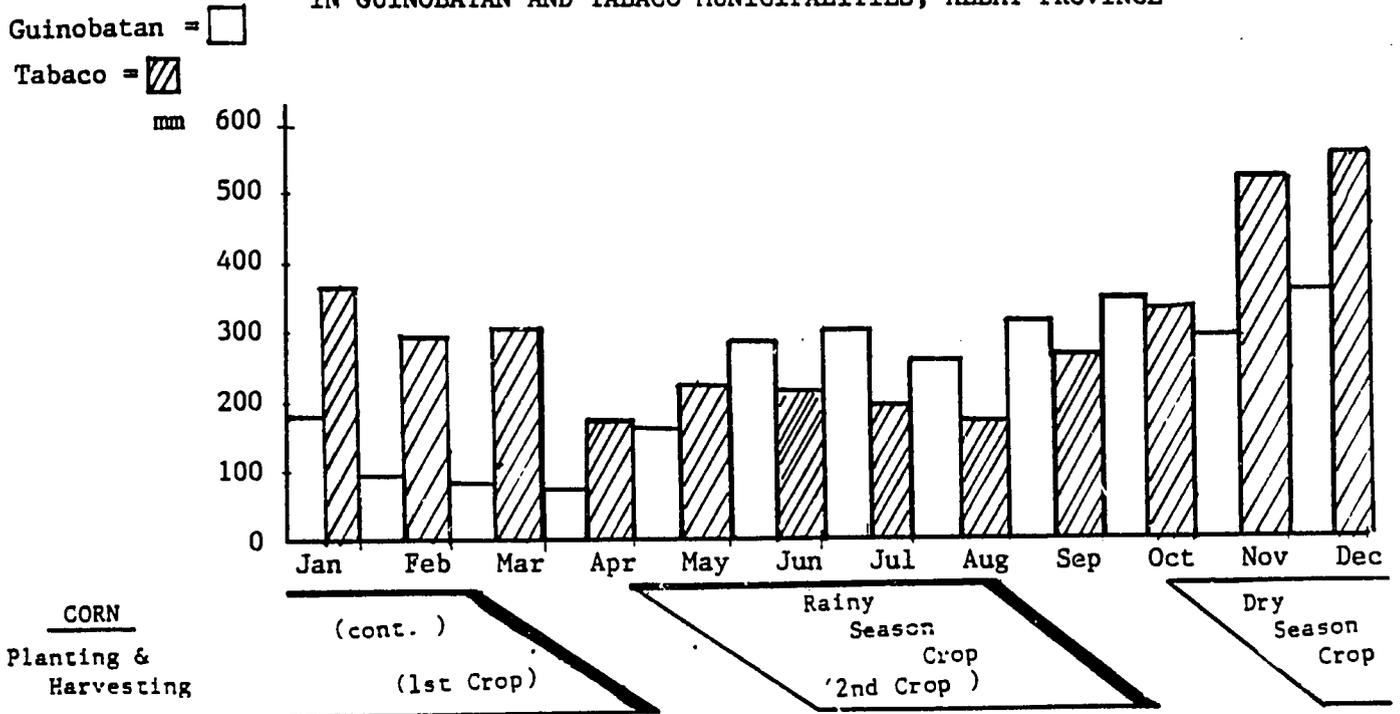


FIGURE 4b

RAINFALL PATTERNS AND CORRESPONDING CROPPING PATTERNS FOR CORN IN GUINOBATAN AND TABACO MUNICIPALITIES, ALBAY PROVINCE



drying problems for rainy season harvests of corn, Tabaco's rainfall pattern indicates likely drying problems for both harvest seasons.

In summary, the varied rainfall patterns indicate several micro climate regimes and argue for the development of site specific cropping patterns which can take advantage of harvests during the drier and/or lean months for corn or any other crops with specific "windows of market opportunities." Perhaps corn promotion programs should be built on locally developed packages of appropriate technologies rather than follow national standards.

2.2 Corn as a Commodity

Harvested corn becomes an agricultural commodity, i.e., "an agricultural good produced by crop cultivators or livestock raisers and moved through marketing channels with a minimum degree of physical transformation." Although the corn grain is highly dependent on the plants from which it came (corn as a crop), the process of its deterioration over time along with other characteristics require market participants to handle it in certain ways. In other words, characteristics of these commodities require that marketing participants perform certain functions in order to maintain quality or inhibit deterioration while adding time, space, form, and possession utilities to these commodities. Different levels of technology can be used for each function.

Yellow corn in the Bicol region is primarily milled and either mixed in feed rations or fed directly to poultry/hogs in cracked, grits, or fine forms. Uniformity of grain quality is preferred by feed millers. During certain seasons limited quantities of fresh corn are harvested "green" and roasted as a consumer snack food. Many farmers save dried corn for seed or for later sale in small quantities for "pocket money", i.e., to buy household items. Since

its dominant final use is for "off-farm" or non-household consumption, the commercial marketing system is especially crucial for those who grow yellow corn.

Commodity characteristics, such as, multiplicity of use, seasonality, variability, perishability, and bulkiness become technical factors to recognize and understand as marketing participants contend with them between harvest and final consumption (Table 9). Seasonality is particularly crucial, for instance, during the dry season ears of corn dry on the stalks, then are harvested, husked, and shelled in a short period of time, however, during the rainy season further sun drying of husked ears of corn and again the grain are usually necessary. That additional drying increases labor use and delays receipt of cash from the sale with adverse consequences for purchasing inputs and using labor for planting crops the next season.

Likewise, new technologies are demanded as participants attempt to reduce distribution-processing-consumption related costs while maintaining or improving quality. This is particularly true since more distant and larger markets are accessible. Functions which are particularly prone to change and improvement over time are: a) shelling, b) drying, c) milling, and d) storing.

TABLE 9

KEY CHARACTERISTICS OF YELLOW CORN AS A COMMODITY

| <u>Characteristic</u> | <u>Explanation</u> | <u>Implications</u> |
|-----------------------------------|---|--|
| Multiplicity of Uses ¹ | Major use as raw material for feed & minor use as snack - roasted, green corn | Primary dependency on domestic feed industry demand and supply conditions, thus if those conditions become unfavorable no adequate secondary demand for yellow corn can support market prices. |
| Seasonality | Harvesting is mostly confined to 2 periods of about 2 months each | Since feed demand is year-round and grain/feed storage is effective for only 2-3 months in local warehouses, wide price fluctuations should be expected |
| Variability | Differences in grain quality exist from season to season and year to year; heterogeneity of cultivation areas accentuates quality variability | Rainy season harvests tend to have higher costs to dry and lower and more variable quality than those in dry season; soil/slope differences in fields causes different sized ears and grain quality; agro-climatic stress (droughts, floods, etc.) affect grain size; hybrids produce larger ears than open-pollinated varieties but the grain price is the same |
| Perishability | Commercial grain stored from 2 to 4 mos.; farmers store dried ears of corn in their husks for several months | As shrinkage and grain damage increases during the storage period, the price of corn should increase at least by a corresponding rate in order for storage to be profitable |
| Bulkiness | Commodity price is low relative to weight and volume per unit | Corn on the cob is very bulky, thus there are cost savings by shelling and drying at the farm level |
| Interdependence | Low quality raw material used in feeds can cause millers to lose their market share | High moisture content of milled corn can result in aflatoxin or otherwise "bad feeds," in addition to high rates of spoilage |

¹ White corn, unlike yellow corn, has both human consumption and feed forms of demand.

Source: Interviews.

3.0 Demand Patterns

Yellow corn in Bicol has two main types of demand, i.e., demand as grain for feeds (an intermediate product) and as food in the form of fresh roasted ears of corn (final product). However, since the demand for corn as feed was much larger than for roasted corn and because their respective distribution channels were so distinct, thereby significantly increasing research costs, only feed corn use was investigated by the team in Bicol.

The demand for poultry products, i.e., eggs and broilers, and hog meat is the main driving force for the region's corn marketing system. However, since the largest concentration of urban population and wealth in the Philippines is north of the Bicol Region, so is the strongest demand for those commodities. Consequently, the largest portion of Bicol corn and a large amount of poultry and hog products flow out of the region to meet that demand by feed millers, poultry/hog raisers and traders in Manila, Bulacan, and Batangas (Map 3). The balance of corn grain is processed by the five local feed mills, several small hammer mills, and medium-sized poultry/hog raisers with their own mills (integrated firms) for local feed use.

Another type of demand for feeds is for fighting cocks which provide a popular form of entertainment in rural areas. Although this demand is small in aggregate terms, it provides retailing benefits as the thousands of cock raisers regularly buy small quantities of high grade feed.

Observations regarding the local demand patterns for poultry and hog products include:

- a) some seasonality of demand exists with peak periods corresponding to local festivals; and
- b) the current depressed economy in this comparatively poor region has dampened the region's effective demand for eggs and meat products.

**MAP 3
LOCATION OF LIVESTOCK-BASED FOOD PROCESSING FIRMS AND FEED MILLS**

LEGEND:

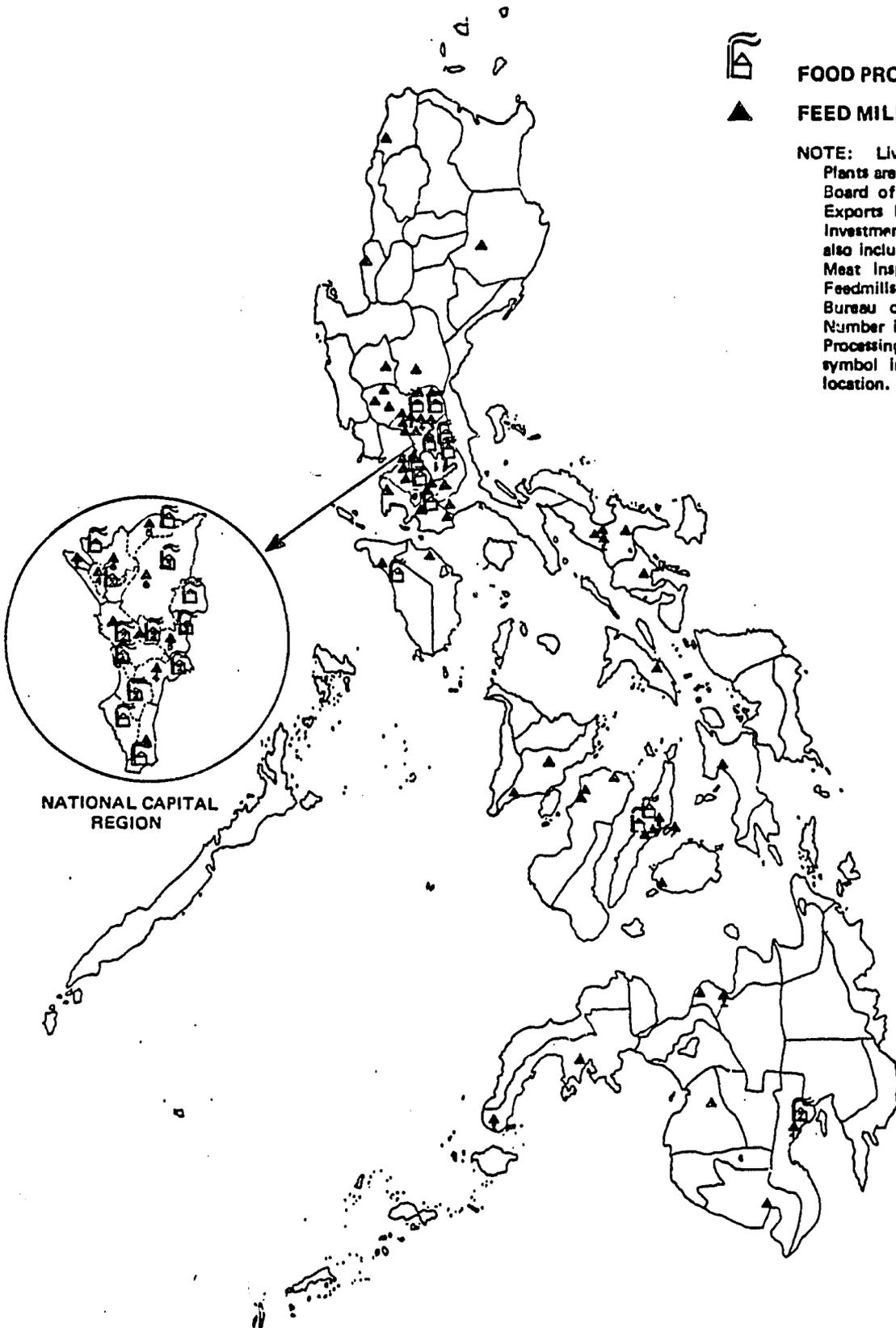


FOOD PROCESSING PLANT



FEED MILL

NOTE: Livestock-Based Food Processing Plants are primarily those registered with the Board of Investments under R.A. 6135 or Exports Incentives Act and R.A. 5186 or Investment Incentives Act as of 1979 but also includes those licensed by the National Meat Inspection Commission as of 1979. Feedmills are those registered with the Bureau of Animal Industry as of 1979. Number inside symbol indicates number of Processing Plants while number below symbol indicates number of mills in that location.



Source: Food Map of the Philippines

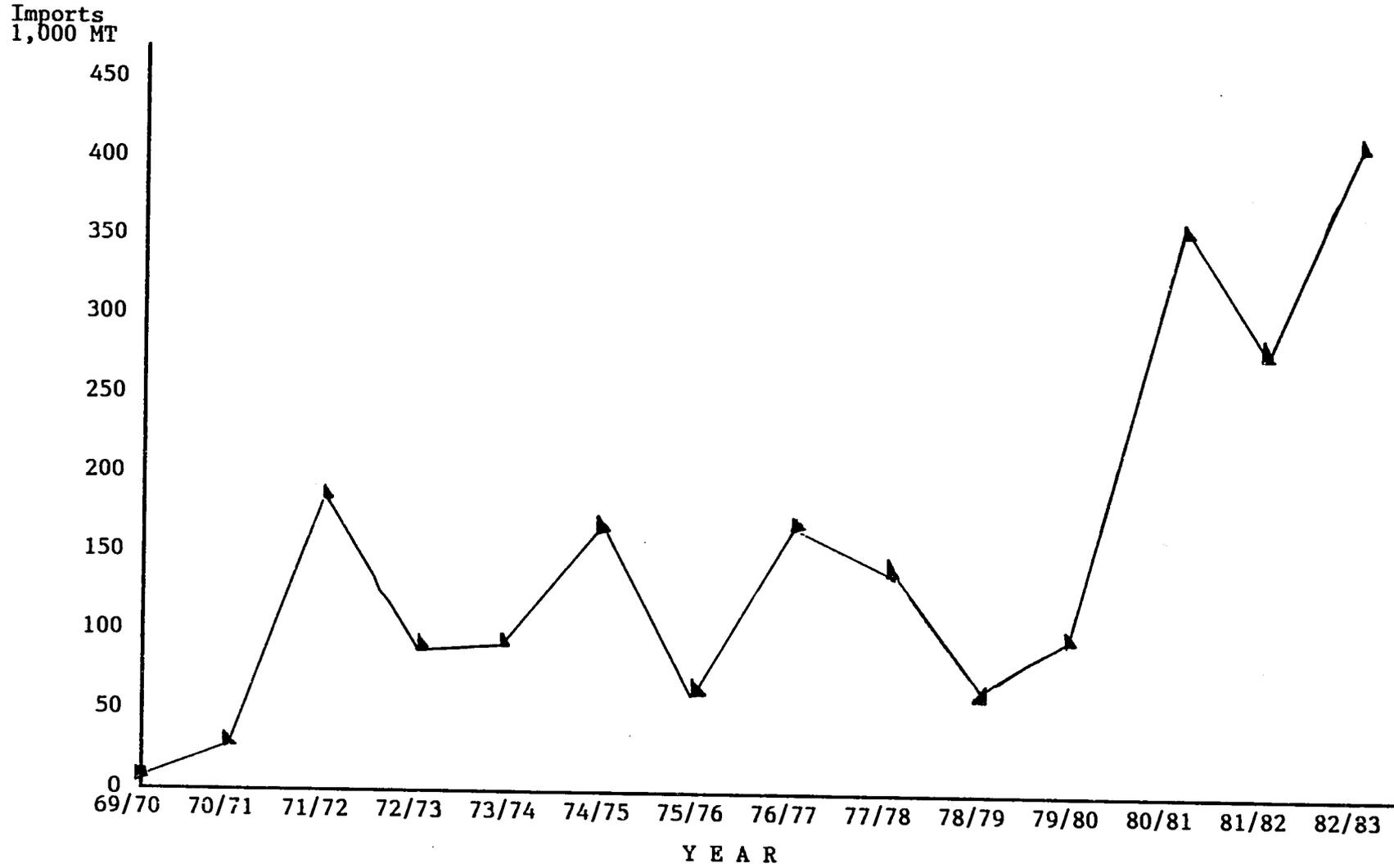
The current situation for feed demand in Bicol remains less clear because of the current fierce competition as a newer firm (branch of a larger northern firm) cuts prices and aggressively markets its feed, thereby destabilizing the market shares of the older firms. Although most firms contended that the demand for feed has diminished, the redistribution among the millers or a shift from feed mixes to feed concentrates could mitigate the magnitude of such a reduction. There is inadequate information to indicate the extent of a decline in the demand for feeds.

From an historical perspective, it is very important to note two phenomena:

- 1) large northern feed mills had previously shipped feeds to this "feed deficit" region but now the five local firms have captured most of this market, thereby making the region practically self-sufficient in most feeds and major meat products; and
- 2) national imports of yellow corn have increased substantially beginning in the 1980/81 period thereby reducing the aggregate demand to which the Bicol corn traders responded (Figure 5).

FIGURE 5

Corn Imports for the Philippines, 1969/70 - 1982/83



Source: Policy Analysis Staff, BAEcon

4.0 Marketing System Organization and Spatial Network

The organization of the corn marketing system refers to system characteristics which affect buyer/seller relationships and influence both prices and the nature of competition, including concentration of firms and barriers to the entry of new firms. The organization of the yellow corn system in Bicol is understood by identifying its major marketing participants, determining principal trading patterns and examining the degree of competition within and between trading patterns.

4.1 Marketing Participants

The five main types of firms actively participating in the corn commodity system are: a) corn growers, b) grain traders, c) feed millers, d) the National Food Authority, and e) poultry/hog raisers. Other participants, such as, hybrid seed dealers, retailers of milled grain, hammer millers, agricultural supply store owners, meat retailers, butchers, and transporters are involved in this marketing system but have not been a significant source of change within Bicol's system. Since this corn system consists of four levels, i.e., production, distribution, processing, and consumption, each type of participant will be described within its respective level before examining the vertical linkages which form their trading patterns.

At the production level corn growers were classified by form of tenancy and participation in the government's Expanded (Yellow) Corn Program (ECP) (see Appendices I and II). Tenants and small CLT farmers tended to prefer open-pollinated varieties requiring minimal amounts of inputs, relied on local compradors or other creditors for input credit, and sold their harvests to them. Land owners and larger CLT farmers were more likely to use hybrid varieties, apply more but varying amounts of inputs, depend on their own funds or credit from large compradors or the ECP program, and sell to large compradors, NFA,

and/or viajeros. Factors influencing sales decisions included price differences, sources of credit, and proximity of prospective buyers. Progressive farmers were from this latter type of corn growers.

Most corn growers have access to compradors in their own barangay and/or nearby poblacions. For credit-worthy farmers the municipal level compradors are traditionally a primary source of both production and consumption credit. Many farmers form a "suki" relationship¹ with a comprador whereby the farmer receives credit and is subsequently obligated to sell his corn to that comprador who deducts the amount owed from the sales amount at a price close to the prevailing market price. Better-off farmers often finance their own production and search for buyers at higher levels in the marketing channels.

At the **distribution level** the marketing participants were identified and classified by their main occupation, functions performed, scope of their buying area, relative size, and primary source of working capital. Since all of them performed similar assembly/wholesaling functions, their base of operation (local or outside) and the scope of their buying area differentiated them and defined their overall size. Then, they were designated as regional compradors, municipal/provincial compradors, barangay compradors, viajeros, and managers of NFA warehouse buying stations. As diversified commodity traders, the relative share of their business income from corn varied widely. No one specialized in corn trading.

In the barangays the local compradors were residents who had occupations as an owner/manager of a sari-sari store, large prominent farmer, and/or transporter. Sari-sari store owners/managers received corn as payment for credited

¹ A "suki" means a person with whom a regular commercial relationship and bond of trust has evolved over time, whether between a trader and farmer or larger trader with a smaller trader.

purchases of consumer items whereas larger land owners, transporters, and/or local money lenders were repaid credit with a portion of the borrower's corn harvest. Their part-time trading business consisted of collecting limited quantities of corn in their own or nearby barangay, filling jeepneys or small trucks with bags of corn, and selling it to larger compradors in nearby poblacions. Some receive advances and/or act as agents for larger compradors. Barangays located along main roads, such as Pinit, had few, if any, such compradors because farmers had access to transportation or were visited by itinerant buyers (viajeros). Whereas interior barangays, such as Tambo, had several resident compradors.²

In the poblacions, the municipal compradors included the small scale, grain traders and some rice millers/grain traders who usually bought corn from farmers and barangay compradors within their own or neighboring municipalities. These full-time grain traders were the most frequently found in the study area. In the trading business of the municipal/provincial compradors the mix of commodities handled reflected the agriculture of the surrounding country-side. For example, in the lowland areas of Ocampo the main annual crops were rice, sugar cane, and corn. Thus, municipal compradors buy and sell mostly rice and corn and provide inputs on credit for growers of those crops. Whereas in the hills and lowlands of Buhi the perennial and annual crops of coconut, abaca, rice, and corn are common. Here compradors handled a wider array of commodities, including copra, abaca fiber, corn and rice, and displayed a wider range of consumer goods as well as production inputs. At this level a primary motive for providing inputs or goods on credit to select credit-worthy farmers

² A discussion of these locational patterns is within the "barangay profiles" section.

(suki), was the compradors need for of a consistent market share of local corn harvests. This arrangement indicates both a form of risk-sharing between comprador and farmer as well as a non-price competition among compradors.

In Pili and Ligao, poblacions strategically located along the major highway cutting through Bicol, the largest regional compradors were established. Their buying area encompassed most of the region's major corn production areas. At these and other key towns in the region, such as Tigaon and Tabaco, large provincial compradors also traded in large volumes of corn, however other commodities were usually more important for their business. And during the peak harvest period viajeros (itinerant traders) came from several cities and towns north of Bicol in search of corn sold in barangays and poblacions situated along "all weather" roads.

At the processing-consumption level for yellow corn there are four major groups: a) large Integrators, i.e., firms that integrate feed milling-poultry/hog raising-meat processing in one business, b) feed millers, c) agricultural supply store owners, and d) poultry/hog raisers. Since the national market is the main source of feed grain demand, the large-scale Integrators, grain traders, and feed millers in Manila, Bulacan, and Batangas consumed the largest share of Bicol's yellow corn. Whereas the balance was processed within the region by its five feed millers near large towns (three in Camarines Sur and two in Albay Provinces), several agricultural supply stores, a few medium-scale poultry/hog raisers and many small or backyard poultry and/or hog raisers. As noted before, there is a regional trend toward more commercial processing of feed grain.

The Bicol feed mills and medium-scale poultry/hog raisers who milled their own corn bought most of their corn from "suki" growers during the harvest season and from large compradors during the off-season. Corn procured in

excess of processing and/or inventory capacity was sold to large compradors or viajeros. Although agricultural supply stores mostly procured and sold processed feeds, some also procured grain and sold it to millers, compradors or viajeros. These stores supplied small and backyard poultry/hog raisers with feed to supplement whatever materials they fed their animals. The agricultural supply store business also seems to be in transition as stores owned or operated by persons trained/experienced in poultry/hog care are replacing older firms that could not offer technical advice on animal care in addition to supplies.

4.2 Market Trading Patterns

Most marketing participants are part of one of the three dominant trading patterns: a) the regional hierarchy; b) the viajeros, i.e., traders/transporters from outside the region; and c) the National Food Authority, i.e., the public agency buying and selling rice and corn in support of the government floor price scheme (Figure 6). Characteristics of each pattern are noted in terms of their suppliers of corn, the types of transactions made, and the major buyers serviced.³ Observations regarding how each pattern interacts/competes with the others will help explain the impact of a recent market collapse.

4.2.1 Regional Hierarchy

The regional hierarchies of compradors have been the "backbone" of Bicol corn production/marketing and represent the traditional trading pattern based on "suki" relationships between buyers and sellers. The term "hierarchy" not only signifies the vertical ranking of progressively larger compradors in the

³ It is important to note that informed sources contended that the hierarchical trading pattern handled the largest share of corn traded in Bicol, however, the team had insufficient time and resources to verify that assertion.

FIGURE 6

ILLUSTRATION OF MAJOR TRADING PATTERNS DURING YELLOW CORN HARVESTS IN BICOL, 1985

DEMAND SIDE

RELATIONSHIPS WITHIN PATTERNS

SUPPLY SIDE

FIGURE 6a
HIERARCHY

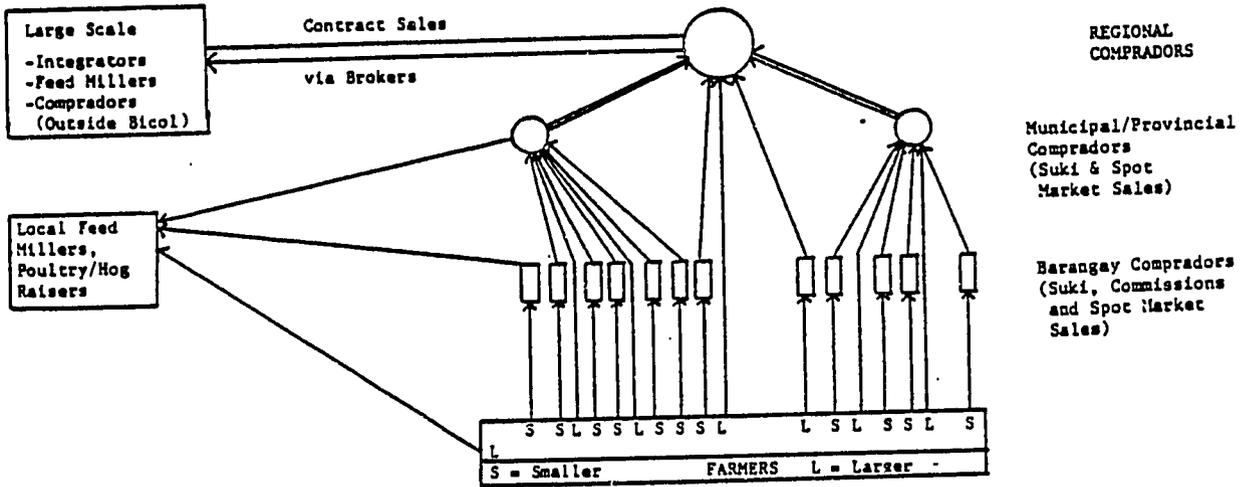


FIGURE 6b
VIAJEROS

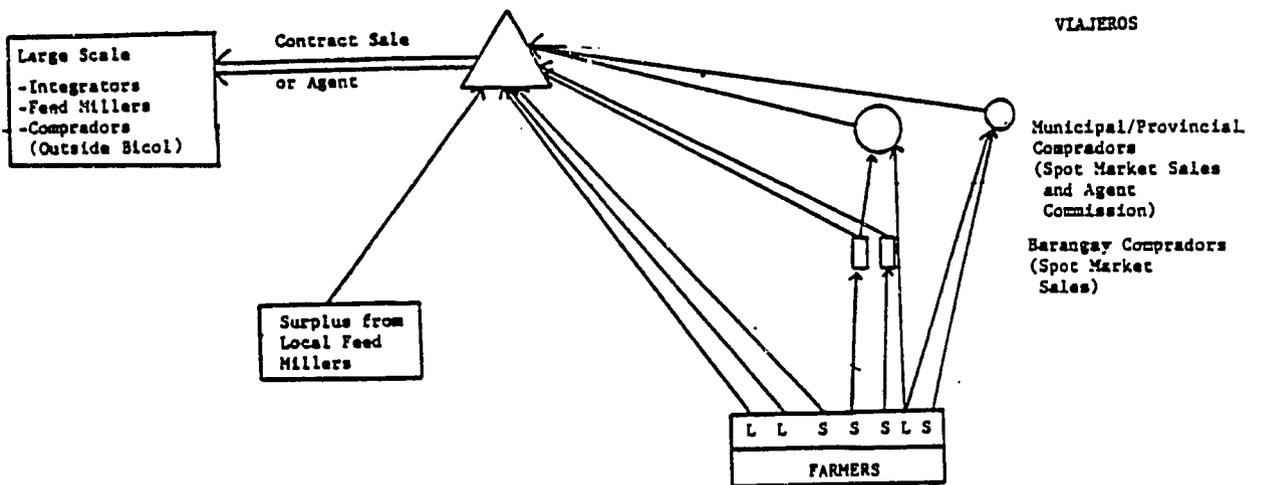
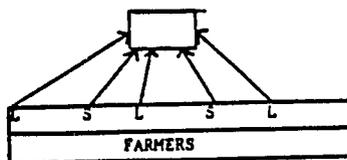


FIGURE 6c
NFA WAREHOUSE



NFA Warehouse
Buying Station
(2.90 peso/kg as
support price)
(Spot Market Sales)

bulking process, but also suggests a coordinated/interdependent pattern of trade as loosely orchestrated by a few large regional or provincial compradors.

The basic structure of the hierarchical pattern is illustrated in Figure 6a. The numbers and types of compradors per sample location are given in Appendices I and II. These figures indicate that several outlets are available to corn growers in those areas with little likelihood of restricted markets.

On the supply side, the regional compradors have established regular commercial relationships over time with a network of smaller compradors and/or farmers spread throughout their procurement areas. These regular suppliers (suki) are provided transportation for their corn and may receive cash advances for specified quantities at verbally agreed upon prices. Sometimes cash advances supplement a comprador's working capital which in turn is extended as credit to smaller compradors or farmers. Personal relationships and trust are important ingredients for this arrangement.

On the demand side, the regional compradors make written and verbal contracts with brokers, large-scale wholesalers, and the Integrators located outside of the region. The contract price generally reflects the demand and supply conditions in and around the Manila area as foreign imports and arrivals from major corn production areas, such as Mindanao, are procured by large buyers. With this contract in hand, these compradors call upon their network to supply sufficient quantities to fulfill their pending agreements.

One large regional comprador, sometimes referred to as the "price barometer" for the region, receives daily price quotations from major buyers north of Bicol via radio transceivers and posts his buying price. That buying price filters down the hierarchy and serves as a "reference buying price" from which the other compradors discount their costs and profits to determine their "bid" price for corn procured from farmers or smaller compradors.

From a spatial network perspective one can trace the flow of corn through a typical hierarchy from the barangay to buyers outside the region (Figure 7). This pattern implies bulking in progressively larger population centers, yet cities or large urban market places are mostly by-passed by the grain trade but they are important sites for agricultural supply stores.

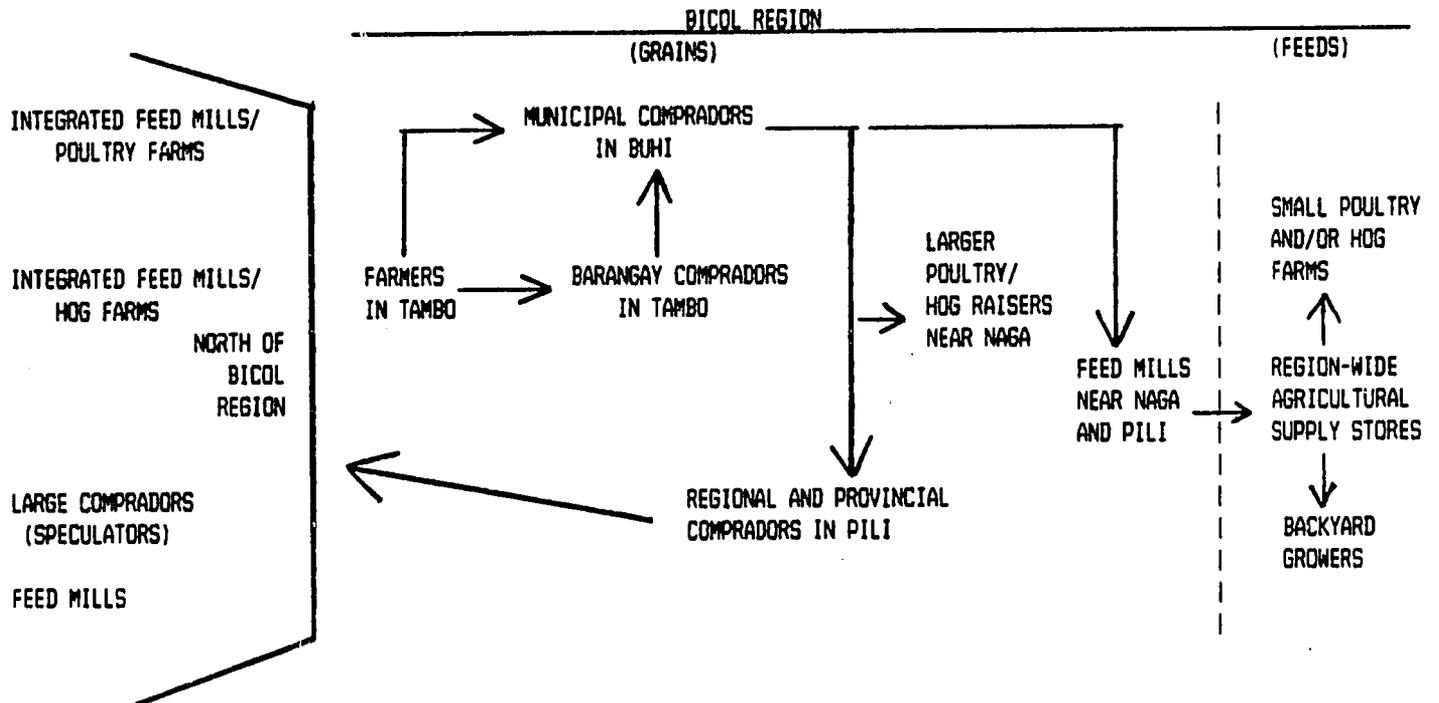
The poblacions of Pili and Ligao are the major focal points for the regional compradors and the main transshipment sites in the spatial network for flows of grain going out of this region. Key characteristics of these sites include: a) their location along the national highway and proximity to junctures of that highway with roads coming from interior corn production areas; and b) the presence of large, well-established business families who have grown and expanded their businesses over the past few decades. If the government plans to set-up a commodity exchange or improve its market intelligence/information system, it should recognize the significance of this spatial network.

The strengths of this pattern include: a) proximity (accessibility) to farmers, thus lower transport costs and less search time for compradors; b) integration within the local agricultural community, thus better determination of individual farmer's need for credit and credit-worthiness as well as more accountability and mutual recognition of interdependency for business survival; c) timely support for production activities; and d) a sharing of production and marketing risk by suki relationships (see the following discussion of what happened when the price collapsed).

Some weaknesses include: a) relatively high charges for the credit support extended (it is unclear whether high risks due to recent defaults or other

FIGURE 7

ILLUSTRATION OF CORN FLOW THROUGH A HIERARCHY OF BICOL REGION COMPRADORS



factors caused these changes)⁴; b) several levels of compradors (each with a margin) between regional and barangay compradors; c) somewhat arbitrary application of "reseo," i.e., volume discounts to account for lower quality than acceptable; and d) limited marketing formation provided to farmers to guide their decisions of when and how much corn to plant next season.

4.2.2 Viajeros⁵

The viajeros pattern represents a different type of trading pattern based more on price and impersonal "spot market" transactions between buyers and sellers than on personal exchange relations, credit, and risk sharing among members of a local agricultural community (Figure 6b). During the peak harvesting season, the viajeros (transient or itinerant traders) generally accompany large truck loads (20-25 m.t.) of goods, such as cement, to the region and purchase corn as "backhaul" for their truck, and return north once their truck is full.

On the supply side the viajeros generally preferred to deal with municipal and provincial compradors, yet would buy from barangay compradors and farmers who were accessible and had adequate quality of corn. Payment was cash-on-delivery. In the past few years as more viajeros have become active in the region, they have begun to adapt some practices similar to the hierarchy, such

⁴ The contention by a few compradors that no interest was charged on credited inputs may actually mean that high prices were charged for those inputs, reseo on corn was greater than for non-credited farmers, or some other form of charge was implicit. With a local, commercial interest rate of over 40 percent during the study period free credit is not likely.

⁵ Due to the timing of the interviews and a lack of awareness of the viajeros' emerging role in the corn system, few were interviewed.

as providing sales advances to select local compradors to procure corn in their behalf.

On the demand side viajeros usually had contract commitments or were buying agents for large Manila-, Bastangas-, or Bulacan-based feed millers, compradors or Integrators who wished to deal directly with municipal/provincial compradors, rather than through large regional compradors. Consequently, their reference price reflected the most recent procurement price or a prevailing market price in the Manila area. Likewise, since viajeros extended no farmer credit nor incurred high management costs, they were able to pay a higher price to Bicol's smaller compradors. Usually their buying price was 5 to 10 centavos per/kg above the regional comprador's price.

The main strengths of this pattern were the upward pressures on the prevailing price at each buying site and the cash payment upon delivery. Given the weather and market risks currently experienced in Bicol's corn commodity system, a weakness of this pattern was the lack of a risk-sharing arrangement needed by many farmers who did not have adequate resources for inputs or, once inputs were applied and lost due to unfavorable weather, could not immediately repay cash debts.

The spatial network of this trading pattern has few distinguishable characteristics as noted in Figure 8. However, it appears that viajeros buying sites were confined to those accessible to ten-wheel trucks and having sufficient volume of non-committed corn to warrant going there. Further information of a spatial nature is needed for this pattern.

4.2.3 The National Food Authority

The procurement system of the National Food Authority (NFA) is the third major trading pattern (Figure 6c). Besides procurement in support of the

government's floor price scheme, the NFA is also responsible for supplying select feed ingredients, such as soybeans, to local feed mills.

Since the market price for corn has usually been above the floor price, the NFA only once entered the Bicol market in a serious way, i.e., in August, 1985. At that time it bought directly from farmers who delivered corn to one of its warehouses.

The main strength of the NFA procurement system was that the floor price was not discounted by additional trader margins because of direct contacts with farmers. On the other hand, the farmer passbook requirement, the distance (transport costs) from the farm to the warehouse, the formal and unfamiliar procurement arrangements, the low moisture content accepted, and sometimes delayed payment (checks), due to limited funds on-hand, were among the factors which weakened its procurement system.

The spatial characteristics of this pattern centered on a corn farmer's proximity to the few NFA warehouses (Figure 9). The relevance of the distance factor, including farmer access to vehicles, sufficient volume to warrant shipment, and money/time to cover costs was accentuated by other aspects of the NFA procurement system mentioned above. One could infer that the farther a farmer was from the warehouse, the greater the price differential should be between the prevailing and the NFA price before costs warrant bringing corn to NFA. Likewise, larger farmers should be better able to handle the constraints inherent in such a procurement system. Those inferences merit consideration, if ever the NFA redesigns its procurement practices.

4.2.4 Competition

Competition will be examined from the following perspectives, namely, within the regional hierarchy and between the three trading patterns. Municipal compradors usually compete among themselves for corn through the credit arrange-

FIGURE 8

ILLUSTRATION OF CORN FLOW THROUGH VIAJEROS

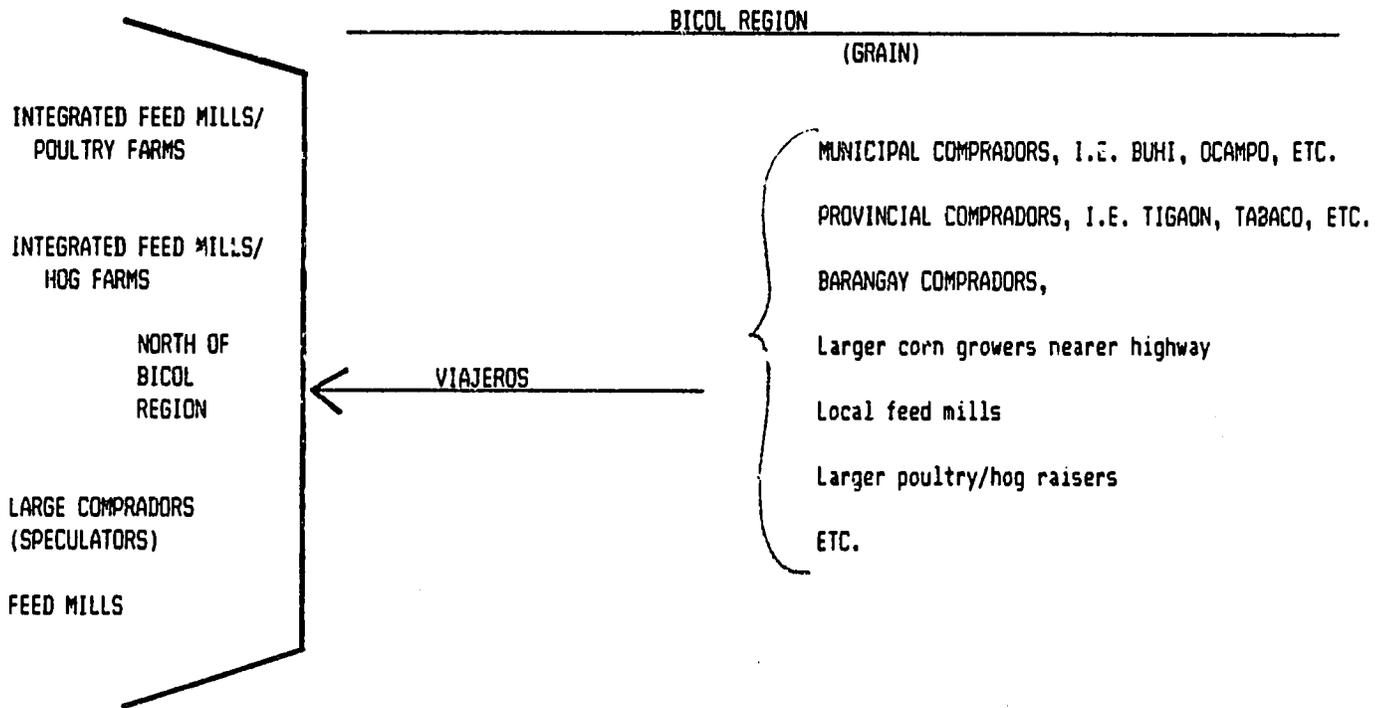
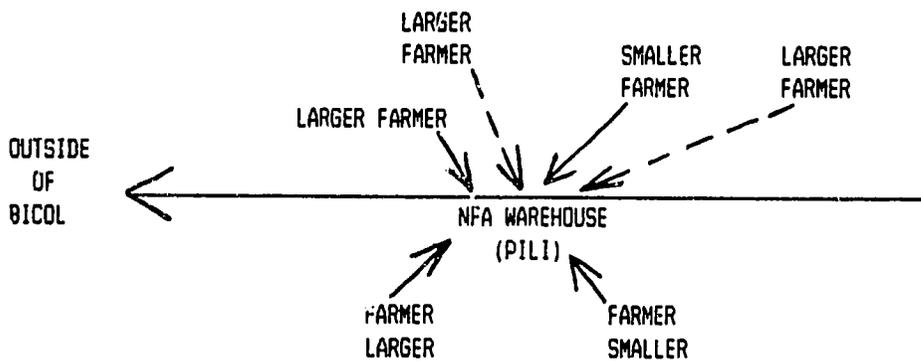


FIGURE 9

ILLUSTRATION OF CORN FLOW TO NFA BUYING STATIONS



ments they offer farmers and the provision of transportation after harvest, rather than bidding prices far beyond a local "prevailing price." Larger compradors compete for the business of smaller compradors by offering advances and some price differential above the prevailing price. In both cases, the management, availability, and costs of working capital become very important for maintaining, expanding, or entering this type of business. Since compradors trade in more than one commodity, working capital may be distributed among more than one commodity as farmer credit, cash advances, and spot market transactions. Thus, staying competitive and sourcing working capital are closely linked.

The understanding of the interaction of these three patterns is crucial for knowing how and why the corn marketing system changes and behaves as it does. During the past few years the regional hierarchy and viajeros patterns have been competing for the farmers harvests during the first and second seasons.

The regional hierarchy represents the historical pattern of trade and direct association between compradors and farmers way-of-life. Over time the barangay and municipal compradors, as "insiders," have forged a "suki" relationship for providing production/consumption inputs on credit and for receiving farmer outputs in return. This was built on trust and recognized interdependence. Although perceived as "outsiders," the viajeros enter the area with a more impersonal way-of-doing business and bid-up prices with little, if any, support to farmers and smaller compradors. Now the question becomes: Are the suki relationships beginning with the large regional and provincial compradors and extending through the hierarchy to farmers more important to smaller compradors and farmers than the viajeros' higher price at harvest time?

From a cost perspective, viajeros' shorter "marketing chain," i.e., a direct link to distant, large-scale buyers, and limited costs, usually enable them to

outbid the regional compradors who incur substantial costs through the provision of credit advances and by deferring bad debt. Each comprador in his hierarchy adds a margin to the cost of corn. Consequently, when the viajeros bid-up prices, the regional comprador faces narrowing margins.

The market collapsed in August, 1985 providing a unique opportunity to analyze both patterns as the Bicol corn system came under severe stress. According to key informants, when delayed imports of corn filled the warehouses of some large scale Integrators, they stopped buying domestic corn. Since this occurred during the peak harvest season for the whole country, the Manila market price suddenly dropped from more than 3.00 pesos/kg to somewhat over 2.00 pesos/kg. Though smaller feed mills increased their purchases, it was not enough to raise the price in the Bicol Region and the NFA was unable to quickly respond as it struggled to obtain funds to buy farmers corn at the support price of 2.90 pesos/kg. Most viajeros stopped coming to Bicol. Some large compradors in the hierarchy who had advances and farm credit outstanding continued to buy. Without the purchases by these compradors, corn growers would have experienced greater losses. The NFA with its budget limitation and cumbersome, centralized procurement system could only handle a part of that harvest.

In summary, the viajeros' interventions tended to bid up the price during the normal harvest seasons, but during a market collapse, they were not there for the farmers. On the other hand, the regional compradors who were tied through credit links continued to be a main outlet during the market crisis. Whether a balance between these two patterns is achieved or the organization of the corn market shifts to a dominant viajero pattern needs to be known, especially given the implications for farmer credit and the government's goal of an effective import substitution strategy.

5.0 Marketing System Operation

The operation of the marketing system can be understood by first assessing its tangible activities, i.e., vertical array of marketing functions, and then focusing on transactions costs at key points, and firm's behavior towards its suppliers, buyers, and competitors. The understanding of marketing functions at each level in the system is important in order: a) to associate specific functions with each type of participant (firm) while noting the conditions under which functions shift in importance among participants; b) to identify unnecessary duplication of functions and/or opportunities for further integration, specialization, and economies of scale within functions; c) to determine the impacts of technological or institutional interventions that affect the performance of certain functions, especially storage, transportation, and processing; and d) to target technological advances per function for the type of participant best suited to improve system outcomes with that technology.

Patterns of behavior that raise the costs and/or increase risks and uncertainties associated with performing marketing functions must be identified, especially if they increase transactions costs or are cases of opportunistic behavior, i.e., self-interest seeking with guile.

In this section the relevant functions will be described, related to those performing them, and associated with factors influencing their performance, such as seasonality, location, and scale of firm. Select instances of high transactions costs and possible opportunistic behavior will be cited.

5.1 Marketing Functions ¹

The basic post harvest functions within the corn commodity system are arranged according to the form of commodity and the type of marketing participant performing them (Figure 10). The three relevant forms of corn within the system are cobs of corn, corn grain, and feeds. The farmers handle cobs of corn and corn grain, the compradors buy and sell corn grain, and feed millers and some poultry/hog raisers deal with grain and feeds derived from corn grain.

In general, farmers harvest, husk, dry, bag, and transport the cobs of corn to their homes before shelling, drying, cleaning, transporting and selling the corn grain. Limited amounts of corn are stored at the farm level. The first handlers, i.e., those who purchase bags of corn directly from farmers, are compradors, feed millers, or poultry/hog raisers. Compradors will dry the grain if its moisture content is over 16-18 percent, rebag, bulk, temporarily store, transport, and sell it to larger compradors, feed millers, or poultry/hog raisers. Within the distribution chain some storage, transporting, and selling will occur until it is bought by those who mill the grain and mix the feed. Milled corn could be a distinct product in cracked, grits, or fine form or combined with other ingredients as a feed mix. Bagged feeds are stored, transported, and sold. Since drying, transporting, storage, and processing seem to be the most critical physical functions in this commodity system, they will be examined and associated with factors influencing their performance.

Sun drying was done by spreading the corn on mats, paved roads, or cement drying floors during sunny days. Although the NFA occasionally used mechanical

¹ In addition to these physical functions, coordination and exchange functions are dealt with in other sections, for instance, exchange arrangements (market organization section), and pricing (economics section).

FIGURE 10

POST-HARVEST FUNCTIONS OF MARKETING PARTICIPANTS WITHIN THE YELLOW CORN SYSTEM

| Post-harvest Functions | <u>Compradors</u> | | | | | Viajeros | Feed Millers | Hammer Millers | Feed Supply Store Oper- ators | Poultry/Hog Raisers |
|----------------------------|-------------------|------|------|------|------|----------|--------------|----------------|----------------------------------|---------------------|
| | Farmer | Bar. | Mun. | Pro. | Reg. | | | | | |
| <u>Cobs</u> | | | | | | | | | | |
| Harvest | C | | | | | | | | | |
| Husk | C | | | | | | | | | |
| Dry | C | | | | | | | | | |
| Bag | C | | | | | | | | | |
| Transport (Field-Home) | C | | | | | | | | | |
| Store | C | | | | | | | | | |
| Shell | C | | | | | | | | | |
| <u>Grain</u> | | | | | | | | | | |
| Dry | G | G | G | G | | | | | | |
| Clean & Bag | G | | | | | | | | | |
| Transport (Short Distance) | G | G | | | | | | | | |
| Sell | G | | | | | | | | | |
| Buy from Farmers | | G | G | G | G | G | G | | | G |
| nebag | | | G | G | G | | | | | |
| Store <1 month | | G | G | G | G | | G | | | G |
| Transport (Long Distance) | | | | G | G | G | | | | |
| Sell | | G | G | G | G | G | | | | |
| Buy from Comprador | | | G | G | G | G | G | | | G |
| Store >1 month | | | | G | G | | G | | | |
| <u>Feed</u> | | | | | | | | | | |
| Grind & Bag | | | | | | | F | F | | F |
| Mix | | | | | | | F | F | | F |
| Sell | | | | | | | F | | | |
| Purchase | | | | | | | | | F | F |
| Transport | | | | | | | F | | F | F |
| Sell | | | | | | | | | F | |
| Feed Poultry/Hogs | | | | | | | | | | F |

Source: Interviews

driers, few compradors had such driers. Labor availability and wages were the major cost components for drying. During the rainy season harvest, drying corn grain became particularly difficult and time consuming because higher moisture content required more time and higher costs to dry, delayed farmer sales, led to more broken grain during shelling and increased storage losses from aflatoxin and rotting. If farmers were not able (climate or space not permitting) nor willing (urgent need for cash or labor was scarce) to dry their corn to an acceptable level of dryness, the first handlers usually imposed a large "reseco" on the bags of wet corn and then hired laborers to do the drying before selling it to others. Most compradors strongly discouraged farmers from selling them "wet" corn. Although poultry/hog raisers likewise preferred to buy dry corn, they had the option of using wet corn before it spoiled, while storing the drier corn for later use. Wet corn was seldom traded beyond the first handler level.

Shelling corn was done at the production level where farmers used one of three techniques: a) shelling by hand, b) using a hand tool, or c) operating an electric or fuel powered shelling machine. In concentrated corn production areas, such as Buhi municipality, shelling machines were owned and operated by several farmers, however, in areas with scattered, small-scale production the other methods were more common.

For transportating corn from fields to home farmers usually used carabao drawn sleds. From the barangay to a poblacion farmers or small compradors either bought space on a passenger vehicles (tricycles, jeepney, or bus) or hired vehicles (jeepney, pick-up truck, or 6-wheel truck). For transportation from the poblacion to other areas vehicles ranged from a jeepney to 10-wheel truck (20 - 25 m.t. capacity), depending on destination and volume to be moved.

Larger compradors were more likely to own and operate their own trucks whereas smaller compradors could hire jeepneys or small trucks.

Farmers stored limited amounts of corn, usually for seed use or later sale for "pocket money." Their storage method was by hanging the unhusked cobs of corn on racks near their house or within their house. Small compradors seldom had enough working capital to store corn whereas larger compradors with warehouses stored corn and a wide range of other commodities depending on their interest in speculating and alternative needs for working capital. Few compradors stored large quantities of corn for more than two months. Little control of storage pests like weevils or rodents was mentioned or observed. Large compradors who had local feed millers as steady customers during the lean months tended to store for longer periods.

Processing was done by the three types of participants who milled corn, i.e., hammer millers, medium-large scale poultry/hog raisers and feed millers. Some rice mills operated a small hammer machine in addition to their rice huller in order to service farmers or backyard poultry/hog raisers who brought small amounts of grain to grind for their animals. Most medium- to large-scale poultry/hog raisers bought corn grain, ground it with their own hammer machines, and fed most of the feed to their animals while sometimes selling surplus grain or feed to nearby raisers. Feed millers ground corn both for sale as cracked, grits, or fine corn or for mixing with other ingredients as "feed." Although the sizes and models of machines varied somewhat by type of firm, the technologies were generally small-scale, simple and labor intensive.

5.2 Transactions Costs

The forms of farmer-buyer transactions that require special attention are the comprador approach and the NFA approach. Each will be explained and then compared.

The sales transactions between farmer and comprador usually involved these steps:

- a) the comprador states that day's buying price;
- b) if the price is acceptable, the comprador inspects the grain for foreign material, tests the moisture content (m.c.) by feeling or biting the grain, and decides on the "reseco," i.e., kgs/sack discounted due to excessive m.c., "dead weight materials," etc.;
- c) if the farmer agrees with that reseco, the comprador weighs each sack on his scale while the farmer observes; and
- d) the comprador pays the total value in cash, less any credit due.

This entire process usually takes place at the comprador's home or store which is in or near the farmer's barangay.

The NFA approach follows similar steps except that first the farmer must prove that he is a "farmer" by showing a NFA passbook, then:

- a) the procurement staff reaffirms the 2.90 pesos/kg buying price;
- b) the staff inspects the grain and uses a moisture meter to determine m.c. and by use of a conversion table, states a lower price which accounts for a m.c. beyond the 14 percent standard and/or percentage of foreign material that is acceptable;
- c) if the farmer decides to lower the m.c., the NFA provides drying facilities for a small fee, otherwise, the farmer agrees and the staff weighs each sack in front of the farmer; and
- d) cash is paid up to a certain value, then a check is issued for the balance due to limited cash-on-hand.

Since these activities take place at the NFA warehouse, farmers have to arrange and pay for transportation which could be difficult and expensive, depending on distance, availability of vehicles, and the volume handled.

A comparison of approaches points out substantial transaction cost differences. The comprador buys from whomever agrees to sell at his price whereas the NFA is restricted to dealing with farmers. The cash costs associated with the straight-forward process of obtaining a passbook were minimal whereas the non-cash costs involving unfamiliar paper work and signatures could require substantial time, effort, and implicit or explicit remuneration to obtain (expedite) documents. Proximity to or frequent dealings with NFA would reduce that transaction cost.

Both approaches wanted acceptable quality of a similar nature, i.e. the NFA standard of acceptable moisture content was 14 percent m.c. and compradores about 14-16 percent m.c. Yet, the NFA used moisture meters, a "technically" more accurate means of measurement, while compradores used a less exact and somewhat arbitrary method. However, the crux of the different methods was not so much the exact or arbitrary nature of the measurement but the way it was perceived to affect the buying price. While compradores quoted a price before examining the corn and then discounted the volume purchased whenever quality was below the accepted norm; in the same situation, the NFA discounted the price. In other words, the comprador's quoted price of 2.80 pesos/kg was maintained throughout the transaction although the volume discounted, i.e., "resecó," could range from 2-10 kg per 50-60 kg sack of corn. Whereas the NFA quoted 2.90 pesos/kg, used moisture meters and a careful examination to determine quality, and then may offer 2.50 - 2.75 pesos/kg for the entire sack of 50-60 kg. Although several farmers understood that the computation should result in exactly the same or more total value per sale than the comprador offered, this non-traditional approach seemed to cause far more apprehension and/or mistrust among farmers than compradores' method of determining quality

discounts. This suggests that NFA continue to use improved measurement techniques but discount volume not price.

And finally, the NFA payment procedure caused additional transactions costs for farmers who received a check whenever the sales value exceeded the cash-on-hand per transaction. The banks which cashed checks followed their own schedules and identification procedures which could delay receipt of money or require costly trips away from the farm.

Although none of the above components of the transaction costs would be prohibitive, their combination and the farmers urgency to sell when most competitors withdrew from the market during the unexpected market collapse did create substantial problems for farmers in the short run and for NFA credibility in the long run. Compatibility with farmers perception of price or value, less formal sales practices, and need for quick risk-sharing responses to unexpected market behavior seem key to effective government procurement transactions in such a situation.

5.3 Behavior

Questions about undesirable marketing behavior occasionally arose during the RMA. However, a major case which could have adverse effects on the region's consumers and poultry industry was mentioned by local poultry raisers. They reported that large poultry raisers from outside of Bicol recently shipped in large truckloads of dressed chickens and eggs during an important local festival. Consequently, market prices sharply dropped and the sales volume of local poultry raisers was unexpectedly low. Although low retail prices at the time seemed to benefit consumers, such short term shocks could adversely affect the regions poultry industry in the long run. Whether this case represents "dumping" due to overproduction by large Integrators or new competition from outside the region needs to be clarified, otherwise it creates costly risks and

uncertainties for the local poultry industry whose reaction may include reducing flocks or procuring more corn to support unsold inventories of birds, thereby increasing prices during rest of the year. These poultry raisers need further information before deciding which option to select.

6.0 Economics of Marketing System

The two main economic topics considered during the RMA were the structure of costs and returns to corn production and prices in the marketing channels.¹ The reference prices for marketing participants and the price formation process were particularly important. The high degree of participant heterogeneity, the market collapse during the rainy season, and the changing patterns of corn procurement noted in and beyond Bicol made the price dimension more difficult to sort out than originally expected.

6.1 Costs Relative to Yields

The depressed economy in the Bicol region and the very low prices for major regional crops, such as coconut and abaca, caused cash flow problems for farmers while irregular weather patterns during the rainy season increased the risks of yield losses, therefore most farmers preferred lower cost, open-pollinated versus hybrid varieties. The sharply reduced amounts and sources of production credit from compradors and practically no government credit, except for those few participating in the ECP program, meant limited cash available for seed, fertilizer, and pesticide. Those factors, combined with a drought during the planting period and heavy rains during the harvest period in several production areas, resulted in low yields for most farmers and cash losses for many who invested heavily in cash inputs.

Cost of production data from a small sample of progressive farmers allowed us: a) to examine the degree of heterogeneity among more progressive corn producers; b) to obtain an indication of the structure of costs, i.e., percentage of expenditures by type of costs; and c) to relate costs to

¹ Since the Ministry of Agriculture and Food sponsored and provided most of the personnel for this research, insights and expectations regarding the farm level performance of the commodity system were emphasized.

different types of producers, such as those planting traditional versus hybrid varieties.

Since many of the sample farmers were in the ECP program and planted hybrid varieties,² high yields and large cash expenditures were expected in the analysis. Also, the dispersion of the sample across five locations was expected to contribute to variations in cost structures and variations in farmer and crop cultivation characteristics, such as, tenural status, farm size, area in corn, and harvesting time. Thus, this analysis is meant to be indicative rather than representative of the prevailing situation.

The main points learned from this sample were: a) fertilizers and hired labor are the main cost items (family labor, i.e., non-cash costs, were unexpectedly low, except for 2 growers of traditional varieties); b) cash losses were experienced by 71 percent of the hybrid corn growers and 33 percent of those growing traditional varieties; c) yields were especially low for hybrid corn growers, even though several farmers used the "5 ton package of practices"³; and d) cash costs ranged from about 3,000 pesos/ha to over 6,000 pesos/ha (Tables 10-14). Since a farmer's yield did not seem to correspond to his level of cash costs it suggests that strong adverse factors are affecting production during this season (Table 15). As expected, there was considerable heterogeneity among the sample in terms of farm size (1 ha - 11 ha), corn area

² The expenditure of 800 pesos for seed distinguished those using hybrid seed versus other types of seed material.

³ According to an extension agent, another plausible explanation for such low, reported yields was the need for several farmers to justify not repaying their ECP loans. In fact, few ECP participants fully repaid that crop loan.

TABLE 10

COMPARISON OF COSTS AND RETURNS PER HECTARE FOR TWO YELLOW CORN PRODUCERS DURING RAINY SEASON (MAY - SEPT.) 1985 IN BARANGAY SAN ANTONIO, BOMBON MUNICIPALITY, CAMARINES SUR ^a

| Item | Case 1 | | Case 2 | | Average | |
|-------------------------|--------------|---------------|--------------|---------------|--------------|---------------|
| | (₱/ha) | (%) | (₱/ha) | (%) | (₱/ha) | (%) |
| Cash Cost: | | | | | | |
| Seed | 800 | 13.76 | 62 | 1.77 | 431 | 9.24 |
| Fertilizer | 1,960 | 33.71 | 510 | 14.55 | 1,235 | 26.50 |
| Pesticide | 223 | 3.83 | 240 | 6.85 | 232 | 4.98 |
| Labor | <u>1,942</u> | <u>33.40</u> | <u>837</u> | <u>23.88</u> | <u>1,390</u> | <u>29.82</u> |
| Subtotal | <u>4,925</u> | <u>84.70</u> | <u>1,649</u> | <u>47.05</u> | <u>3,288</u> | <u>70.54</u> |
| Non-Cash Cost: | | | | | | |
| Subtotal | <u>890</u> | <u>15.30</u> | <u>1,856</u> | <u>52.95</u> | <u>1,373</u> | <u>29.46</u> |
| Total Cost | <u>5,815</u> | <u>100.00</u> | <u>3,505</u> | <u>100.00</u> | <u>4,661</u> | <u>100.00</u> |
| Gross Return | 3,721 | | 3,348 | | 3,546 | |
| Net Return: | | | | | | |
| (All Cost) | (2,094) | | (157) | | (1,115) | |
| (Cash Cost) | (1,204) | | 1,699 | | 258 | |
| Breakeven Price: | | | | | | |
| (All Cost) | ₱4.53/kg | | ₱3.24/kg | | ₱3.94/kg | |
| (Cash Cost) | ₱3.84/kg | | ₱1.53/kg | | ₱2.78/kg | |
| Size of Farm (ha) | 11 | | 4 | | 7.5 | |
| Corn Area (ha) | 4 | | 1 | | 2.5 | |
| Tenural Status | Leasee | | Share Tenant | | - | |
| Yield (kg/ha) | 1,283 | | 1,080 | | 1,182 | |
| Harvesting Time | October | | August | | - | |
| Buyer of Crop | - | | - | | - | |
| Selling Price (₱/kg) | 2.90 | | 3.10 | | 3.00 | |

^a In this area the farmers gave part of their harvest as the landlord's share.

Source: Interviews

TABLE 11

COMPARISON OF COSTS AND RETURNS PER HECTARE FOR TWO YELLOW CORN
PRODUCERS DURING RAINY SEASON (MAY - SEPT.) 1985 IN
BAR' NGAY PINIT, OCAMPO MUNICIPALITY, CAMARINES SUR

| <u>Item</u> | <u>Case 3</u> | | <u>Case 4</u> | | <u>Average</u> | |
|--------------------------|---------------|---------------|---------------|---------------|----------------|---------------|
| | <u>(₱/ha)</u> | <u>(%)</u> | <u>(₱/ha)</u> | <u>(%)</u> | <u>(₱/ha)</u> | <u>(%)</u> |
| Cash Cost: | | | | | | |
| Seed | 800 | 13.84 | 800 | 11.97 | 800 | 12.83 |
| Fertilizer | 1,950 | 33.74 | 2,220 | 33.21 | 2,085 | 33.45 |
| Pesticide | 640 | 11.07 | 240 | 3.59 | 440 | 7.06 |
| Labor | 1,830 | 31.66 | 2,930 | 43.83 | 2,380 | 38.18 |
| Subtotal | <u>5,220</u> | <u>90.31</u> | <u>6,130</u> | <u>92.60</u> | <u>5,705</u> | <u>91.53</u> |
| Non-Cash Cost: | | | | | | |
| Subtotal | <u>560</u> | <u>9.69</u> | <u>495</u> | <u>7.40</u> | <u>528</u> | <u>8.47</u> |
| Total Cost | <u>5,780</u> | <u>100.00</u> | <u>6,685</u> | <u>100.00</u> | <u>6,233</u> | <u>100.00</u> |
| Gross Return | 4,664 | | 3,663 | | 4,164 | |
| Net Return: | | | | | | |
| (All Cost) | (1,116) | | (3,022) | | (2,069) | |
| (Cash Cost) | (556) | | (2,467) | | (1,541) | |
| Break-even Price: | | | | | | |
| (All Cost) | ₱4.03/kg | | ₱6.02/kg | | ₱4.90/kg | |
| (Cash Cost) | ₱3.64/kg | | ₱5.58/kg | | ₱4.48/kg | |
| Size of Farm (ha) | 1 | | 1 | | 1 | |
| Corn Area (ha) | 1 | | 1 | | 1 | |
| Tenural Status | CLT | | CLT | | - | |
| Yield (kg/ha) | 1,435 | | 1,110 | | 1,272 | |
| Harvesting Time | - | | - | | - | |
| Buyer of Crop | - | | Trader | | - | |
| Selling Price (₱/kg) | 3.25 | | 3.30 | | 3.27 | |

Source: Interviews

TABLE 12

COMPARISON OF COSTS AND RETURNS PER HECTARE FOR TWO YELLOW CORN
PRODUCERS DURING RAINY SEASON (MAY - SEPT.) 1985 IN
BARANGAY TAMBO, BUHI MUNICIPALITY, CAMARINES SUR

| <u>Item</u> | <u>Case 5</u> | | <u>Case 6</u> | | <u>Average</u> | |
|-------------------------|---------------|---------------|---------------|---------------|----------------|---------------|
| | <u>(₱/ha)</u> | <u>(%)</u> | <u>(₱/ha)</u> | <u>(%)</u> | <u>(₱/ha)</u> | <u>(%)</u> |
| Cash Cost: | | | | | | |
| Seed | 50 | 1.32 | 800 | 16.43 | 425 | 9.82 |
| Fertilizer | 1,367 | 36.12 | 1,933 | 39.69 | 1,650 | 38.12 |
| Pesticide | 112 | 2.96 | 515 | 10.57 | 314 | 7.25 |
| Labor | 1,470 | 38.84 | 1,417 | 29.10 | 1,444 | 33.36 |
| Subtotal | <u>2,999</u> | <u>79.24</u> | <u>4,665</u> | <u>95.79</u> | <u>3,833</u> | <u>88.55</u> |
| Non-Cash Cost: | | | | | | |
| Subtotal | <u>786</u> | <u>20.76</u> | <u>205</u> | <u>4.21</u> | <u>496</u> | <u>11.45</u> |
| Total | <u>3,785</u> | <u>100.00</u> | <u>4,870</u> | <u>100.00</u> | <u>4,329</u> | <u>100.00</u> |
| Gross Return | 4,834 | | 4,435 | | 4,634 | |
| Net Return: | | | | | | |
| (All Cost) | 1,049 | | (435) | | 305 | |
| (Cash Cost) | 1,835 | | (230) | | 801 | |
| Breakeven Price: | | | | | | |
| (All Cost) | ₱2.27/kg | | ₱2.69/kg | | ₱2.49/kg | |
| (Cash Cost) | ₱1.80/kg | | ₱2.58/kg | | ₱2.21/kg | |
| Size of Farm (ha) | 4.50 | | 4.00 | | 4.25 | |
| Corn Area (ha) | 3.00 | | 3.75 | | 3.38 | |
| Tenural Status | Leasee | | CLT | | - | |
| Yield (kg/ha) | 1,667 | | 1,810 | | 1,738 | |
| Harvesting Time | 2nd wk August | | August | | - | |
| Buyer of Crop | Trader | | Viajero | | - | |
| Selling Price (₱/kg) | ₱2.90 | | ₱2.45 | | ₱2.68 | |

Source: Interviews

TABLE 13

COMPARISON OF COSTS AND RETURNS PER HECTARE FOR TWO YELLOW CORN
PRODUCERS DURING RAINY SEASON (MAY - SEPT.) 1985 IN
BARANGAY LABAWON, BUHI MUNICIPALITY, CAMARINES SUR

| Item | Case 7 | | Case 8 | | Average | |
|-------------------------|----------------|---------------|--------------|---------------|--------------|---------------|
| | (₱/ha) | (%) | (₱/ha) | (%) | (₱/ha) | (%) |
| Cash Cost: | | | | | | |
| Seed | 64 | 1.52 | 800 | 18.05 | 432 | 10.00 |
| Fertilizer | 980 | 23.28 | 1,320 | 29.78 | 1,150 | 26.62 |
| Pesticide | -- | -- | 57 | 1.28 | 29 | 0.67 |
| Labor | 3,045 | 72.35 | 1,852 | 41.78 | 2,448 | 56.65 |
| Subtotal | <u>4,089</u> | <u>97.15</u> | <u>4,029</u> | <u>90.89</u> | <u>4,059</u> | <u>93.94</u> |
| Non-Cash Cost: | | | | | | |
| Subtotal | <u>120</u> | <u>2.85</u> | <u>404</u> | <u>9.11</u> | <u>262</u> | <u>6.06</u> |
| Total Cost | <u>4,209</u> | <u>100.00</u> | <u>4,433</u> | <u>100.00</u> | <u>4,321</u> | <u>100.00</u> |
| Gross Return | 2,360 | | 6,351 | | 4,356 | |
| Net Return: | | | | | | |
| (All Cost) | (1,849) | | 1,918 | | 35 | |
| (Cash Cost) | (1,729) | | 2,322 | | 297 | |
| Breakeven Price: | | | | | | |
| (All Cost) | ₱5.26/kg | | ₱2.02/kg | | ₱2.89/kg | |
| (Cash Cost) | ₱5.11/kg | | ₱1.84/kg | | ₱2.72/kg | |
| Size of Farm (ha) | 5.00 | | 3.00 | | 4.00 | |
| Corn Ara (ha) | 2.00 | | 3.00 | | 2.50 | |
| Tenural Status | Owner/Operator | | CLT | | - | |
| Yield (kg/ha) | 800 | | 2,190 | | 1,495 | |
| Harvesting Time | September | | - | | - | |
| Buyer of Crop | Trader | | Trader | | - | |
| Selling Price (₱/kg) | ₱2.95 | | ₱2.90 | | ₱2.92 | |

Source: Interviews

TABLE 14

COMPARISON OF COSTS AND RETURNS PER HECTARE FOR TWO YELLOW CORN
PRODUCERS DURING RAINY SEASON (MAY - SEPT.) 1985 IN
BARANGAY TUBURAN, LIGAO MUNICIPALITY, ALBAY

| <u>Item</u> | <u>Case 9</u> | | <u>Case 10</u> | | <u>Average</u> | |
|-----------------------|---------------|---------------|--------------------------------|---------------|----------------|---------------|
| | <u>(₱/ha)</u> | <u>(%)</u> | <u>(₱/ha)</u> | <u>(%)</u> | <u>(₱/ha)</u> | <u>(%)</u> |
| Cash Cost: | | | | | | |
| Seed | 800 | 15.38 | 800 | 16.41 | 800 | 15.88 |
| Fertilizer | 2,505 | 48.16 | 2,640 | 54.14 | 2,572 | 51.05 |
| Pesticide | 574 | 11.04 | 506 | 10.38 | 540 | 10.72 |
| Labor | 1,009 | 19.40 | 830 | 17.02 | 920 | 18.26 |
| Subtotal | <u>4,888</u> | <u>93.98</u> | <u>4,776</u> | <u>97.95</u> | <u>4,832</u> | <u>95.91</u> |
| Non-Cash Cost: | | | | | | |
| Subtotal | <u>313</u> | <u>6.02</u> | <u>100</u> | <u>2.05</u> | <u>206</u> | <u>4.09</u> |
| Total Cost | <u>5,201</u> | <u>100.00</u> | <u>4,876</u> | <u>100.00</u> | <u>5,038</u> | <u>100.00</u> |
| Gross Return | 1,426 | | 8,875 | | 5,150 | |
| Net Return: | | | | | | |
| (All Cost) | (3,775) | | 3,999 | | 112 | |
| (Cash Cost) | (3,462) | | 4,099 | | 318 | |
| Breakeven Price: | | | | | | |
| (All Cost) | ₱8.76/kg | | ₱1.62/kg | | ₱2.80/kg | |
| (Cash Cost) | ₱8.23/kg | | ₱1.59/kg | | ₱2.69/kg | |
| Size of Farm (ha) | 2.5 | | 1.00 | | 1.75 | |
| Corn Area (ha) | 1.5 | | 1.00 | | 1.25 | |
| Tenural Status | CLT | | Leasee | | - | |
| Yield (kg/ha) | 594 | | 3,000 | | 1,797 | |
| Harvesting Time | 2nd wk August | | 1st wk September | | - | |
| Buyer of Crop | Trader | | Viajero | | - | |
| Selling Price (₱/kg) | ₱2.40 | | ₱2.90; ₱3.00 (NFA) (Trader) | | ₱2.87 | |

Source: Interviews

TABLE 15

CORRESPONDENCE OF AN INDIVIDUAL FARMER'S CASH COST/HA
TO HIS CORN YIELD DURING THE RAINY SEASON, 1985, BICOL

| <u>Case Number</u> (#) | <u>Cash Costs</u> (P/ha) | <u>Yield</u> (kg/ha) |
|-------------------------------|---------------------------------|-------------------------|
| 4 | 6,130 | 1,110 |
| 3 | 5,220 | 1,435 |
| 1 | 4,925 | 1,283 |
| 9 | 4,888 | 594 |
| 10 | 4,776 | 3,000 |
| 6 | 4,665 | 1,810 |
| 7 | 4,089 | 800 |
| 8 | 4,029 | 2,190 |
| 5 | 2,999 | 1,667 |
| 2 | 1,649 | 1,080 |

Source: Farmer Interviews

(1 ha - 4 ha), harvesting time (August to October), tenural status (leasee or CLT, owner, or tenant), breakeven price to cover cash costs (1.53 pesos/kg - 8.23 pesos/kg) and yield (594 kg/ha - 3,000 kg/ha).

In summary, most of the progressive farmers sampled were not tenants (i.e., they leased or owned their land) but otherwise had few characteristics in common, adapted to the weather risks of the rainy season crop differently, and found that the level of cash investment in their corn crop did not insure a commensurate level of yield. Again this calls into question the advisability of promoting hybrid varieties during the rainy season in Bicol.

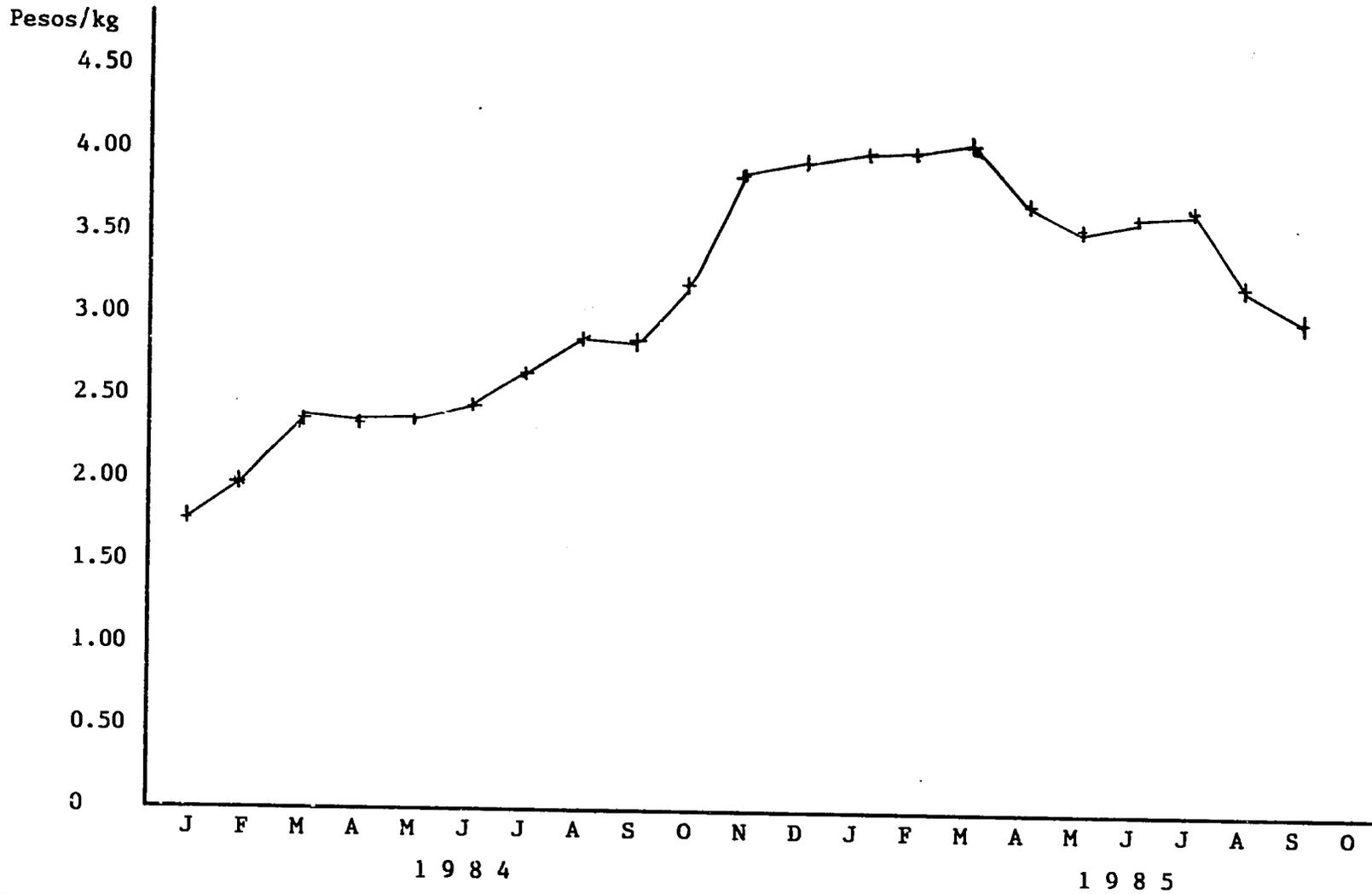
6.2 Prices

The recent regional price trend for yellow corn showed a consistent upward pattern until early 1985 and minimal seasonality relative to Bicol's peak harvest periods of March-April and August-September (Figure 11). Given the large amount of estimated regional production of corn relative to the small number and size of local feed mills and medium-sized poultry/hog raisers, that pattern of Bicol prices suggests the overwhelming influence of the distant, national corn market price, especially since Bicol corn represents such a small fraction of the total volume traded in the national market.

The price formation process, as introduced within the section on marketing system organization, includes the links between the national market price in Manila, the regional compradors buying or reference price in the key trading centers of Pili and Ligao, and the prevailing prices in the municipal and barangay as discounted backwards from the hierarchy's reference prices (Figure 12). Although viajeros, local feed millers, and medium-scale poultry/hog raisers usually bid 5-10 centavos/kg above the hierarchical prices, the viajeros' much larger volumes affected prevailing prices far more than did the

FIGURE 11

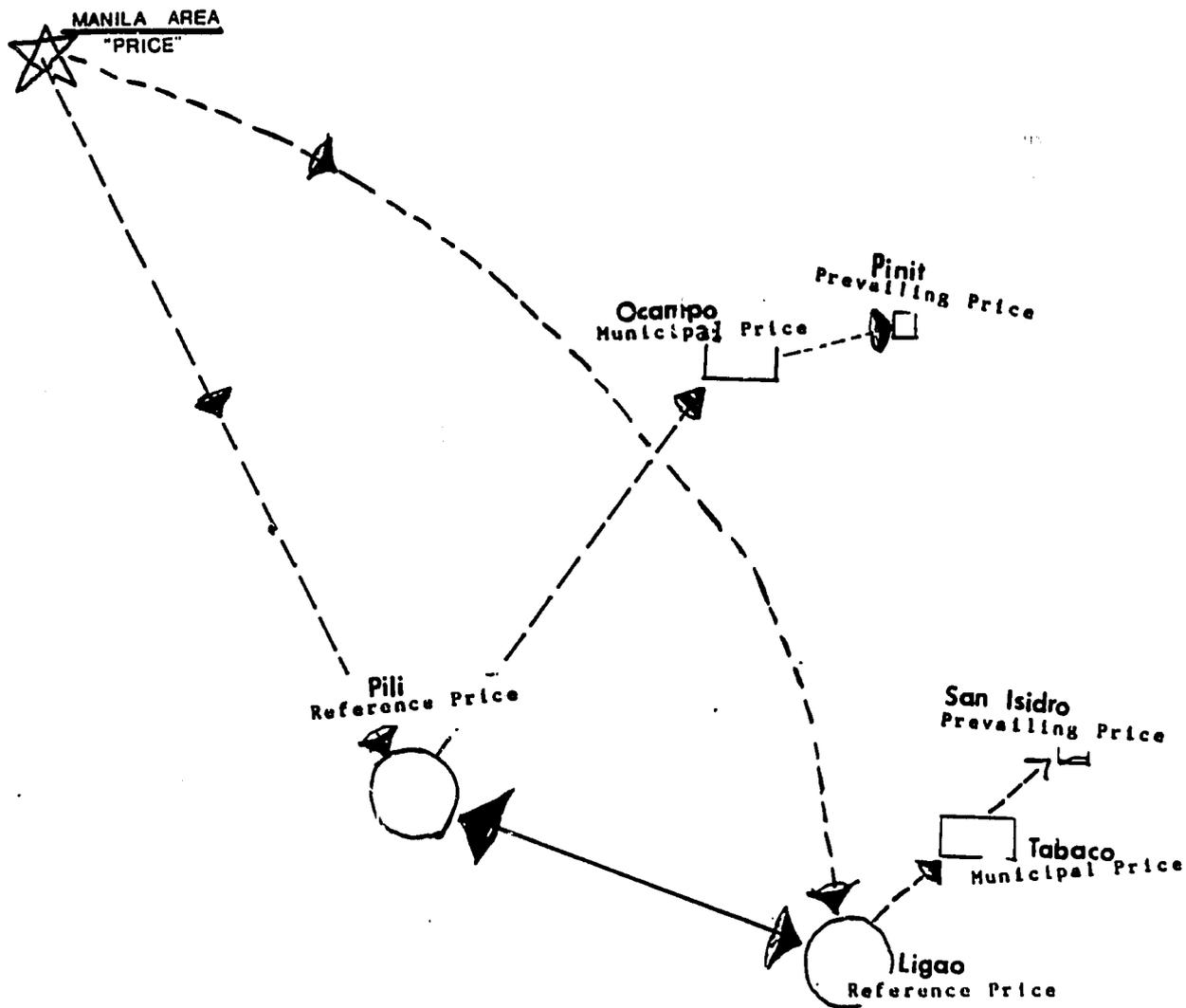
MONTHLY WHOLESALE PRICES OF YELLOW CORN IN CAMARINES SUR PROVINCE, 1984 - 1985



Source: Data from NFA Regional Office.

Figure 12

Price Linkages Backwards from the National Market for Yellow Corn



- KEY**
-  National Price Resulting from Interaction of Imports and Inter-Regional Supply with Manila Area Demand
 -  Regional Reference Price of Hierarchy Based on Contract Sales
 -  Discounted from Reference Price
 -  Price and/or Viajero's Bid Price

other two types of buyers. Thus, the daily prices result from a dynamic, iterative process and could increase or decrease depending upon the volume of corn available and the number of viajeros arriving in the region.

Factors influencing that network of interrelated buyers/sellers merit special attention in order to understand the complexity facing anyone trying to collect and interpret price information in a meaningful way. Those factors will be considered according to the four dimensions: 1) form (quality of corn grain); 2) place (location and access); 3) time within the harvest season; and 4) ownership (type of buyer and seller).

The quality of corn depended primarily on the moisture content (m.c.) and secondarily on the presence of foreign materials (dirt, broken grain, etc.). During the harvest season, a quality acceptable for trading, i.e., 14 - 18 percent m.c., was achieved at the farmer-first handler level. Farmers selling "dry corn" (14 -16 percent m.c.) were assessed almost no quality discount (resecó), i.e., compradors would pay the quoted price and discount only 1-2 kg per 50 - 60 kg sack and the NFA would pay the full 2.90 pesos/kg for the entire sack of corn. Farmers selling "wet corn" had to search for a buyer willing and able to buy wet corn and then they would expect a substantial quality discount. In this case, traders would pay approximately the quoted price and then discount up to 25 percent of a sack's weight, whereas the NFA either rejected the corn or provided facilities at a fee so the farmers could dry their corn. For corn still beyond the 14 percent m.c. level, the NFA reduced the price according to a standard conversion table. However, once corn entered a marketing channel, its quality was usually kept near the acceptable 14-16 percent m.c. level for trade between compradors. No trade in "wet" corn and minimal amounts of trade in semi-dry corn was mentioned beyond the entry point at the farmer-first handler level.

The prevailing price at the **place** where corn enters the market often reflected a "locational" dimension. In more isolated municipalities, the prevailing price was often a stable "running or common price" which most resident compradors cited when buying from farmers on that day. Whereas along major highways a prevailing price could vary considerably within a day and among traders, especially whenever more than one viajero arrived in a poblacion, sought out compradors with corn, and bid an extra 5-10 centavos per kg above the earlier prevailing price. Access to unexpected outside buyers was a key to price changes within a day.

The farmgate prices were also affected by the location of a barangay within the transportation network. For instance, during the August- September harvest, 1985, farmers in Tambo, an interior barangay accessed over a pot-holed, gravel road which twists and turns around hillsides, sold their corn for as little as 1.75 pesos/kg whereas the farmers in Pinit, a barangay located along a major highway, earned 1.90 pesos/kg at that same point in time.

The ~~time~~ when farmers sold their corn affected its value. Since most farmers had to sell their corn soon after harvest, the reference price at that point was critical. Harvests in the latter part of the rainy season usually encountered heavier rains, thus higher m.c. for the grain, more difficulty and higher costs to dry it, and lower quality of the grain (lower price) at the time of sales. Whereas, farmer sales to compradors at the time viajeros arrived could earn a higher price.

The **ownership** dimension would include price implications per type of seller and buyer as well as the nature of the sales arrangements. In other words, both present ownership and planned ownership merit consideration, especially in light of the depressed regional economy. Regarding present ownership, price information collected at each level of the system during the study period

permitted a "rough" estimation of prices per type of participant within the hierarchy for dry corn at a given point in time. That estimate is illustrated in Table 16.

Ownership can have a planned aspect or perhaps a loose form of vertical integration, in that it can extend beyond possession after a sale to encompass a sales arrangement with a buyer's claim on the future output of a farmer. Thus, a comprador's provision of credit to farmers and advances to smaller compradors represents a trader's way to expand ownership into future market transactions. In other words, a comprador's credit or advance can be understood as more than or sometimes separate from his earning returns on that credit investment, but rather as a way to insure a market share of future supplies for which there is considerable competition. On the other side, most farmers interviewed preferred a credit tie-in arrangement whenever available, perhaps for the risk-sharing implications, to relieve cash flow constraints, and/or to insure a ready access to inputs. Although several farmers with tie-in arrangements said their comprador/creditor paid a "prevailing price," those farmers seemed unclear about the level of resale taken from those sales and acknowledged that better returns could be earned elsewhere.

Given the depressed regional economy and hardships being experienced by many farmers, a clearer understanding of this ownership dimension is needed to evaluate a strategy to reinforce the existing suki arrangement until larger volumes and a stronger regional economy emerge. The suki arrangements are compatible with the farmers frame of reference, integrated into the rural socio-political environment, and responsive to both consumption and production credit needs. Thus, until the local economy and marketing system can support a less interdependent exchange arrangement, such as spot market transactions, a carefully monitored approach which strategically strengthens the credit distribution

TABLE 16

ILLUSTRATIVE ESTIMATE OF CORN PRICE DIFFERENTIALS PER TYPE
OF PARTICIPANTS, EARLY RAINY SEASON, 1985

| <u>Market Participant</u> | <u>Transaction</u> | | <u>Price (pesos/kg)</u> |
|--|--------------------|---|-------------------------|
| Manila - based Integrator | buy | @ | 3.60 |
| Bicol - Regional Comprador | sell | @ | 3.60 |
| - Regional Comprador ¹ | buy | @ | 2.70-2.80 |
| - Municipal Comprador | sell | @ | 2.80-2.90 |
| - Municipal Comprador | buy | @ | 2.65-2.70 |
| - Barangay Comprador | sell | @ | 2.60-2.70 |
| - Barangay Comprador | buy | @ | 2.40-2.50 |
| - Farmer | sell | @ | 2.40-2.65-2.80 |
| - Local Feed Miller and Poultry/Hog Raisers | buy | @ | 2.45-2.65 |

1 Long distance transportation costs about 65 - 75 centavos/kg.

Note: Provincial compradors with contracts to buyers outside the region were more closely aligned with the prices of regional traders, whereas those without contracts reflected pricing patterns of large municipal compradors. Likewise, larger volumes sold generally earned a premium above what was paid to sales of small volumes.

Source: Interviews

capabilities of select compradors should be evaluated by the government policy-makers. Type of comprador, credit-worthiness of farmers, level of reseco applied per quality of corn, and the local prevailing price must be carefully assessed.

7.0 Infrastructure

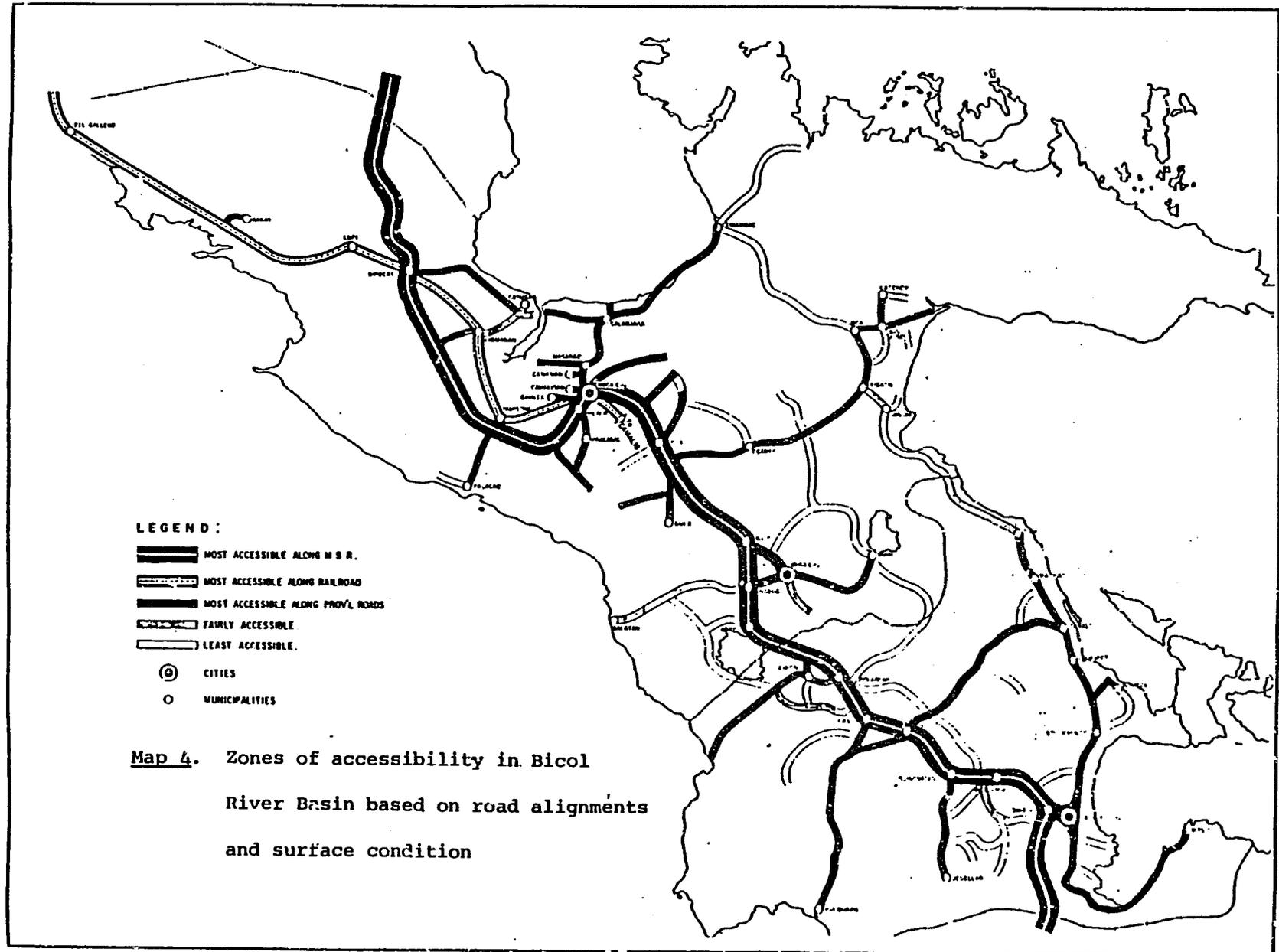
The main form of infrastructure which has had a marked impact on this commodity system is "transportation." Communication facilities and drying floors/pavement are in need of improvement but are less critical constraints to the expansion of corn production.¹

The Bicol Region is located in the northeastern part of the country and contains part of the contiguous land mass of the largest northern island (Map 1). The national highway which extends from the major commercial hub of the Philippines, i.e., Metro Manila and its surrounding areas, to the region is a key feature of the transportation system (Map 4). This "overland" access and proximity to major markets for corn indicates a potential comparative advantage for increasing its market share of this commodity. Improvements in the transportation linkage and the back-haul situation could go far in cutting shipment costs. Although ships and railway cars could become the future modes for bulk shipments, the road network is now the primary form of transportation for corn.

Four main segments of the transportation system that were examined include: a) pathways from farmer fields to their homes; b) dirt roads from barangays to their poblacion; c) dirt or asphalt roads linking poblacions to major highways; and d) the national highway leading out of Bicol.

After the harvest, farmers carry sacks of corn (ears) home by carabao drawn sleds, on the back of their carabao, or carry sacks on their shoulders. These methods require considerable time since only a few sacks can be accommodated on each trip and movement becomes particularly problematic during the rainy

¹ The dimensions of "infrastructure" considered were: roadways, storage warehouses, processing factories, communication facilities and market centers.



SOURCE: Emmanuel I. Astillero. "Spatial Planning and Rural Settlements Access to Services and Facilities: Methods and Application in the Philippines (Bicol River Basin Study). SARSA, 1982.

season. Forms of mechanized, small-scale hauling were noticeably absent in all the barangays observed.

The location of the barangay relative to the nearest poblacion and the season determine the mode of transportation and costs incurred. Farmers in barangays along the main highway, such as, Pinit and Tuburan (Barangay Profiles) had access to many jeepneys, buses, and some trucks at relatively low rates. Whereas interior barangays, such as, Tambo and Labawon, usually depended on the few regular passenger jeepneys in which each sack of corn costs the same as a passenger. During the few weeks of peak harvest barangay or municipal compradors collect large amounts of corn at the barangay level before sending small- or medium-sized trucks to pick-up their purchases.

Dirt roads leading from the poblacion to barangays perched on hillsides were all but impassable when the typhoon rains came and washed out sections of the road. Varied periods of limited or no access would follow. Although "wet corn" was more likely to become infected with aflatoxin, corn is generally not as perishable as fruits and vegetables, thus these delays in shipment did not result in major physical losses but could prove costly for a trader whose income is dependent on rapid turnover of grain.

The quality of roads linking poblacions to the national highway varied markedly, for instance: a) a new concrete road connecting Ocampo to the national highway provided exceptionally good access; b) an asphalt road breeched in several places by volcanic mud slides between Tabaco and Legaspi City made movement of large trucks somewhat hazardous; and c) the narrow, potholed road from Buhi to the national highway made shipments less frequent. Yet, within Camarines Sur and Albay Provinces the relatively short distances from the

poblacions to the national highway usually meant an additional half hour to one hour difference in traveling time, if weather conditions were favorable.²

Variation in road conditions did more than result in differential transportation costs, it resulted in markedly different patterns of access and farm prices. For instance, farmers and traders in the Pinit, Ocampo area were quick to point out that there were sharply increased numbers of trucks and viajeros coming to this area since the completion of the new concrete road. A comparison of the Ocampo (accessible) and Buhi (less accessible) situations showed that farmers in Ocampo often received a 10-20 centavos/kg higher price than Buhi farmers during the same period of time. Access was cited as one of the most likely causes for such a price difference (Figures 13a and 13b).

The national highway from Bicol to the major northern corn buyers was in fair condition although several damaged sections meant stop-and-go travel of ten or so hours. However, the relatively few check points generally meant less likelihood of additional transportation cost during the trip.

Another aspect of the transportation system was related to the enforcement of credit repayment agreements. For instance, a politician/comprador/creditor stationed his men at a major port to intercept and buy corn off-loaded from an island on which he had several accounts outstanding, even though other buyers considered this an unfair practice. Likewise, as interior roads improved and outside buyers arrived, local compradors/creditors saw their ability to enforce loan agreements seriously hampered and defaults increased.

² Trucks with about 20 mt. capacity frequented all poblacions and some barangays observed. Although the supply of vehicles was tight during peak periods, no serious shortage of transportation vehicles was reported.

FIGURE 13a

READY ACCESS TO MARKETS-BARANGAY ALONG MAIN ROAD

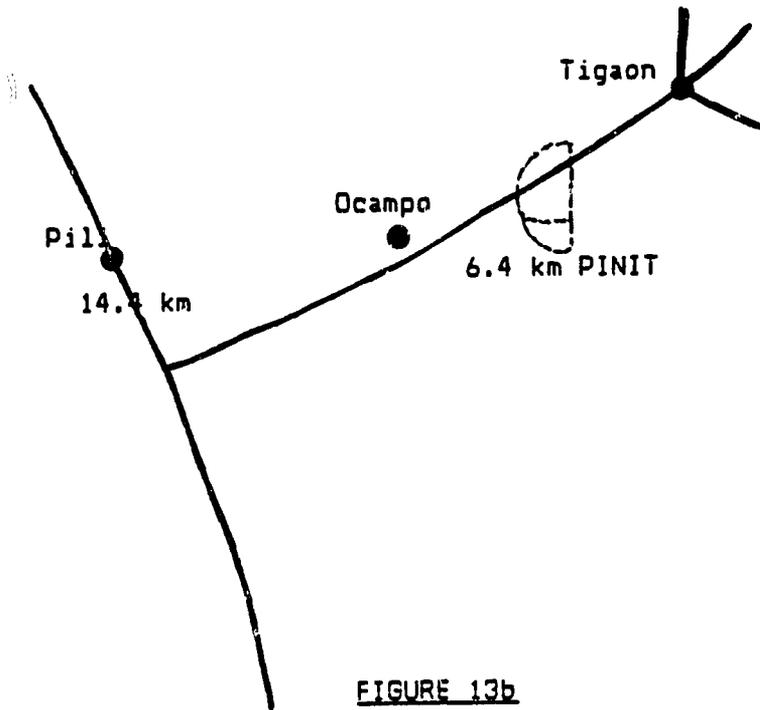
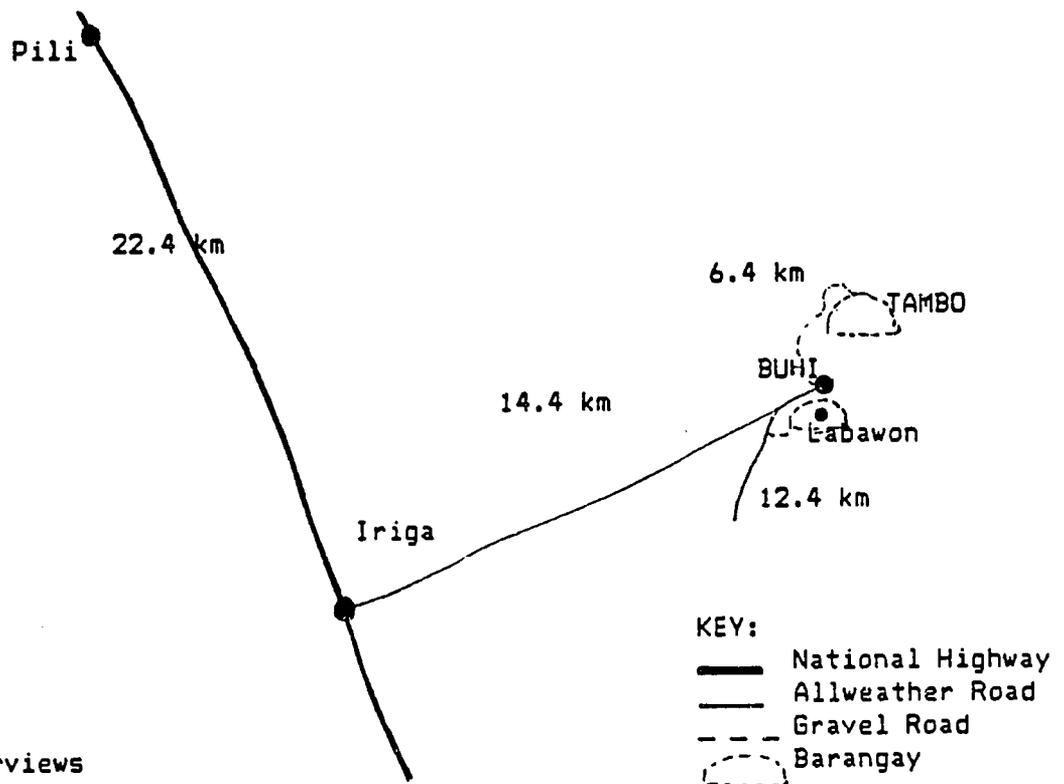


FIGURE 13b

LESS ACCESS TO MARKETS-BARANGAY IN INTERIOR



Source: Interviews

The public telephone system in Bicol is so unreliable that most large compradors use their own radio transceivers to communicate with prospective buyers and learn about the prevailing price in Manila. Although large compradors had found a way around this constraint, the smaller compradors have to use word-of-mouth or messages to get such information at a later date.

Although several compradors and farmers agreed that access to more drying floors would help reduce the moisture content of grain and thereby improve farmgate prices during the rainy season harvests, few expressed any intention of investing in more drying areas. Large farmers noted that labor cost and pilferage when drying their larger volumes were far more problematic than the drying problems encountered by small farmers. Observations of "pavement" drying, i.e., corn spread across the road, indicated that losses due to vehicle traffic and chickens would make more drying areas beneficial, especially if the drying area served the dual purposes of a recreation area (such as, basketball court contributed to barangays during election periods) and drying floor.

Since the bulk of yellow corn was quickly shipped out of the region during the harvest period and demand for stored corn from the local feedmill industry was not great, storage warehouse capacity was not cited as a serious concern. Observations of several large warehouses indicated limited control of insects, rodents, etc., thus implying designs and use as short term shelter rather than for the maintenance of commodity quality over extended periods of time. The NFAs facilities were the exception. Likewise since each comprador handled more than one commodity, warehouse space and working capital were usually constrained to accomodating each commodity in turn.

The milling factories were small with only one or two production lines. The largest factory had much excess capacity as its market share dwindled in the face of competition from new entrants in the early 1980s. Forward integration

into poultry/hog raising or feed supply stores existed on a limited scale for most of the five local feed millers.

In summary, a trade-off exists between alternative improvements in the transportation system: a) expand and better maintain the road network; b) revive the railway system; and/or c) equip a port with bulk handling capacity for grains. Given the emerging, oligopolistic structure of the feed milling industry, development of bulk handling capacity may become advisable.

8.0 Institutions and Power

The institutions which impinge upon or are involved in the marketing of corn can be classified into four groups: a) industry associations; b) government agencies; c) research institutions; and d) financial institutions. Although research institutions, such as the University of the Philippines, the Philippine Council for Agriculture and Resource Research and Development (PCARRD) and the regional experiment station have collected useful information on corn production/marketing, their influence on the regional commodity system seemed more indirect than direct. Likewise, the financial institutions, such as the Philippine National Bank, Land Bank of the Philippines, and Rural Banks, which previously had a stronger supporting role for Bicolano farmers, now provide very limited financing within the reach of those farmers. Thus, the role of these institutions was not examined.

A vital set of institutions whose policies and activities are directly affecting Bicol's corn system include the Manila-based associations, such as, the Philippines Association of Feed Millers (PAFMI), the Philippines Poultry Industry Association (PPIA), the Confederation of Rice and Corn Millers Associations of the Philippines (CONFED), and the like. These institutions are in the national policy arena where import and agricultural policies are being debated and decided. The outcomes of those debates will have a substantial impact on the expansion or contraction of corn production in Bicol. Unfortunately these institutions were not within the scope of this phase of the study.

The final group of institutions encompasses the government agencies, primarily the Ministry of Agriculture (MAF) and the National Food Authority (NFA). The key influence of the Ministry of Agriculture relates to the Expanded Yellow Corn Production Program (ECP) of which it is a leading force along with the NFA. The extension staff helps select eligible farmers, provides the technical

advice for crop cultivation, and helps bridge the gap between farmers and institutions supporting this program, such as the NEA and the Philippine Crop Insurance Corporation. Our field observations and interviews with several of the MAF extension staff raised technical questions about the advisability of promoting high cost hybrid varieties due to their vulnerability during the risky rainy season and given farmers serious cash flow problems during this regional economic depression. In addition, the extension staff's perception of farmers attitudes to government sponsored loans as "hand-outs" argued for a careful reexamination of the ECP and the development of more innovative ways to support the expansion of corn production.

The National Food Authority had been mandated a very complex set of responsibilities for which capital and manpower were not adequate, especially given the economic depression and political instability in the region. As a provider of inputs and credit to farmers the NFA seemed to be burdened with new responsibility not within its original mandate, consequently various problems regarding the timely dispersal of inputs, the small number of ECP recipients, etc. could be expected and were found. Its major role and mandate of supporting the farm gate price at 2.90 pesos/kg likewise proved problematic when the unanticipated market collapse in August, 1985 caught NFA with inadequate cash-on-hand. Even after some funds had arrived, there were several hurdles for farmers to jump before they could actually sell to NFA, including distance from the farm to NFA's few warehouses (main buying sites), need for a passbook (proof of being a "farmer"), series of procedures required for moisture tests/weighing/etc., and delays in payments for sales beyond a certain amount because checks had to be issued. However, according to some compradors, the active presence of NFA in the market helped invigorate the market by bidding-up some farmgate prices which had fallen well below 2.00 pesos/kg. Meanwhile at the

the other end of the system, NFA's rôle in the delayed imports of corn which corresponded with the peak domestic harvests and thereby may have instigated the collapse, clearly warrants close examination due to its possible future repercussions on the Bicol corn system. A clear and comprehensive understanding of the role of NFA, not only in the corn commodity system, but also in the feed milling industry would require an extensive case study which would be well worth the effort.

Since the "rules of the game" governing markets are political in nature, as well as reflections of social/cultural relationships, a RMA usually includes a "power" dimension to account for expressions of those forces. However, in this case, enquiries into the "power" dimension at the regional level were seldom made due to possible misunderstandings by marketing participants given the tense peace and order situation. Assertions by some key informants indicated the collection of informal taxes in areas controlled by the New Peoples Army, real risks of harm to outsiders and landlords entering interior areas, and experiences with loss of goods in transit between Bicol and other regions. According to one informant, "Owners of big trucks should be someone important, otherwise they may lose the truck to hijackers." In other words, one can infer that agents of change, such as businessmen and/or extension agents, are not likely to promote or support improved technologies or other forms of investment at the barangay level in the near term, or until stability returns.

9.0 Insights Gained and Problems Identified

9.1 Major Insights

Among the several insights gained by the RMA team during its field work and later analysis, the following merit special attention:

a) Historically, the Bicol Region has gone from a dependency on outside supplies of feeds to self-sufficiency after the majority of feed mills were established in the early 1980s. This transition and the expansion of corn production will be further enhanced if corn harvests are increased substantially between December and February and price instability lessened. Perhaps in the future the region's proximity to the Manila consumer market for meat products may entice entrepreneurs to process meat products locally, then ship them directly to Manila.

b) The impacts of major changes in the structure of the feed mill and livestock/poultry industry in the Philippines are being felt in the Bicol Region. The five large Integrators as well as other large feed millers and poultry/hog raisers have concentrated in the Manila, Batangas, and Bulacan areas in order to better service the demand in the Metro Manila area. Yet, these areas are far from the country's major corn production areas. In addition to the locational and size of firm concentration, technologies for handling/storing corn, raising animals, and processing meat are becoming more advanced and scale efficient. Thus, the combination of large size, locations far from the bulk of corn production, and technologies more suited for large-scale handling, such as bulk versus sack loading and unloading, raises the issue: "Should the domestic marketing system be changed to better accommodate the needs of this evolving, modern processing industry or should the marketing system remain in tact and that industry's growth depend on imports?" The adverse effects of untimely imports have already been presented above. Yet,

the scale of investment to revamp segments of the domestic marketing system with bulk handling facilities, up-grading port facilities, and aligning institutions to support the needs of large Integrators would be very substantial.

c) The regional trading patterns will change if the itinerant traders (viajeros) continue to increase their market share at the expense of the regional hierarchy. The implications of this transition are centered on the role of the local hierarchy as the main sources of farm credit for corn production. The depressed economy and the entry of viajeros may be contributing to increased rates of farmer defaults or high costs for comprador credit. The prevalence of defaults and possible alternative sources of credit need to be investigated before long-term corn production is adversely affected.

9.2 Problems

The main sources of information and insights regarding the problems facing the marketing participants were:

- a) the analysis of the information collected, observations during the field work, previous studies/articles, and statistical information; and
- b) the experience and judgment of several key informants and marketing participants themselves.

Existing situations and/or behavior are usually considered "problems" when they differ substantially with one's expectations whereas constraints refer to limitations that inhibit desired outcomes or changes in conditions or behavior. The change most desired by the primary sponsor of this study, the Ministry of Agriculture and Food, was the rapid expansion of yellow corn production as part of an import substitution strategy. It was assumed farmer income would also improve as a result of increased production.

All available information on problems and constraints is arrayed on a problem/constraint matrix (Table 17). The columns denote the levels in the

TABLE 17

PROBLEMS/CONSTRAINTS IN THE CORN COMMODITY SYSTEM
DURING THE 1985 RAINY SEASON, BICOL REGION¹

| Assessment Wheel Component | Production | Distribution | Procurement | Consumption ² |
|---|--|--|---|--|
| Technical Characteristics of the Crop and Commodity | Low yields (1-3 t./ha) for hybrids due to causes of: poor germination, lodging, high incidence of corn borer infestation, drought or typhoon damage, and/or, insufficient application of agro-chemicals (fertilizers and pesticides). | Inadequate drying facilities available for some cooperators. | Some grain or feed losses due to inadequately dried grain. | Some grain losses due to inadequately dried grain. |
| Demand Patterns | | Demand uncertainties due to options available to large "outside" buyers; i.e. trade-offs between domestic or imported corn and corn from Bicol or other regions. | Decreased regional demand for feed due to less demand for meats within this depressed regional economy. | Decreased local demand for meats with depressed regional economy and curtailed demand for local products due to periodic influx of cheap "outside" eggs and meat during festivals. |
| Marketing System Organization and Spatial Network | Absence or reduction in number of buyers during the August, 1985 market collapse. | Withdrawal of visjeros, reduction of purchases by regional traders and former contract buyers stopped buying during the collapse. | Forfeiture closure of some feed mills due to cut-throat competition as recently established feed mills compete for shares of "weak" market. | Existence of storage, limited warehouse capacity, and insufficient working capital to increase the amount stored. |
| Marketing System Operation | Higher moisture content of grain during the rainy season affects post harvest activities: -drying operations are more time-consuming -shelling operations can damage more kernels -transporting corn from interior fields is more hazardous and time-consuming | Long term storage is risky due to possible aflatoxin or spoilage of grain or price declines because of imports. | Existence of storage, limited warehouse capacity, and insufficient working capital to increase the amount stored. Four of the five feed mills operating well below capacity. | Existence of storage, limited warehouse capacity, and insufficient working capital to increase the amount stored. |
| Economics of Marketing System | Recent collapse of sorghum price during the peak harvesting period. Costs of inputs and transportation is considered relatively high. Low value of harvest when grain is not adequately dried. Immediate need for cash weakens bargaining position, inhibits quality improvement activities (drying), and eliminates most storing options for small farmers and/or tenant within this depressed economy. High interest rates, tight money, and depressed prices for coconut, abaca, and sugarcane reduce availability of credit while heightening the need for credit. Widespread defaults by farmers shrink credit market while increasing costs of credit. | Tight money, high interest rates, defaults on outstanding farmer loans, and a depressed economy discourage continued lending to farmers (reduce market share). Tight working capital for expanding procurement, and reduce ability to store large quantities of corn for extended periods. | Relatively high costs for electricity and certain other feed ingredients, along with declining output price due to cut-throat competition. Same types of money constraints as experienced in the distribution level. | Costly feed supplements and some types of money constraints as experienced in the distribution level. Periodic incursion and sale of large shipments of poultry products from outside Bicol destabilizes the market and discourages further investment in poultry raising. |
| Infrastructure | Poor farm to poblacion roads (sometimes breached by rains) for interior barangays. Few types of transportation vehicles from fields to home and barangay to poblacion - sacks of grain are computed with passengers for access to transportation vehicles. | National highway leading out of Bicol damaged by overloaded trucks. Railway service has deteriorated to such an extent that it is no longer a viable shipping option for grain. Weak economy in Bicol reduces demand for goods from outside the region, thus increasing costs of trucking corn out of the region because the trucks come back empty (scarce backhaul). | | |
| Institutions and Power | Deteriorating Peace and Order situation reduces contacts with and investments from outside the barangay. Results in informal "taxes", and inhibits innovations. BPA's irregular entry into the corn market, its cumbersome procurement procedures and distant buying centers reduce effectiveness. Limited program funds, type of technology recommended and certain eligibility requirements reduced the Expanded Yellow Corn Production Program's effectiveness in expanding production. | Deteriorating Peace and Order situation created risks and uncertainties for any business expansion or investment. Lack of reliable government policies regarding BPA's role and imports adds risks and uncertainties to corn trade. | Unstable Peace and Order situation adversely affected procurement arrangements with certain barangays. Uncertainty regarding BPA's continued role as supplier of certain feed ingredients, including corn during lean months. | Unstable Peace and Order situation adversely affected procurement arrangements with certain barangays. |

¹ Problems/constraints are classified according to the Assessment Wheel Components and level in the system.

² Consumption means use of corn grain or feed by poultry/hog raiser; rather than individuals consuming meat.

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system, namely the farm, distribution, processing, and consumption levels. The rows correspond to the elements of the assessment wheel within which various problems or constraints were noted. The process of completing this matrix not only enabled the team to understand how a particular type of problem affected other elements in the system, but also how problems at one level in the system caused constraints at other levels. This approach also enabled one to distinguish between symptoms, causes, and effects of problems.

The unstable economic and political situation in Bicol is exacerbating and magnifying the problems encountered by the participants in the corn marketing system. For instance, the depressed economy and severely restricted income earning opportunities for farmers should be one of the major causes of the increased defaults on comprador loans. Likewise, the high cost of money and fear of non-repayment by farmers inhibit compradors, feed millers, and poultry/hog raisers from increasing local investments that would benefit them as well as farmers. Unfortunately, improvements in this situation may be beyond the scope of just commodity related strategies, policies, and projects.

The unclear and unevenly applied government policies related to imports and the ineffective support price scheme have carried shock waves through the system with farmers carrying the brunt of the adverse impact. Yet, establishing well-informed, national policies will require attention to the feasibility and costs of implementation as well as careful coordination with other interventions, such as the ECP program. The continued work on this regional assessment can facilitate projecting regional consequences of policies formulated at the national level. However, policy and program interventions should have sufficient flexibility to accommodate regional conditions whether adverse agro-climatic conditions or poor, risk averse farmers. Herein the in-depth research focused on problems with and consequences of implementing interventions can be

particularly beneficial for the corn commodity system in Bicol. The local compradors, feed millers, and poultry/hog raisers need a clear understanding of consistent, well-informed policies not only to support farmers production, to provide needed services at minimal costs, and to invest in their own growth but also to accomodate the emerging needs of the Integrators. Let us consider the following agenda for research and action as a basis for deciding on Phase III priority problems as well as for exploring ideas with marketing participants during that phase of field work.

V. AGENDA FOR RESEARCH AND ACTION

From the first two phases of the Marketing Assessment both long-term and short-term research topics and ideas as "opportunities for change" have emerged. The short-term research topics will be emphasized during subsequent research on this commodity system whereas the longer term issues will be recommended for other research efforts.

1.0 Short-Term Research

The short-term research agenda focuses on two major problem areas: a) the inconsistent government policies and programs which may have contributed to the recent price instability; and b) the regional crop promotion program which recommended a costly technology as the key for expanding corn production.

2.0 Long-Term Research

This research centers on two issues: a) methods to improve the eroding credit situation for farmers, especially tenants; and b) evaluating the trade-offs between the viajero and hierarchical trading patterns. The first issue will be less problematic if the coconut market substantially improves and reduces the severity of current cash flow problems for farmers. Farmers who default on compradors may be trapped between recurring household expenses yet sharply reduced sources of income from both perennial and annual crops. The second issue can become problematic in the future if the recent structural change in the feed milling industry continues, i.e., 5-6 large-scale Integrators becoming an oligopoly as many smaller firms go out-of-business during these trying economic times. The funds, manpower, and scope of jurisdiction for these research issues may be beyond those of the Rainfed Resources Development Project.

3.0 Opportunities for Change

There are several types of change which could improve the effectiveness and progressiveness of the corn commodity system and provide additional opportunities for income generation. From the initial field work a few ideas surfaced and will be briefly presented as four types of promising changes, i.e., technological, infrastructural, organizational, and institutional changes. Such ideas will be worth considering during the strategy development period of Phase III.

3.1 Technological Changes

Technological changes, such as shelling machines, are already being adopted as economies of scale follow from increased concentration of corn production in certain barangays, such as Tambo. Other technologies which would address observed constraints to further expansion of production are still absent, for instance:

- a) introduction of an inexpensive, locally manufactured vehicle for hauling commodities from the farmer's field to home during the dry season, rather than carabao sleds. Perhaps an appropriate technology, such as the "iron buffalo" of Taiwan, would be feasible;
- b) development and application of a road resurfacing material for sections of the asphalt road within barangays so as to better reflect the sun's heat and thereby more quickly dry grain; and
- c) research and development of cropping patterns and varieties of corn suitable for harvesting during the "lean" period from December to February.

3.2 Infrastructural Changes

Infrastructural changes could be of many types, especially considering the poor infrastructure in several parts of Bicol.¹ Two main types would include:

¹ Infrastructural improvements were the major component of the Region's recent petition for Central Government assistance.

- a) improved maintenance and expansion of the existing road network within Bicol and leading from Bicol to Manila; and
- b) revitalization of a transportation mode which is far below capacity, i.e., the railway system, by improving its management system, providing cars for bulk shipping of grain, improving equipment for loading and unloading grains, and/or providing "containerized service" with truck loading facilities at the regional and Manila stations.

3.3 Organizational Changes

Organizational changes which incorporate an infrastructural dimension would again focus on bulk handling and storage of grain assuming a strategy to support changes in the domestic market to better accommodate the technological needs of the large-scale, Integrators. Encouraging the private sector's construction and operation of bulk handling and storage facilities in ports near major production areas may also require certain management and organizational skills not currently available. Such major changes as this have occurred in Thailand and improved its access to export markets, however, this should be carefully considered due to the market power given those firms making such a large investment.

3.4 Institutional Changes

Institutional changes would include the types of interventions that would directly address the priority problems mentioned above or provide unexploited opportunities. The development and implementation of consistent, informed government policies is a necessity for such issues as:

- a) the balance of needed imports with effective incentives for expanded domestic production; and
- b) the merits of a parastatal type of institution, such as the NFA.²

² One must remember that within the group "private businessmen" there are several sub-groups who regard the role of government from very different perspectives. A consensus on the government's role in the corn commodity market will not be easily achieved.

Another institutional idea could be a **comprador loan scheme** which provides guidelines and incentives for compradors to use part of the loan to advance inputs to farmers and part to expand their market share, thus benefiting both farmers and compradors. Initial inquiries among compradors regarding the merits of and interest in this approach received both guarded and enthusiastic responses.

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Appendix I Locations and Types of Marketing Participants in the Sampling Frame for the Rapid Marketing Appraisal of the Corn Commodity System in Camarines Sur Province, October 1985

| LOCATIONS City/Municipality/ Barangay | MARKETING PARTICIPANTS | | | | | | | | Total | |
|---|------------------------|------------|--------------|----------|--------------|----------------|-----------------------------|-----------------------------------|----------|-----------|
| | Farmers | Compradors | | | Feed Millers | Hammer Millers | Feed Supply Store Operators | Poultry/Hog ^{1/} Raisers | | |
| | | Barangay | Municipality | Province | Region | | | | | |
| Naga City | | | 2 (7+) | 1 (1) | | 2 (2) | | 2 (8) | | 7 |
| Pili | | | 3 (10+) | (2+) | 1 (1) | 1 (1) | 2 (3) | 1 (5) | (3+) | 8 |
| Ocampo | | | 3 (3) | | | | 1 (1) | 1 (2) | (2+) | 5 |
| Pinit | 3 (C) 4 (D) | 1 (1) | | | | | | | | 8 |
| May-ogob | 2 (A) 4 (B) | (2) | | | | | | | | 6 |
| Hanawan | | 3 (4) | | | | | 1 (1) | | | 4 |
| Tigaon | | | 1 (4+) | 2 (2) | | | (2+) | (3+) | (4) | 3 |
| Baao | | | (4) | | | | (2+) | (2) | 1 (5) | 1 |
| Iriga City | | | 3 (12) | | 1 (1) | | (3) | (8) | (5+) | 4 |
| Buhi | | | 6 (11) | | | | 1 (2+) | 1 (2) | 1 (3+) | 9 |
| Tambo | 6 | 2 (4) | | | | | | | | 8 |
| Labawon | 5 (E) 2 (F) | 2 (3) | | | | | | | | 9 |
| TOTAL | 26 | 8 | 18 | 3 | 2 | 3 | 5 | 5 | 2 | 72 |

^{1/} Poultry/Hog raisers identified were of larger size, i.e., over 50 hogs and 5,000 poultry.

Note: a) Farmer Codes: A - Tenant; B - Landowner; C - Minority Settlers; D - Local farmers; E - farmers in Expanded Yellow Corn Production Program (ECP), and F - non-ECP farmers.

b) Figures in the parenthesis are the universe of participants found in that area.

c) Respondents and key informants from local institution included the mayors, barangay captains, provincial agricultural officers, municipal agricultural officers, extension workers, and NFA personnel.

Source: Interviews and lists of registered firms (NFA)

Appendix II Locations and Types of Marketing Participants in the Sampling Frame for the Rapid Marketing Appraisal of the Corn Commodity System in Albay Province, October 1985

| LOCATIONS Municipality/ Barangay | MARKETING PARTICIPANTS | | | | | | | | | |
|--|------------------------|------------|--------------|----------|-----------------|-------------------|--------------------------------|-------------------------|----------|-----------|
| | Farmers | Compradors | | | Feed Millers | Hammer Millers | Feed Supply Store Operators | Poultry/Hog/ Raisers | Total | |
| | | Barangay | Municipality | Province | | | | | | |
| Polangui | | | (8+) | 1 (1) | 1 (1) | | 1 (1) | 2 (4) | (3) | 5 |
| Ligao | | | (7+) | 2 (3) | 1 (1) | | 1 (4+) | (3) | 2 (4+) | 6 |
| Tuburan | 4 (E) 4 (F) | | | | | | | | | 8 |
| Basag | 2 (E) 5 (F) | | (3) | | | | | | | 7 |
| Nasist | | 1 (1) | | | | | | | | 1 |
| Camalig | | | (3) | | | 1 (1) | (2+) | (2) | (5+) | 1 |
| Daraga | | | (3) | (1) | | 1 (1) | (1+) | (5) | (2) | 1 |
| Tabaco | | | 5 (16+) | 2 (2) | | | (3+) | 3 (7+) | (2) | 10 |
| San Isidro | 1 (G) 5 (F) | | | | | | | | | 6 |
| Hacienda | 5 (E) 7 (F) | | | | | | | | | 12 |
| TOTAL | 33 | 1 | 5 | 5 | 2 | 2 | 2 | 5 | 2 | 57 |

1/ Poultry/Hog raisers identified were of larger size, i.e., over 50 hogs and 5,000 poultry.

Note: a) Farmer Codes: E - farmers in the Expanded Yellow Corn Production (ECP) and holders of Certificate of Land Transfer (CLT); F - CLT holders but non-ECP farmers; and G - ECP farmers but not CLT holders.

b) Figures in the parenthesis are the universe of participants found in that area.

c) Respondents and key informants from local institutions included the mayors, barangay captains, provincial agricultural officers, municipal agricultural officers, extension workers, and NFA personnel.

Source: Interviews and lists of registered firms (NFA)

APPENDIX III

COMMON TERMS USED IN THE CORN COMMODITY SYSTEM

A glossary of commonly used terms in the corn commodity system and their appropriate local expressions are provided below. Definitions of local expressions are given whenever a single expression signifies more than one thing or idea.

Farm Level

Corn (ear) - "Puso"- a) grain bearing spike of a cereal plant or b) fruiting head of a cereal, including both the kernels of grain and protective as well as supportive structures.

Corn cob - "Pagokpok or butal (Albay)" - a) the core or center part of an ear of corn, i.e., part remaining after recovering the corn grain.

Corn (dried) - "Mais Gango, Alang" - a) moisture content of the corn grain is between 14% and 16%.

Corn field - "Maison" - a) a parcel of land planted with corn.

Corn grain - "Mais" - a) a small hard seed of any of the cereal crop grasses used for food, botanically known as caryosis, a dry or seeded berry in which the fruit coat and seed coat are fused to form a single grain.

Corn (half dried) - "Mais na Media Gango" - a) moisture content of corn grain is usually between 16% and 20%.

Corn (shelled) - "Rupo" - a) (noun) corn grains removed from the cob, or b) (verb) to shell.

Corn (wet) - "Basang Mais" - a) moisture content of corn grain is usually over 20%.

Credit - "Utang" - a) a definite amount of money owed.

Cut down - "Pulak" - a) during harvest time corn stalks still bearing corn cobs are cut down.

Dry (to) - "Balad" - a) corn is dried by spreading the shelled grains on whatever hard surface is available, i.e. roads, basketball courts, drying floors, etc., during sunny days soon after harvest.

Fertilizer - "Abono" - a) organic or inorganic material applied to enrich the soil.

Furrow - "Linya" - a) a narrow groove made in the ground by a plow.

Grain - "Pusi" - a) a small hard seed of any cereal plant.

Harrow - "Surod" - a) a heavy frame with spikes or disks used for breaking up and leveling plowed ground.

Harvest (to) - "Gusi" - a) to gather a season's crop.

Harvest time - "Anihan" - a) time of the year when grain, fruit, etc. are gathered.

Haul - "Hakot" - a) to move or transport from one point to another.

Husk - "Ubak" - a) the outer covering of an ear of corn.

Off-season planting - "Panala or Pasala" - a) corn planted outside the regular planting season.

Pesticides - "Pang-sumpit" - a) chemicals used to kill insects.

Plant (to) - "Fanom" - a) to put into the ground to grow.

Plow - "Arado" - a) a farm implement that is used to cut, lift, turn over and partly pulverize the soil to prepare it for planting.

Price - "Presyo" - a) the amount of money asked or paid for something.

Seed - "Banhi" - a) the part of the plant containing the embryo from which a new plant can grow.

Sell - "Pabakal" - a) to exchange goods or services for money or b) to give up property to another for money or other valuables.

Side dressing - "Sungal" - a) placing fertilizer in the soil near the roots of a growing crop; usually beside each row by hand or by a fertilizer distributing attachment.

Distribution level

Advance (cash) - "Bale" - a) money or its equivalent paid for goods to be delivered at a later specified time.

Agent - "Aherte" - a) one who buys and sells on commission basis on behalf of someone else.

Assembler (municipal level) - "Comprador" - a) usually a small or medium-scale commodity buyer of rice, corn, etc., who mostly procures from one municipality and sells in the cash market or with prior agreements.

Buy (to) - "Magbakal" - a) to get possession or ownership of something by giving or agreeing to give money in exchange.

Collector (barangay level) - "Comprador" - a) a small sari-sari store operator, larger farmer, or the like who becomes a corn buying agent for larger traders.

Commodity store - "Comprada" - a business establishment engaged in buying and selling agricultural commodities.

Corn (green) - "Lombod" - a) corn harvested before full maturity, suitable for boiling.

Deduction - "Reseco" - a) reduction either in volume or price charged by the buyer to the seller of corn when sold wet, half dried and/or with impurities.

Drying Floor (or mats) - "Baladan" - a) cemented areas near ware-houses or basketball courts, asphalt roads, various mats, etc. on which corn is spread and dried in the sun.

Fare - "Pasahe" - a) the price charged to transport a person or thing.

Guarantor or credit intermediary - "Piyador" - a) one who gives a guarantee or b) a person entrusted with money that is to be extended to others (farmers).

Interest Rate - "Porsiyerto" - a) the price paid for borrowing money generally expressed as a percentage of the amount borrowed, usually paid in one month or one year.

Jeepney - "Jeepney" - a) small vehicle designed to carry over 10 persons or 1 ton of commodities; common means of transportation to barangays.

Load - "Karga" - a) a quantity that can be customarily carried at one time by an often specified means of conveyance.

Market day - "Saod" - a) a stated time and place for people to come together for the purpose of holding sales.

Measuring unit (cans) - "Takaran" - a) common container for measuring volumes of grain. This can be approximately 13 -14 kilograms of dried corn grain. Four cans fill one sack. (Cans formerly containing 25 liters of vegetable oil are frequently used for this purpose.)

Regular exchange partner - "Suki" - a) a person with whom a regular commercial relationship has evolved.

Sack (or bag) - "Sako" - a) a container made of plastic, jute or similar materials used to hold various kinds of commodities, such as corn, palay, etc. This container usually holds from 50 to 60 kilograms of corn or palay.

Sell (to) - "Pabakal" - a) to give up or exchange a commodity for money.

Sheller (manual) - "Sudsod" - a) a hand tool made of wood and metal used in separating the kernel from the cob.

Sled - "Pababa or Kanga" - a) a box-like attachment usually made of bamboo that moves by sliding on a pair of wooden runners, hitched to a carabao and used for hauling purposes.

Store - "Sari-sari" - a) a small store with limited quantities of consumer goods for local consumers.

Town - "Poblacion" - a) capital town in a municipality.

Trader (provincial level) - "Comprador" - a) medium or large scale commodity buyer (rice crops and corn) who usually procures from more than two municipalities within a province and sells in the cash market or on contract basis.

Trader (regional level) - "Comprador" - a) large scale commodity buyer who procures corn from more than one province and sells mostly on a contract basis.

Unload - "Deskarga" - a) to take the load out of a vehicle.

Warehouse - "Camaria or Bodega" - a) a building or room for storing dried corn.

Weighing scale - "Bascula" - a) an instrument used to ascertain the heaviness of certain materials, such as corn, palay, copra, etc. (usually kilogram units).

Processing level

Corn (cracked) - "Mais na giniling" - a) large sized pieces of corn after milling.

Corn grit - "Mais na giniling" - a) moderately sized pieces of corn after milling.

Corn (fine) - "Mais na giniling" - a) very fine pieces of corn after milling.

Feeds - "Pambahog" - a) grains and other materials as food for livestock.

Feed supply store - "Tindahan ki pambahog" - a) a business establishment that sells feeds and veterinary supplies for poultry, hog and other livestock.

Mill (to) - "Molino" - a) a place with a machine for grinding corn or b) to break grain into fine pieces.

Consumption Level

Hog raiser - "Nagbababuyan" - a) a farmer who grows hogs.

Piggery - "Dorigan, Babuyan" - a) place where hogs are raised commercially.

Poultry - "Manukan" - a) domestic fowls collectively.

Poultry raiser - "Nagmamanukan" - a) a farmer who raises domestic fowls.

Spray (to) - "Sumpit" - a) apply pesticide to plants in order to control insects, disease or weeds.

Village - "Barangay" - a) smallest political unit.

Water Buffalo - "Karabaw" - a) Draft animal used for plowing, harrowing, pulling sleds and other farm work.

Weeding - "Hilamon" - a) removing unwanted plants by hand or plow.

Feedmilling Sector: Survival of the Fittest

Economic difficulties that stare in the face of livestock producers have decimated the once-flourishing multi-million peso feedmilling industry into only a handful of enterprises that have no choice but to increase their

efficiency in order to remain in business.

Since 1983 when credit tightened, roughly 50 per cent of swine and poultry raisers have folded up. The ones that remained in business were the more efficient

ones who place a premium on livestock quality.

Even feed suppliers who relied heavily on expensive advertisements, instead of quality and efficiency, found themselves without their usual customers — the

livestock producers who were as inefficient as the feed suppliers.

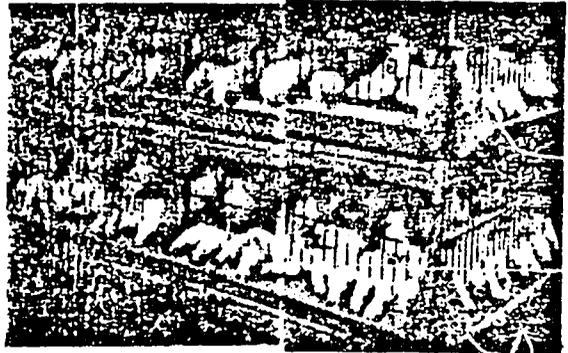
Left without a market, the inefficient feed suppliers likewise folded up, giving way to a new breed of more efficient feed manufacturers who previously had to make do with a bearish market.

Industry sources said only the "Big Five" feedmillers—San Miguel's B-Meg, Vitar-

ern Tagalog, Selecta will soon expand its operations following the approval of its P4-million loan from the World Bank through the Development Bank of the Philippines.

Tito Arce, vice president and general manager of Selecta Feeds, Inc., said his firm had better customers now, who either paid cash or on short-credit terms.

"This gave our products



Ich, Universal Robina Corp., General Milling, and REM — have a captive market.

But a new breed of small-scale feedmillers, led by Selecta Feeds, is filling the vacuum left by other manufacturers in their category.

Smaller producers — SM, CM, and Bulpra which serve the Bulacan market — are similarly enjoying brisker sales because of these developments. Selecta Feeds, has reported a 30 per cent increase in sales.

Although operating only in Central Luzon and South-

the necessary exposure. Customers tend to remain loyal to the product that meets their standards," Arce said, adding that advertisements were not all that necessary since these increase overhead costs can make the products more expensive.

Industry sources said small- and medium-scale producers got the chance to compete with the "Big Five" only when the National Food Authority (NFA) controlled the sales of feed material's like soybeans and corn.

Source: Manila Times October 21, 1985

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