# URBAN FUNCTIONS IN RURAL DEVELOPMENT: A RESEARCH PROJECT IN SPATIAL ANALYSIS AND PLANNING

**BICOL RIVER BASIN DEVELOPMENT PROGRAM**
Pili, Camarines Sur
Philippines

*Undertaken on contract with the*

**CENTER FOR POLICY AND DEVELOPMENT STUDIES**
University of the Philippines at Los Baños
College, Laguna, Philippines

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May 1978

## PROJECT STAFF

*Dr. Ramon L. Nasol*
Project Director

*Emmanuel I. Astillero*
Asst. Project Director

Senior Project Staff:

1. Junio M. Ragragio
2. Jocelyn B. Tria
3. Romeo R. Huelgas

Research Fellows:

1. Dr. Donato B. Antiporta – Institute of Agricultural Development and Administration, U.P. at Los Baños
2. Dr. Nora C. Quebral – Department of Development Communication, College of Agriculture, U.P. at Los Baños
3. Dr. Antonio G. Tan – Institute of Human Ecology, U.P. at Los Baños
4. Prof. Karina C. David – Institute of Social Work and Community Development, U.P. Diliman
5. Prof. Romeo B. Ocampo – College of Public Administration, U.P. Padre Faura, Manila
6. Dr. Leandro A. Viloria – Institute of Environmental Planning, U.P. Diliman
7. Dr. Tito E. Contado – University Extension Center, U.P. at Los Baños
8. Prof. Geronimo V. Manahan – College of Architecture, U.P. Diliman

Research Staff:

1. Lourdes A. Jovillano
2. Marina S. Hagus
3. Editha G. Sto. Domingo
4. Haydee P. Buena
5. Emma C. Montierro
6. Imelda B. Tuason
7. Remedios A. de la Vega
8. Alexander B. Rubio
9. Heriberto E. de Castro
10. Gonzalo B. Hemedez

Interagency Technical Staff:

1. Bruno S. Navera – Provincial Development Staff, PDAP-USAD, Legaspi City
2. Simeon M. Amores – Dept. of Local Government and Community Development, Naga City
3. Carlos C. Banaticla – Bicol River Basin Development Program, Baras, Canaman, Camarines Sur
4. Ramon F. Santiago – Bicol River Basin Development Program, Baras, Canaman, Camarines Sur
5. Rosalio N. Punzalan – Rural Health Office 5, Legaspi City
6. Mae P. Tijam – City Planning and Development Staff, Iriga City
7. Constancio T. Cater – Office of the Governor, Province of Camarines Sur, Naga City
8. Alfredo A. Calara – City Administrator, Naga City
9. Rodrigo A. Bernal – Plan Formulation Division, NEDA Region V, Legaspi City
10. Perfecto J. Bragais – Bicol River Basin Development Program, Baras, Canaman, Camarines Sur
11. Rebecca D. Lagarde – Dept. of Social Services and Development, Naga City
12. Dominica R. Lorbes – City Planning Staff, Office of the City Mayor, Legaspi City
13. Benjamin B. Santuyo – Bicol River Basin Development Program, Baras, Canaman, Camarines Sur
14. Wilfredo G. Olaño – Bicol River Basin Development Program, Baras, Canaman, Camarines Sur
15. Cesar R. Pabilando – Bicol River Basin Development Program, Baras, Canaman, Camarines Sur
16. Wilfredo J. Rey – Bicol River Basin Development Program, Baras, Canaman, Camarines Sur

Administrative Staff:

1. Myrna A. Davac
2. Ester C. Cosico
3. Nenita V. dela Cruz
4. Pura P. Ragragio
5. Vilma A. Solano

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# FOREWORD

On February 1976, initial work in conceptualizing a study on urban functions and the role they play in rural development was started with the visit to Bicol of a team from USAID Technical Assistance Bureau of Urban Development, Washington. In a one-week workshop, Filipino planners devised a framework plan for the study with the U.S. consultants. More specific terms were defined during the final visit by USAID TA/UD two months later.[1] A project agreement providing for US$163,203 to be expended over 16 months was signed between USAID and the Philippine Government in June, 1976. The project was started December of that year and was completed in May, 1978.

**Project Rationale**

That the city plays a crucial supportive role in rural development is a relatively new concept in development thinking. Because this role is seldom defined or highlighted in development programs, towns and cities (central places or development centers) in a region or sub-region tend to fall short of their potential to support rural development efforts.

The linkages between rural development and urban centers are clear, and the existing literature provides considerable insights into the kinds of general services and functions required at the level of the rural market town to support rural development. Less progress has been made in identifying similar facilities and services at other levels of the urban hierarchy, i.e., in the regional and supra-regional centers, and little has been written about them. More understanding is needed of the mix, magnitude, timing (order of priority), and location of facilities and services at all levels and for different types of agricultural patterns. In addition, practical information is needed on alternative ways of providing the required facilities and services.

**Goals, Objectives and Implementing Tasks**

The goal of the project was to reorient urban development in the Bicol River Basin in the context of its rural agricultural character such that its urban centers would directly complement and support the planned integrated rural development of the Basin area. The project was to develop a planning process potentially valid for application elsewhere in the Philippines and other countries and a plan for strengthening the contributions of urban centers (functions, activities and services) to rural development in Bicol.

The work proceeded in three phases over a sixteen-month period, starting December 1, 1976, as follows:

**Phase I**

1. Analysis of the rural development structure (resources and activities) in the Bicol River Basin and the proposed program for integrated rural development in the Basin Area.

2. Assessment of the Bicol's urban system – the hierarchical system of central places or development centers within the Bicol River Basin area and including its linkages to other economic regions and higher order centers.

**Phase II**

1. Identification of significant urban-rural linkages and complementaries within this context, analysis of gaps between the mix, level and location of existing urban functions and what is required to foster the planned integrated rural development of the Bicol River Basin Region.

**Phase III**

1. Formulation of a plan to overcome the gaps identified in Phase II and to strengthen the urban-rural linkages found deficient for the proposed rural development of the Basin area.

**Study Organization and Operations**

At the outset of the study, the paucity of methodologies, precedent model studies and expertise on spatial analysis and planning was recognized. It was decided therefore to engage the services of the University of the Philippines at Los Baños, which assigned the Center for Policy and Development Studies (CPDS) to take charge of the project.[2] Eight faculty members from different units of the university were retained as project consultants. CPDS put together a staff consisting of two urban regional planners, one economist, one sociologist and a support group of researchers and administrative staff. The sub-study on the political-administrative system was contracted to the U.P. College of Public Administration.

A U.S. consultant, Dr. Dennis Rondinelli, provided quarterly support to the project staff and

[1] The first team consisted of Dennis Rondinelli and Kenneth Ruddle, consultants, and John Gunn of TA/UD. Eric Chetwynd of TA/UD wrapped up the project agreement. The Filipino planners were Emmanuel I. Astillero and Junio M. Ragragio.

[2] Dr. Ramon L. Nasol, CPDS Executive Director, assumed project directorship of the Urban Functions Project.

contributed substantially to the directions and form of data research, analysis and planning. The USAID/TA/UD office in Washington sent its own consultants to give technical support and to monitor project operations.[3]

The study used secondary sources for most of the socio-economic data and for the information on facilities and infrastructure. Primary studies were done in Bicol to trace spatial linkages related to market activities, schools, hospitals, intermarriages, administrative linkages, public services delivery system for health and education and political decision-making. The data were analyzed in Los Baños and the report drafts written in Bicol, Los Baños and Manila.

Early in the study, an 11-man Inter-agency Staff (IATS) was formed from technical personnel of the development planning staffs of Naga, Iriga and Legaspi, the two provincial development staffs of Albay and Camarines Sur, the Bicol River Basin Development Program and five national agencies operating in the planning area: the health, local government and community development, education, social services and development departments and the National Economic and Development Authority. The IATS provided research assistance as well as advice and shared in part of the project operations. Monthly workshops apprised the IATS staff of project findings and elicited their reactions to the planning process and methodologies being used. The workshops also functioned as training sessions. The organizational chart in figure 1 guided project operations.

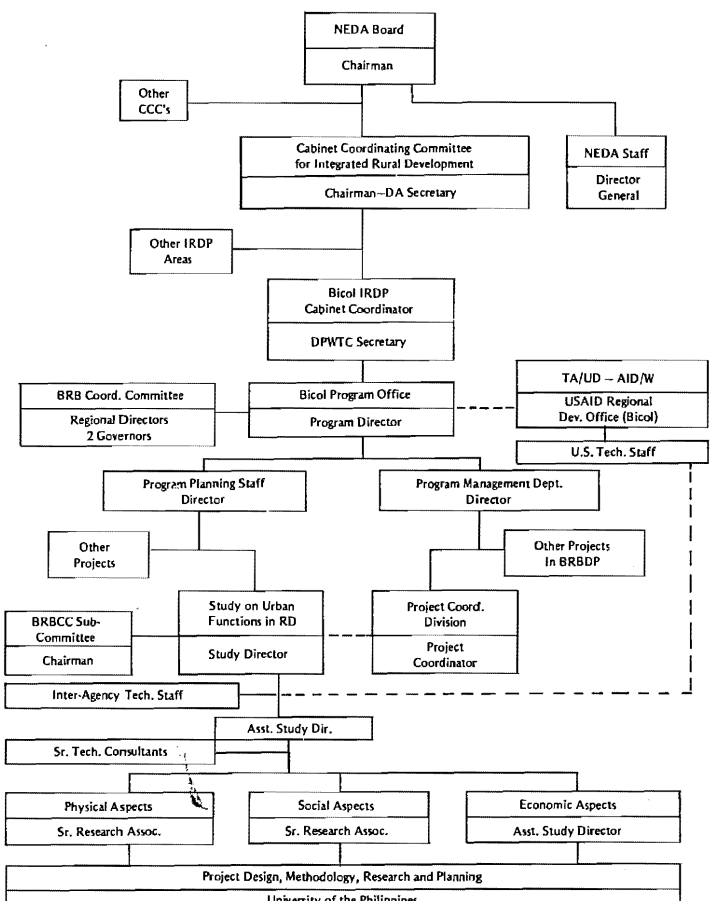
### Project Reports

Aside from the main report, the study produced the following reports:

1. Secondary Data Compendium
2. Data from Primary Research
3. Case Studies of Six Periodic Markets
4. CPA Bicol Studies
   a. Five case studies on political patterns of decision-making
   b. The case of Minalabac: a study on delivery of services

Los Baños
May 1978

Figure 1. Organizational Linkages for the Study on Urban Functions in Rural Development




[3]Dr. Michael McNulty and Dr. John Dickey were sent by TA/UD.

# EXECUTIVE SUMMARY

## FINDINGS

### The Spatial System in the Bicol River Basin

The findings strongly point to the fact that the Bicol River Basin (BRB) is a sub-regional area in which services and facilities necessary for serving basic human needs and generating economic development for the rural poor are not only inadequate but also highly concentrated in a few small central places which are not widely accessible to people living outside their immediate boundaries. The pattern of settlements is strongly skewed in terms of a hierarchy and is not well articulated in terms of providing central places of different sizes, performing different sets of functions needed for rural development and accessibly located throughout the Basin. Almost all services and facilities of consequence to rural development are concentrated in the two provincial cities and *poblacions* or town centers, and most of these are clustered near the national highway that cuts through the center of the Basin to produce a ribbon of relatively higher level development. A large majority of the rural areas are left unserved by central functions.

### Distribution of Functions

Using scalogram analysis and other spatially related methods, 64 major functions were inventoried and scaled. These functions include services and facilities that contribute to spatial centrality and that determine functional hierarchy among settlements. The analysis also sought to determine the characteristics and distribution of urban functions performed by communities within the Basin.

Of the 1,419 settlements within the Basin — composed of built-up areas (*poblacion* and contiguous barrios) and *barangays* (small village) — little more than half contain any of these 64 functions. Nearly 90 percent of all functions appear in less than 20 percent of the settlements. This highly skewed pattern, in which more than 40 percent of the settlements are unserved by any function of economic or developmental significance, includes many settlements with only a few very localized social or civic activities. The most ubiquitous of the 64 functions — farmer's associations, agro-processing facilities and civic associations — are the most primitive of economic institutions, and even these are found in only slightly more than half of all settlements. Most of the other functions that appear in more than 20 percent of the settlement are either highly localized services or social organizations with little or no productive activity.

Nearly all services and facilities that can potentially contribute to rural development are found in a few central places, usually the *poblacions* or municipal centers. But even among these built-up areas, functions are unevenly distributed. Nearly 60 percent of all central functions appear in less than 20 per cent of the built-up areas. More than 30 per cent of all places contain none of the central functions.

### Hierarchy of Settlements

Functional analysis was used in conjunction with centrality indexes, threshold analysis, and secondary socio-economic, demographic and physical data to construct a profile of a hierarchy of settlements in the Bicol River Basin. The skewed hierarchy of settlements reflects the distribution of functions. Based on functional complexity, only two central places — the Naga-Camaligan and Legaspi-Daraga areas — contain most of the functions found in settlements in the Basin. These two places represent less than one percent of all communities and contain less than 10 percent of the Bicol's more than 1.7 million population.

The Naga and Legaspi centers perform primarily commercial, marketing, and administrative functions, serving portions of the provinces in which they are located. They contain the two largest markets in the Basin, through which selected agricultural commodities are exported to Manila and nearby areas, and through which nearly all periodic markets in the Basin with any external trade linkages exchange their goods. Trade linkages between these central markets and others within the Basin, however, are both highly selective and sporadic and do not provide an institutionalized exchange network needed to stimulate agricultural productivity in the rural hinterlands. Naga and Legaspi contain most of the higher level communication, economic, recreational, administrative and marketing functions found in the Basin. Even they, however, perform few secondary (industrial or manufacturing) activities and offer no significant basis for inter-regional trade.

At a second level are nine settlements — Iriga, Tabaco, Goa, Tigaon, Pili, Nabua, Baao, Sipocot and Libmanan — which as a group seem to function as local service centers with from 30 to 54 central functions. Two centers, Iriga and Tabaco, perform area-wide functions, and a larger number of local centers perform more commercial, administrative, marketing and recreational functions than do the other towns and barrios. They tend, however, to be within the influence areas of the two provincial centers and to serve more as complementary centers rather than as service areas for their own hinterlands. Most are clustered along the national highway or at a junction with the provincial roads.

A third level of about 43 settlements – less than 4 percent of all communities in the Basin – acts as small rural service centers in which from 10 to 29 functions appear. Most of these functions are highly localized and seem accessible only to people living in the immediate vicinity of the barrio or *poblacion.* These settlements have relatively small populations, averaging 4,000, and their economic significance seems to be limited to performing low-level residentiary functions.

The overwhelming majority of settlements – over 1,000 or more than 95 percent of the total – fall into a fourth category of residential, non-central places. These are villages of at most a few hundred families, engaged in subsistence or near-subsistence agriculture, working as tenants on plantations or on small family-owned plots. The demographic surveys indicate that the majority of these barrios have populations of from about 400 to 1,000, generally too small to support any significant form of economic or service activity, even periodic markets which are the most basic of agricultural exchange arrangements. All communities in this category have less than 10 functions; most contain only a few or none at all. The only functions consistently found in these barrios are ubiquitous local units serving a neighborhood or cluster of houses: *sari-sari* stores and sometimes a chapel or elementary school.

The implication is that most of the settlements have populations found in the Basin and do not constitute viable economic entities. Their pattern of distribution, small size and weak linkages makes them inadequate to serve basic human needs or to provide the productive inputs needed to accelerate rural development.

### Functional Specialization

Guttman scaling provided a functional profile of built-up areas within the Basin with relatively little differentiation. There were few breaks in the scale score. Level I and II settlements differ from each other only marginally. Comparison of scale scores with profiles of economic, social, physical and demographic characteristics indicates that Naga and Legaspi are clearly the Basin's primary central places and that Level II communities do not differ significantly from some Level III settlements. Some smaller Level III communities are indistinguishable, for all practical purposes, from many larger barrios in level IV.

Although there are sound methodological and technical criteria for dividing the settlements into a four-level hierarchy on the basis of scalogram and Guttman scales, and while the division of the settlements into levels is extremely useful for analysis, planning and programming, in reality, there seems to be little functional specialization or division of labor among communities in the Bicol River Basin. This apparently reflects the predominance of its subsistence agricultural economy and its low levels of income.

Moreover, comparative analysis indicates that within the national spatial system of the Philippines, even the largest central places of Bicol are only third-level settlements. An analysis of the Philippine settlement hierarchy recently undertaken by the PPDO designates Manila as the nation's primate city which is at least 10 times the size of the only two other regional centers – Davao and Cebu. The Basin cities of Naga and Legaspi fall within a third level of settlements performing sub-regional or provincial commercial and administrative functions. These two centers contain virtually no manufacturing activities and, except for limited exports of agricultural products, provide little or no economic base for exchange with other centers outside of the Basin. They have limited absorptive capacity for migrants, offer limited non-agricultural employment opportunities and hold little current "growth pole" potential. Indeed, they are probably channels for out-migration of population and resources from the Basin rather than stimulators of area-wide development.

### Linkages

Bicol's highly skewed distribution of services and facilities is aggravated by extremely weak economic physical, service and social linkages among settlements. Although some of the functions included in the scale would not be expected to be widely distributed since they are central functions requiring large population thresholds, most are basic commercial, administrative and services functions essential to meeting human needs and accelerating rural development. If they are not widely distributed in settlements throughout the Basin, those living in rural areas should at least have easy access to places where they are located. Central places within Bicol, however, are not easily accessible to most rural areas, and settlements are not strongly linked.

The transport linkage analysis, for instance, shows that more than 70 percent of all roads in the Basin are of poor quality and need upgrading. Of the 1.7 million Basin population, 44 percent is not served by good roads and 22 per cent has external access only by foot. Only the national highway cutting through the center of the Basin and a few provincial roads of all-weather construction are passable during the rainy season. The Manila South Road, the only concrete highway, passes through only 15 *poblacions* directly serving 5.5 percent of the Basin population. Farm-to-market roads are few and of poor construction. Many rural barrios can only be reached by small boat or on foot. The inadequacy of regular transport linkages within the Basin is reflected in part by the heavy dependence on non-motorized vehicles, animal-drawn vehicles, illegal "skates" along the railroad track, and small boats and barges. The railroad provides limited service to points within the Basin, and the interior towns are linked to major centers by infrequent bus services.

Physical infrastructure that might link communities and that is necessary for higher level economic acitivities is clearly inadequate. Electrical power is unreliable; brownouts and blackouts are frequent even in Naga and Legaspi. Telephone

communication exists in only three *poblacions* – Legaspi, Naga and Iriga – and even in these cities inter-municipal calls are difficult to make. Ironically, long-distance calls to Manila from these same cities are fairly reliable.

Formal government linkages among levels are dominated by national ministries operating within the Basin and the formal structure is highly centralized. The BRB Development Program itself is a national agency performing sub-regional planning and coordination functions. Most local officials are appointed by, and are responsible to, national ministries. Municipal officials generally are not under the authority of the mayors, who are themselves hold-over appointees under martial law and who have few resources to solve local problems. Most municipalities in the Basin are dependent on the national government for most of their revenues and authority. Decisions often are made through highly personalized relationships.

Government services provided by all levels are highly localized. Health, education and other public facilities generally extend services only to populations living in the immediate vicinities of their *sitios*. Even the schools in the larger centers primarily only serve the local areas. Health, education and agricultural extension services are far below standards set by national ministries. Preliminary surveys of selected national ministries show that their decisions on service and facilities distribution have usually not been made on the basis of spatial analysis or with a clear recognition of population distribution patterns. Such decisions are usually made at the national level with little regard for regional conditions.

Similarly, the case studies done by the College of Public Administration indicate that location decisions at the local level are highly political in nature, are generally without regard for area-wide spatial implications and often bog down in lengthy political stalemates. Because settlements are weakly linked and the interdependencies are not clearly visible, each local jurisdiction pursues its own interests without considering larger, regional development issues.

Analysis of social linkages further confirms the weakness of interaction among settlements in the Basin. In most municipalities, a very small percentage of local men and women marry spouses from outside the immediate locality. Social interaction patterns among communities in the Bicol seem to be constrained by well-defined cultural and linguistic boundaries.

Market linkages, which should form a major network of commercial interaction needed to stimulate rural development, also are weak in Bicol. The greatest market interaction occurs through the central markets located in the two highest level settlements. Regular and periodic markets in smaller communities are generally linked to either Naga or Legaspi. But neither regular nor periodic markets appear frequently in the settlements pattern, and those periodic markets that do exist usually serve only the barrios in which they are located. There is little evidence of a well-integrated network of markets covering the rural areas in the Basin. A significant portion of the Basin population lives in settlements too small to support even a periodic market, which adversely affects its ability to sell agricultural surpluses, obtain household goods or buy inputs needed to increase agricultural production.

## CONCLUSIONS AND POLICY IMPLICATIONS

1. *On the Planning Area: The Bicol River Basin*

Based on the findings of the study, the assumption that the Bicol River Basin is a unified and integrated economic system is questionable.

a. At least three economic subsystems operate in the planning area:

(1) The Naga-Camaligan-Iriga cluster
(2) The Legaspi-Daraga-Tabaco urban cluster
(3) The rural areas which are largely unconnected to the two urban clusters.

b. Very little interaction or linkage exists between urban clusters of Camarines Sur and Albay provinces. There is little economic exchange, travel, social interaction, or outreach of services.

c. Very little interaction or linkage exists between the urban clusters and rural areas within each of the provinces of Camarines Sur and Albay.

2. *On the Sub-Basin IAD Program*

It is questionable whether present IAD delineations primarily drawn on the basis of water resource considerations are the most appropriate planning boundaries for economic development.

a. Some IADs cut across settlement and economic subsystems.

b. Some IADs deal only with rural areas and do little to connect urban settlements with rural hinterlands.

Much thought needs to be given to how sub-area planning units can more effectively link rural areas with large centers.

3. *On Investment Allocations*

Little consideration is apparently given to how some projects or investments will affect existing or potential subsystems within the Basin. This is especially evident in the question of how investments can be concentrated in locations outside of the strip running along the Manila South Road (MSR).

Moreover, the proposed road networks currently under study in the BRBDP still leave areas unserved with transport access. They need to be reviewed to see whether they will link depressed agricultural areas to existing or potential market centers.

4. *On Local Decisions*

The settlements system as it now exists is extremely poor in terms of providing access to services and facilities for rural people outside of the MSR strip. Much more attention must be given to the access implications of the location of projects.

5. *On the Internal Exchange Economy*

There seems to be little basis for creating an internal exchange economy within the spatial system of the Basin.

a. Little or no socio-economic differentiation exists between the two major centers of Naga and Legaspi. Little specialization is generally seen among settlements that would lead to internal trade.

b. The low income in rural areas outside of the two urbanized clusters means that virtually no market exists in the Bicol River Basin for potential goods that would allow internal trade to develop.

c. It is difficult to see how BRBDP will induce the shift from agricultural to industrial development unless services, facilities and infrastructure which are preconditions to industrial investments are established in central locations with production potential.

6. *On Development Strategies in the Bicol Basin*

Although the current strategy of developing diversified economic activities in different IAD's is a step in the right direction, more attention should be given to the particular concentration of investments necessary to stimulate spatially specialized but interdependent sectors.

Moreover, most of BRBDP's development strategy concentrates on increasing inputs for agricultural development – roads, irrigation, land reform, flood control, social services and so forth. Much more attention should be given to output factors – especially the creation of market centers accessible to rural farmers. Experience has shown that production will not increase significantly over the long run unless farmers can easily market their products at a fair price. Hence, the creation of market centers seems crucial to the entire BRBDP economic plan.

a. If agricultural diversification within the IAD's is to result in internal trade, market centers must be well dispersed throughout the region.

b. If agribusiness and agro-industry are to operate effectively in the long run, they will need to depend on a network of urban and rural market centers.

Furthermore, packages of investments are needed in market centers to stimulate market functions. It would be a mistake to assume that markets will simply appear once production is increased. These centers will have to be stimulated through the provision of pre-conditions – services and facilities that will allow them to operate effectively.

**Capsule Recommendations**

1. The Bicol River Basin Development Program should move into another planning dimension which goes beyond systems analysis based predominantly on physical factors and begin to coordinate spatial and economic factors. Such a dimension will place much greater emphasis on the stimulation and growth of rural market centers in areas not now covered by services and facilities. In the future, project identification and feasibility analysis should also deal with capacity of the location of investments to diversify and strengthen the spatial structure in the Basin and link settlements together in an internal Basin economy.

2. Such a dimension should be seen concretely in a spatial planning framework which allocates services and facilities – roads, storage facilities, small- to large-scale processing and milling, transfer facilities and other complementary services – to strategically chosen, centrally located settlements within rural sub-areas as well as to desired sub-regional centers in the Basin.

3. For this purpose, a three-tiered hierarchy of centers composed of (a) urban centers, (b) market centers, and (c) rural service centers with corresponding levels of facilities and services is proposed. Urban centers will function as modern industrial nodes in the Bicol Basin and serve to link the sub-region to the national economy. Market centers will play the role of growth poles and efficiently exchange agricultural and manufactured products as well as distribute farm inputs to the agricultural areas. Rural service centers will provide services critical for agricultural productivity directly to the farmers.

# CHAPTER I

# SUMMARY

### Rural Poverty and Underdevelopment in the Philippines

The Philippine economy is characterized by a high level of poverty and underdevelopment. Many people, especially those living in rural areas, are excluded from active participation in productive economic, social and political activities. They are also removed from opportunities to improve their condition in the near future. The pervasiveness of poverty and underdevelopment is indicated by low incomes, substandard nutrition, and poor housing.

Poverty in the Philippines is a result mainly of unemployment and underemployment, isolation of rural settlements from urban-based support systems, and low productivity. Underlying all of these is the incapability of local government in the rural areas to undertake development projects because of three inherent weaknesses: inadequate financial resources, low administrative-technical capability and centralized development decision-making at higher levels of government.

While poverty and underdevelopment are widespread, they are most apparent in rural areas where three-quarters of the population lives. Over the past decade, the disparity in income between rural and urban areas has widened, with the rural sector exhibiting low rates of economic growth and a few urban centers growing rapidly. As a result, there has been a steady out-migration from the rural areas which has tended to concentrate in a few major urban centers.

From 1960 to 1975, rural people migrated to cities at an annual rate of 5 percent against a 3.1 percent annual population growth. By 1975, as natural growth rates declined to 2.4 percent, rural population growth declined to only 1.6 percent, but rural-urban migration increased from 0.5 to 1.1 percent a year, more than doubling the flow to urban centers. Table 1.1 shows a definite shift of population from rural to urban areas, with the urban areas growing at 4.8 percent a year against a total population growth rate of 3.6 percent. While total rural population from 1965 to 1975 grew by 3 percent, the growth rate of the farming population declined by 2 percent.

While the level of living probably improved for the lowest group over the past decade, it was not as fast as for groups higher in the income scale. The poorest 40 percent suffered a decline in income share from 18 to 13 percent, while the top 20 percent increased its share of income from 46 to 51 percent.

The mean family income in 1971 was ₱10,079 for the richest 20 percent and ₱688 for the poorest 20 percent, a range of 14.7 times. Statistics for 1974 reveal that the gap between rich and poor has remained the same; the poorest 40 percent receives about .4 of the mean income of ₱4,000 while the richest 20 percent is the only economic class that has hurdled the mean. The lower 80 percent of Philippine households remain below the mean.

Table 1.1. Distribution of population between urban and rural areas, 1965-75.

| Year | Total Population | Total Urban[a] | Total Rural | Farming | Fishing & Forestry | Other Rural |
|---|---|---|---|---|---|---|
| 1965 | 31,510 | 8,339 | 23,171 | 16,326 | 1,250 | 5,595 |
| 1966 | 32,476 | 8,671 | 23,805 | 16,648 | 1,307 | 5,850 |
| 1967 | 33,473 | 9,016 | 24,457 | 16,977 | 1,367 | 6,113 |
| 1968 | 34,501 | 9,375 | 25,126 | 17,310 | 1,429 | 6,387 |
| 1969 | 35,560 | 9,749 | 25,811 | 17,645 | 1,494 | 6,672 |
| 1970 | 36,684 | 10,140 | 26,544 | 18,009 | 1,565 | 6,970 |
| 1971 | 37,901 | 10,546 | 27,355 | 18,440 | 1,635 | 7,280 |
| 1972 | 38,991 | 10,967 | 28,024 | 18,709 | 1,710 | 7,605 |
| 1973 | 40,122 | 11,406 | 28,716 | 18,985 | 1,787 | 7,944 |
| 1974 | 41,297 | 11,862 | 29,435 | 19,270 | 1,867 | 8,298 |
| 1975 | 42,495 | 12,335 | 30,160 | 19,560 | 1,950 | 8,650 |

[a]Total urban population is that reported by the Bureau of Census and Statistics (BCS), reduced by 16 percent to eliminate the portion classified as urban but engaged in agriculture (as revealed by BCS labor force surveys). Total rural population is the difference between total population and total urban (World Bank analysis).

Source: National Economic and Development Authority (NEDA), Statistical Yearbook, 1975, Manila.

The problems arising from low income are further exacerbated by double digit inflation which hit an annual rate of 40 percent in 1973. The Consumer Price Index (1965 = 100) had risen to nearly 276 for the country by 1974. It hovered at 269 for areas outside Manila, while in Manila it had stabilized somewhat at 254. The spiraling prices of goods and services brought about by the weaknesses of the national economy, as well as by external factors such as mounting oil prices and declining world prices of Philippine exports like sugar, have decreased real incomes even further. Table 1.2 shows that from 1956 to 1971, the poorest 40 percent of Philippine households hovered within only .4 percent of the mean family income, while the top 20 percent had more than seven times the former's average income.

The problem of Philippine poverty is overwhelmingly rural. In 1975, 7 out of 10 of the 42 million population resided in the rural areas. The World Bank, in 1976, estimated from 1971 statistics that "about half of all rural families had incomes below that required to provide adequate nutrition and other essentials of life."[1] On the same basis, over 80 percent of all families in the Philippines with less than the minimum needs budget are estimated to be in the rural areas.

Of the bottom 40 percent of the population, approximately 90 percent, or 14 million people, lives in the rural areas. Most of them (65 percent) are engaged in farming and over half (52 percent) are self-employed, although a significant number have secondary incomes from non-farming activities. Geographically, 40 percent of the poorest rural groups are to be found in Eastern Visayas (Leyte-Samar), Southwest Mindanao (Zamboanga-Cotabato) and Bicol.

Table 1.3 shows that from 1957 to 1971, the share in national household income of the poorest 40 percent in the rural areas went down from about 18 percent to just about 12 percent, while that of the top 10 percent improved from about 30 percent to 34.4 percent.

Table 1.2. Ratio of mean income of each fifth of families to the mean income of all families, 1956-1971.

| Category | Mean Family Income | | | |
|---|---|---|---|---|
| | 1956 | 1961 | 1965 | 1971 |
| Richest 20% | 4,024 | 5,094 | 7,044 | 10,079 |
| Second 20% | 1,494 | 1,738 | 2,562 | 3,924 |
| Third 20% | 909 | 1,090 | 1,631 | 2,467 |
| Fourth 20% | 598 | 712 | 1,020 | 1,523 |
| Poorest 20% | 331 | 838 | 447 | 688 |
| All | 1,471 | 1,804 | 2,541 | 3,736 |
| | Ratio[a] | | | |
| Richest 20% | 2.74 | 2.82 | 2.77 | 2.70 |
| Second 20% | 1.02 | .96 | 1.01 | 1.05 |
| Third 20% | .62 | .60 | .64 | .66 |
| Fourth 20% | .41 | .46 | .40 | .41 |
| Poorest 20% | .23 | .21 | .18 | .18 |

[a]Ratio = $\frac{\text{Mean Family Income in each Fifth Category}}{\text{Overall Average Family Income}}$

Source of basic data: National Census and Statistics Office, NEDA, 1974.

The International Labor Organization[2] has traced rural poverty to the inability of rural areas "to overcome the depressing effects of growing population pressures on scarce arable land," thus inducing increased rural-urban migration. The urban sector, in turn, can not absorb the increased labor supply because of the capital-intensive, rather than labor-intensive, nature of its industries. The rural sector's inability to provide increased employment opportunities has become one of the root causes of underemployment and unequal income distribution. The International Labor Office estimated national unemployment at 25 percent in 1972.

Although the urban areas show high unemployment, self-employment in agriculture often disguises higher rates of rural underemployment. From 1961 to 1971, income from self-employment dipped by 6 percent while undistributed corporate income, an urban activity, increased by 6 percent.

In trying to understand the roots of rural poverty, the ILO Mission concluded that "it is the narrow base for participation in growth which Philippine development has provided until now that lies at the heart of the problem."[3] And this narrow

[1]"The Philippines: . . Problems and Prospects for Development," World Bank, July 1976.

[2]International Labour Office, *Sharing in Development: A Programme of Employment, Equity and Growth for the Philippines,* Manila: National Economic and Development Authority, 1974.

[3]*Ibid.*

participation is rooted in the unbalanced pattern of resource allocation and industrialization which up to the present have been biased in favor of the urban sector. As regards the allocation of construction activity, the available evidence points to a strong geographical concentration particularly in urban areas. Similarly, the regional distribution of government expenditures on infrastructure reveals that, between 1965 and 1972, almost half of the total infrastructural investment took place in only two regions: Rizal (which includes Manila) and Central Luzon (Pampanga and Nueva Ecija) which are fairly urbanized areas.

**The Dual Society: Urban and Rural**

The Philippine economy exhibits a distinct dualism. Although poverty exists in both urban and rural areas, only 15 percent of the poorest 40 percent lives in the urban areas; the rest are rural residents. Urban Filipinos reside in large cities, provincial capital towns, *poblacions* (town centers) and large *barangays* (villages) of more than 1,000 population. Rural Filipinos live in smaller *barangays* of 700-800 population and in remote *sitios*, which are isolated hamlets of 10-15 houses.

While urban settlements are centers of marketing, government, commerce and services, rural settlements are predominantly agricultural, with farming and fishing as the main economic activities. While urban centers are linked to each other by roads, rural areas generally are not physically accessible all year round by all modes of transport, except those located athwart inter-urban transport systems.

Table 1.3. Percentage distribution of total family income and household expenditures in all Philippines and in rural areas (World Bank estimates).

| Family Income Group | 1957 | | 1961 | | 1965 | | 1971 | |
|---|---|---|---|---|---|---|---|---|
| | Total | Rural | Total | Rural | Total | Rural | Total | Rural |
| Distribution of total family income: | | | | | | | | |
| Lowest 20% | 4.5 | 7.0 | 4.2 | 5.9 | 3.5 | 5.0 | 4.4 | 3.7 |
| Second 20% | 8.1 | 11.1 | 7.9 | 11.8 | 8.0 | 9.5 | 8.9 | 8.2 |
| Third 20% | 12.4 | 14.7 | 12.1 | 13.5 | 12.8 | 15.3 | 13.9 | 13.2 |
| Fourth 20% | 19.8 | 21.1 | 19.3 | 21.9 | 20.2 | 23.0 | 21.8 | 21.0 |
| Top 20% | 55.1 | 46.1 | 56.4 | 46.9 | 55.4 | 47.2 | 51.0 | 53.9 |
| Top 10% | 39.4 | 30.1 | 41.0 | 31.1 | 40.0 | 30.0 | 34.4 | 36.9 |
| Distribution of total household expenditures: | | | | | | | | |
| Lowest 20% | 5.05 | N.a.[a] | 5.98 | 7.52 | 5.65 | 6.79 | 6.92 | 5.92 |
| Second 20% | 9.03 | N.a. | 10.32 | 12.65 | 10.25 | 12.23 | 12.08 | 10.18 |
| Third 20% | 13.02 | N.a. | 14.68 | 16.93 | 14.57 | 16.87 | 13.66 | 14.76 |
| Fourth 20% | 20.03 | N.a. | 21.03 | 22.97 | 21.10 | 23.20 | 22.45 | 21.98 |
| Top 20% | 52.88 | N.a. | 47.98 | 39.94 | 48.43 | 40.91 | 43.00 | 47.16 |
| Top 10% | 35.42 | N.a. | 31.66 | 24.30 | 32.49 | 24.29 | 26.71 | 30.81 |
| Top 5% | 23.38 | N.a. | 21.00 | 15.29 | 21.43 | 15.06 | 16.74 | 19.37 |
| Gini coefficient | 0.48 | 0.38 | 0.50 | 0.40 | 0.51 | 0.42 | 0.46 | 0.49 |

[a]Not available.

Source: BCS, Family Income and Expenditures Survey for 1957, 1961, 1965 and 1971.

**Dualism in Income**

The urban-rural disparity in the Philippines is clearly manifested by differences in income and employment, education and entrepreneurial opportunities. Although recently the Philippine Government has expressed concern over the underdevelopment of rural areas and has taken steps to put "rural development programs" in place, public and private investments have traditionally gone to urban centers rather than to rural areas.

A nationwide social research survey conducted by the Philippine Social Science Council in 1975[4] concluded that urban households enjoy a higher standard of living, that there is a greater concentration of wealth in the urban population, and that income inequality is greater for the rural than for the urban population. If the annual household income of ₱5,000 in 1974 is taken as the poverty line,[5] a higher proportion of rural households live below the poverty line. While there is a general pattern of dissavings for all households, the ratio of expenditure to income is 1.18 for rural households and 1.10 for urban households. With smaller incomes, rural households are perpetually threatened with indebtedness. It is not surprising, therefore, that informal credit at usurious rates flourishes in rural areas. In many instances, due to the shortage of cash, rural families have to pawn or sell their work animals or their farms

[4]C.C. Parel and G.G. Caldito, "A Survey on Filipino Family Households: Distribution of Income and Consumption Expenditure Patterns," *Social Science Information* Vol. IV, No. 1, PSSC, Manila, 1974.

[5]Ma. Alcestis Abrera, "Philippine Poverty Threshold," *Measuring Philippine Welfare,* Development Academy of the Philippines, Tagaytay City, 1975.

to finance essential medical treatment or the higher education of promising children.

The vicious cycle of farm credit is described in an unpublished paper thus:[6]

> "The facility with which informal credit is extended to farmers by landowners, middlemen and other sources contrasts sharply with usual banking requirements of collaterals/securities, guarantors, loan conditions, signatories, approvals, and legal forms within the clean and well-ordered offices of banks. This formal credit delivery system has not adjusted itself to the rural-based farmer who is seldom very literate in written documents, who would be ill-dressed for the loan processing (because he must go to town for the occasion), and whose world is so much simpler out there in the farm. His lifeways, training and socio-physical milieu are not urban, unlike the bank with which he must transact business.
>
> "It is not surprising, therefore, that enterprising middlemen (both Filipino and Chinese) have taken advantage of the situation. Knowing the farmer's potential production in a rice or corn farm or a coconut stand, the middleman advances a small amount to tide the farmer over till harvest time. At harvest, he takes the produce to his warehouse (oftentimes, the farmer transports the produce), values the goods at a comfortable margin, deducts the cash advance(s) and gives the farmer the balance. Usually the balance is not enough to tide the farmer (or fisherman) over to the next crop, and a cash advance is again made. The cycle is repeated crop after crop, completing a series of deepening indebtedness where the poor farmer becomes eternally in debt to the middleman. The middleman, in turn, builds up a base of farmer-debtors who are not only economically in debt, but socially grateful."

Table 1.4 shows that for all types of farmer borrowers, informal credit accounts for an average of 64 percent from 1970 to 1972, indicating that formal credit through banks is used only by 3 out of 10 farmers.

Social ties are established, a good number through compadrazo[7] which is hard to break once contracted. Unknowingly, a small farmer goes into debt fully secured. Being a marginal entrepreneur, he is not likely to leave his farm, having no other alternative. There is community pressure on him to make good his payment since within the confines of a small *barangay* indebtedness is generally known. Finally, the middleman ensures payment by "buying" the produce at harvest, usually at a low price because of the higher supply during harvest season.

### Inadequate Rural Housing and Services

Of the 6 million dwelling units in the Philippines (1971), two-thirds are in the rural areas. The typical rural house is of very light construction: bamboo poles and wood for structural components and thatch (nipa or grass) for walls and roofing. It is usually a one-room structure on stilts serving various functions at varying times of the day or season: living room, bedroom, bodega, and dining room. A small, open *batalan* serves as bathroom, washroom and kitchen. A small balcony directly connects to a bamboo

Table 1.4. Percentages of farmer borrowers by source of loan and by tenure.

| Coverage of Data and Source of Data | Owners | Leaseholders | Share Tenants |
|---|---|---|---|
| 1970/71 | | | |
| ACA or FACOMA | 19.1 | 23.9 | 8.3 |
| Rural Banks | 13.3 | 5.4 | 6.7 |
| DBP or PNB | 7.6 | 0.0 | 0.8 |
| Landowners | – | 7.8 | 15.9 |
| Private money lenders | 38.2 | 41.5 | 39.8 |
| Relatives or friends | 21.8 | 21.5 | 28.2 |
| 1971/72 | | | |
| ACA or FACOMA | 9.8 | 24.0 | 8.0 |
| Rural Banks | 13.5 | 6.3 | 6.2 |
| DBP or PNB | 6.8 | 0.4 | 0.0 |
| Credit unions | 2.5 | 0.4 | 0.9 |
| Landowners | – | 9.7 | 19.4 |
| Private money lenders | 40.9 | 38.7 | 36.6 |
| Relatives or friends | 26.5 | 20.6 | 28.8 |

[6]Emmanuel I. Astillero, "A Credit Facility for Farmers," Paper presented as consultancy report to USAID, RDO, Bicol River Basin, 1976.

[7]Compadrazo is a social system of extending kinship by having someone stand as godparent for one's child.

staircase. The house is in an unfenced lot, surrounded by clumps of trees, in which pigs and chickens roam. It usually has a vegetable garden.

Lately, such housing innovations as concrete hollow blocks (a status symbol) for walls and galvanized iron sheets for roofing have been adopted as household income has improved. The poor condition of most housing, however, is a very real indicator of rural poverty. In 1970, only a fourth of rural housing could be considered "strong" against 56 percent of urban housing.[8]

The quality indicators of dwelling units provide some idea of the standard of living of rural households. Selected indicators include lighting, drinking water and toilet facilities. In 1971, 24 percent of all Philippine households had piped water; 37 percent relied on artesian wells and hand pumps. The rest, or 4 out of 10 households, drew their drinking water from open wells, springs, rainwater, lakes and rivers. Most of the piped systems serve urban areas; only one out of 10 rural households is served by piped systems, against 6 out of 10 urban households. Less than 7 percent of rural households have electricity, against 60 percent of urban households. Toilet facilities are crude, primitive and unsanitary, contributing in large measure to environmental diseases. Except for about 11 percent which have flush or water-sealed toilets, rural households make do with a closed pit, open pit, or no pit at all. By contrast, almost half of all urban households have water-sealed toilets.

### Isolation of Rural Areas

The quality of rural life is further reflected by its remoteness and inaccessibility to critical urban functions such as markets, health facilities, education and public services. Most rural settlements, ranging from less than 500 people to just below 2,000, are located in villages beyond the reach of inter-urban transport links. They are on slopes of mountains, on isolated coastlines or in the middle of plains far from roads passable all year round. Even when connected by unpaved dirt roads, they are not serviced by regular transport.

The effect of isolation is immense. Agricultural productivity is low because it is difficult to reach markets or obtain farm inputs such as machines, seeds, fertilizers, pesticides and credit. Government assistance is infrequent. Rural folks must often spend a whole day or more to reach government stations, or even merely to get licenses and residence certificates or to register work animals.

The remoteness of rural life is exemplified by the case of the Paulba periodic market in the Bicol River Basin. Paulba, a *barangay* of a little over 1,000 people, is centrally located among 21 *barangays* of Ligao and 8 of Oas in Albay Province. Over the years, an informal market operated twice weekly has sprung up in Paulba to serve almost 4,000 households within a radius of 12 kilometers. Of the 29 villages served by the Paulba market, only 8 are connected to it by a provincial road which is in very poor conditions. Residents in the Paulba trading area travel to market on feet or by animal-drawn sleds, starting as early as the night before market days (Wednesdays and Sundays) to get there by early morning. They do their marketing within a couple of hours and start back by mid-morning before the sun gets too hot.

### The Rural Government Mechanism

The national government has set a policy of rural development. A Cabinet Coordinating Committee on Integrated Rural Development Programs (CCC-IRDP), headed by the Secretary of the Department of Agriculture, was created in 1972 to direct rural development efforts. Each regional or sub-regional project is the responsibility of the appropriate cabinet member. To date, four IRDP's are operating: the Bicol Program under the Public Works Secretary, the Mindoro Program under the Public Highways Secretary, the Samar Program under the Local Government and Community Development Secretary, and the Cagayan Program under the CCC chairman himself.

The four programs, however, are national government programs initiated, planned, supervised, funded and implemented by national agencies. Such a strategy implicitly accepts the inherent weaknesses of the local government mechanisms in the rural areas. While local governments are involved in the "coordination process," the main actors are the regional staff of national agencies.

In 1972, almost 34,000 *barangays* formed the basis for local government, with 99 percent of them classified as rural. Roughly 22 million rural Filipinos live within these *barangays,* at an average of 700 to 800 in each. Each of the 69 provinces has an average of 20 municipalities, making a total of 1,433 municipalities. Each municipality has a *poblacion*, which is the town proper or urban core, and an average of 20 or more barrios within its physical boundary. There are also 61 cities with their own urban and rural *barangays.*

The ILO Mission observed in its reports:

> "Although the municipality is made up of the *poblacion* and its barrios, in matters of local administration, services, etc., the *poblacion* completely dominates the municipality, so that there is a *poblacion*-barrio distinction marked by social, political and economic differences in addition to some geographical distance. This situation has not been helped by the fact that the members of the municipal council, each of whom may exercise supervision over a number of barrios, are elected by the municipality at large and are therefore not likely to come from the barrios (although some of them do)."[9]

[8] The national statistics office classifies a dwelling unit as "strong" if its roof is of galvanized iron, asbestos, concrete, or tile, and its walls are of concrete, hollow blocks, adobe, stone, galvanized iron or aluminum. Light materials include cogon (grass), nipa, anahaw, or buri (palm leaves) for roofs and bamboo, sawali (bamboo strips), nipa, anahaw or buri for walls. Mixed materials constitute a combination of strong and light.

[9] International Labor Organization, *op. cit.*

### The Rural Economy

The main economic activity in Philippine rural areas is farming. The three major crops are rice, corn and coconut which account for 80 percent of the production of all farms, engaging 86 percent of the farm population and 77 percent of the farm land. But rice predominates. Farms growing rice in the major river basins accounted for 86 percent of total lowland production in 1960. Other crops are sugar, coffee, bananas, vegetables and rootcrops. Most farms intercrop; out of the 2.7 million hectares of rice farms, 71 percent or 1.04 million hectares are solely rice farms.

Approximately 20 million people, or nearly half of the total population, depended on rice, corn and coconut for their main sources of income in 1975. It is in these farms that the low-income households are concentrated.

Agriculture is dominated by small farms. In 1971, 74 percent of rice farms were less than four hectares, and almost 70 percent were less than two. Farm owners are able to hire few workers, depending instead on their families for labor, although at certain times of the year such as planting, weeding or harvest time, groups of other farmers help out either on share-harvest basis or through free cooperative group work.

Productivity is low. Against a potential of at least 5 tons of paddy per hectare, for instance, the national average has been only 1.6 million tons since 1970. Internationally, Philippine farms have one of the lowest rates of productivity (tables 1.5 and 1.6).

The low productivity is mainly due to the isolation of rural farm from markets and from urban centers which are sources of farm inputs, credit, seeds, fertilizers, pesticides and farm technology. Although the government has marketing and input distribution programs, they are still in their early stages and have not yet shown marked effects. And they are not likely to have much effect unless farm-to-market transport costs which affect both inputs and outputs can be reduced.

Table 1.5. Average annual yields of paddy rice in selected countries (in kilograms per hectare).

| Country | 1961-65 | 1966-70 | 1971-73 |
|---|---|---|---|
| Philippines | 1,257 | 1,510 | 1,532 |
| Asia | 2,048 | 2,172 | 2,322 |
| Burma | 1,641 | 1,642 | 1,695 |
| China, People's Republic of | 2,780 | 2,928 | 3,145 |
| Indonesia | 1,761 | 1,910 | 2,300 |
| Korea, Republic of | 4,111 | 4,311 | 4,681 |
| Thailand | 1,775 | 1,818 | 1,898 |

Source: Food and Agriculture Organization, Production Yearbook, 1972 and 1973, Rome.

Table 1.6 International comparison of average yields of corn (in kilograms of shelled corn per hectare).

| Country | 1961 – 65 | 1966 – 70 | 1971 – 73 |
|---|---|---|---|
| Philippines | 660 | 798 | 824 |
| Asia | 1,652 | 1,990 | 1,833 |
| China, People's Republic of | 2,479 | 2,688 | 2,798 |
| India | 992 | 1,066 | 1,039 |
| Indonesia | 997 | 952 | 1,012 |
| Thailand | 1,932 | 2,094 | 1,801 |

Source: FAO, Production Yearbook, 1972 and 1973.

While rural farms are primarily owned by the cultivators, a significant number are worked by tenants, a condition which the Agrarian Reform Program launched in 1972 seeks to remedy. The main reason for land reform is to defuse an otherwise explosive social problem. Traditional tenancy has reduced farmers to subsistence living where landlords take the largest share of the farm income, leaving the cultivators destitute. Another reason for agrarian reform is to provide the incentive of farm ownership to raise farm productivity. Lastly, agrarian reform hopes to correct the unequal distribution of income in rural areas.

The potential for food production in rural Philippines is tremendous, but the farming community has not been able to realize this potential. The Philippines is still a net importer of rice, fish, meat, corn and raw materials for feeds. Much remains to be done to link rural areas to urban centers physically in order to allow farmers to gain access to market centers and to fully exploit arable lands through the provision of water for agriculture, flood control of river basins, and farm technology and agri-business extension.

### Social Indicators of Poverty

In an intensive inquiry on social indicators of development, the Development Academy of the Philippines (DAP) reiterated the widespread poverty and underdevelopment in the country especially in rural areas.[10] The DAP study team established that rural Philippines has an infant mortality rate of 70.8 (per 1000) compared with 57.5 for urban areas. The national rate of 68 is over four times the comparable white American experience. Life expectancy, on the other hand, is 61 years compared to 71 in the United States, and in rural areas such as Northern Mindanao and Cagayan, it is as low as 55 to 56 years.

In 1967, the national supply of calories was 91 percent of the recommended daily allowance (RDA). As many as 85 percent, however, had a lower actual consumption than 90 percent of the RDA. For protein, the national intake was 91 percent below RDA, and most of it came from vegetable protein. The team concluded that the problem of nutrition is not so much of inadequacy as of distribution and seasonality, which is characteristic of rural areas.

Regarding elementary schooling, there are no significant differences in learning facilities between

[10] Mahar Mangahas (ed.), "Measuring Philippine Development," DAP, Manila, 1976.

urban and rural areas. For high school and college education, however, rural students must go to the towns and cities. The expense of travel and urban accommodations for farmers' children has effectively cut down the educational opportunities of rural households. If education creates human capital, the DAP study concluded that the rural areas have not appreciably gained from national investment in higher education. From 1961 to 1965, capital facilities in rural areas increased minimally, while investment in urban areas rose by a fourth. Overall, average educational capital is about 200 percent greater in urban than in rural areas. The location of students affects educational opportunities. Rural areas are as much as 40 percent below the mean in educational attainment, while urban areas are as much as 90 percent above the mean.

In a recent study of poverty in the Philippines, Abrera[11] defines two poverty thresholds: a lower and more basic food threshold and a higher total threshold. The first is based on the Food and Nutrition Council's nutritionally adequate minimum cost diet, or the food budget that can satisfy the requirements for survival and allow the individual to do productive work. The second is determined by a multiplier applied to the food threshold which is based on the reciprocal of the proportion of the budget spent for food which is considered representative of low-income families.

Based on these thresholds, for a family of six, Abrera found that in 1971 rural families with incomes less than the food threshold constituted 64 percent of all Philippine households, while only 39.4 percent of urban families were below the food threshold. This means that 21.2 million persons out of 28.7 million in the rural areas were below the food threshold.

Among those below the total threshold, rural families constituted 83 percent against 64 percent in urban areas (table 1.7). Abrera estimated the rural food threshold to be an annual family income of ₱4,643 in 1974 and the total threshold to be ₱7,738. For the urban areas, the estimates were ₱5,306 for the food threshold and ₱8,844 for the total threshold. In 1971, the mean family income was ₱2,818 in rural areas and ₱5,141 in urban areas. The gap between income and the poverty threshold for rural households was estimated to be 36 percent for the food threshold and 84 percent for the total threshold.

The DAP study on social indicators concluded that while improvement in some areas such as employment, capital formation and basic utilities has been substantial, "price inflation, forest depletion, and continued worsening of poverty" remain critical.

### Poverty in the Bicol Region

#### Regional Framework

A combination of several factors, among them a severe imbalance in the allocation of the country's resources, historical development, and natural constraints, has resulted in widely disparate living conditions in different regions of the Philippines. Although some unevenness in development among regions can be considered part of the natural growth process, it becomes a major national concern when it is so wide that a majority of the people in some regions live in abject poverty.

The poverty of regions like Bicol and Eastern Visayas has been increasingly felt in the larger cities of Manila and Cebu where most of the relatively educated young people from rural areas go to seek better opportunities. They become part of the large wave of migrants wanting jobs – and better-paying jobs – low-cost homes, and various city services and amenities which, at the moment, are very scarce. They place increasing pressures on an already overburdened metropolis.

On the other hand, the young and educated migrants leave a significant vacuum at home where

Table 1.7. Families with expenditures or incomes less than the total threshold and their proportion to all families, by area.

| Area | 1961 | | 1965 | | 1971 | |
|---|---|---|---|---|---|---|
| | (absolute) | % | (absolute) | % | (absolute) | % |
| Families with expenditures less than threshold | | | | | | |
| Manila, suburbs | | | 210,500 | 46.7 | 268,500 | 51.8 |
| Other urban | | | 641,500 | 61.1 | 713,000 | 51.6 |
| Rural | | | 2,742,500 | 76.1 | 3,377,000 | 76.1 |
| TOTAL | | | 3,594,500 | 70.1 | 4,358,500 | 69.5 |
| Families with income less than threshold | | | | | | |
| Manila, suburbs | 200,500 | 54.3 | 222,000 | 49.2 | 306,000 | 59.0 |
| Other urban | 854,000 | 75.4 | 722,000 | 68.8 | 889,500 | 64.3 |
| Rural | 2,580,000 | 92.2 | 2,925,500 | 81.2 | 3,676,000 | 83.0 |
| TOTAL | 3,634,500 | 82.1 | 3,869,500 | 75.5 | 4,871,500 | 77.7 |

[11] Abrera, *op. cit.*

their skills and vigor are most needed. A result of regional imbalance in development, migration causes congestion – and diseconomies – in the metropolis and depression at home. It is for this reason that government efforts are being re-directed to the development of poorer regions. The Bicol River Basin Development Program is part of that national effort.

In 1970, NEDA divided the Philippines into 11 regions for purposes of economic planning. Except for Region IV (Manila and Southern Tagalog), the other 10 regions are predominantly rural. The cities of Cebu and Davao are in regions other than Metro Manila, but they are 10 percent and 5 percent, respectively, the population size of Manila. Bicol, or Region V, is among the four most underdeveloped regions. The other three are Samar (Region VIII), Cagayan (Region II) and Northern Mindanao (Region X).

These depressed areas share the same lack of physical infrastructure needed to utilize their vast land and water resources and to unlock their rich agricultural potential. Within Cagayan and Bicol are river basin watersheds, ringed by extinct volcanoes, where prehistoric eruptions deposited fertile alluvium on the lower valleys and where drainage systems empty into large rivers. The majority of agricultural activities are concentrated within these fertile valleys. In fact, while the regional population density of Cagayan or Bicol is far below the national average (table 1.8), within the river basin population density is nearly double the region.

Bicol, which has 6 percent of the country's land area and 8 percent of the population, contributed 10 percent of the national rice production in 1971. Within Bicol, the river basin accounted for over half of the regional rice production.

In spite of this agricultural potential, the rural population is extremely poor. In 1970, 76 percent of the region's tenant-tillers were concentrated within the Basin. The area registered the third lowest per capita family income in 1971 among the regions (table 1.9), with Eastern Visayas and Cagayan having the lowest.

Table 1.8. Population, land area, and population density of major geographic regions.

| Region | Population (millions) | Land Area (thousands of sq. km.) | Persons (per sq. km.) |
|---|---|---|---|
| Ilocos | 2.99 | 21.57 | 138.7 |
| Cagayan Valley | 1.69 | 36.40 | 46.4 |
| Central Luzon | 3.71 | 18.28 | 203.1 |
| Southern Tagalog (including Manila) | 8.33 | 47.51 | 175.2 |
| Bicol | 2.97 | 17.63 | 168.2 |
| Western Visayas | 3.62 | 20.22 | 178.9 |
| Central Visayas | 3.03 | 14.95 | 202.8 |
| Eastern Visayas | 2.38 | 21.43 | 111.1 |
| Western Mindanao | 1.87 | 18.69 | 100.0 |
| Northern Mindanao | 3.02 | 39.84 | 75.8 |
| Southern Mindanao | 3.08 | 43.47 | 70.8 |

Source: National Economic and Development Authority (NEDA), Statistical Yearbook, 1975, Manila.

By 1975, Bicol's position had hardly improved: it was the second lowest in per capita family income. The income level in 1975 was only 40 percent of Metro Manila's and was 73 percent of the national average. When divided by an average household size of 6.2 persons, the Bicol family income in 1975 was less than ₱2 a day (US$0.26) per household member. The average per capita income of the Bicol Region would put Bicolanos well within the World Bank's definition of the "poorest of the poor."

A comparison of the average household incomes across regions reveals a big difference between the incomes in the more urbanized regions of Metropolitan Manila, Central Luzon and Southern Tagalog and in the rural regions (table 1.9). For instance, a household in Metropolitan Manila in 1971 received more than twice the national average and more than thrice that received by its counterpart in Cagayan Valley, Eastern Visayas and Bicol.

**Poverty Threshold**

The combined effects of natural, social and institutional forces have made life increasingly hard for the average Bicolano. In 1971, the average income for households in Bicol was ₱2,784, which is about 36 percent below the national average of ₱3,736 and is the third lowest in the country, being next to that of Eastern Visayas and of the Cagayan Valley (table 1.9).

The Bicol Region needs approximately ₱515 million, representing roughly 14 percent of total family income, to enable families below the food threshold to obtain the minimum diet. To overcome its total threshold deficit, it needs a little over ₱1 billion, roughly corresponding to 61 percent of total family income.

Table 1.9. Average family income by region, 1971 and 1975 (in pesos).

| Region | Number of Families | | Average Income | | Percent |
|---|---|---|---|---|---|
| | 1971 | 1975 | 1971 | 1975 | Growth |
| | (000) | | | | |
| Philippines | 6,347 | 6,859 | 3,736 | 5,840 | 11.8 |
| Manila and Suburbs | 525 | 770 | 7,785 | 10,469 | 7.7 |
| Ilocos | 346 | 558 | 3,299 | 5,525 | 13.8 |
| Cagayan Valley | 260 | 329 | 2,390 | 5,102 | 20.9 |
| Central Luzon | 855 | 662 | 4,127 | 5,773 | 8.8 |
| Southern Tagalog | 869 | 888 | 4,332 | 5,441 | 5.9 |
| Bicol | 496 | 518 | 2,784 | 4,280 | 11.4 |
| Western Visayas | 670 | 679 | 3,206 | 5,484 | 14.4 |
| Eastern Visayas | 980 | 441 | 2,548 | 4,834 | 17.4 |
| Central Visayas | – | 595 | – | 5,172 | – |
| Northern Mindanao | 522 | 370 | 3,062 | 3,803 | 5.6 |
| Southern Mindanao | 825 | 433 | 3,577 | 6,307 | 15.2 |
| Western Mindanao | – | 314 | – | 5,662 | – |
| Central Mindanao | – | 301 | – | 5,025 | – |

Source: Family Income and Expenditure Survey, 1971, 1975.

**Dimensions of Bicol Poverty**

*Health service.* The permanent health care service system of the Bicol Region in 1975 consisted of 31 public and private hospitals with a bed capacity of 1,081 to serve its more than three million population. Most of these hospitals are in urban centers. The rural health units, whose outreach is 1:25,000 residents, lack medical personnel, medicines and supplies.

*Nutrition.* Although the percentages of calorie and protein intake in the entire Bicol are high (82 and 89 percent, respectively, of the recommended nutritional standards), only a small segment of the total households is able to obtain a nutritionally adequate diet. For instance, only 10 percent of all Bicol households are able to obtain 100 percent of the recommended calorie allowance, compared with 33 percent in the Ilocos provinces. Only 23 percent of Bicol households are able to obtain 100 percent of the recommended protein allowance, against 52 percent in Ilocos. Bicol has the lowest percentage of adequately nourished households among all regions in the Philippines (tables 1.10 and 1.11).

*Housing.* In 1971, only 16 out of 100 Bicol houses were of strong enough materials to qualify as permanent structures. Approximately 23,320 households were estimated to be in need of houses.

Less than a fifth of all households use piped water (table 1.12). More than 53 percent have no toilets of any type; only 12 percent have water-sealed toilets. The existing water systems are over 20 years old; almost all are reportedly contaminated in varying degrees with coliform bacteria present in animal waste. Only 8 percent of the households use electricity for lighting; 93 percent use wood for cooking. While the transistor radio is widespread, television has reached only 12 percent of the population.

*Employment.* Most of the labor force in Bicol is self-employed in farming. While the 7 percent unemployment is not too far from the national rate, about 18 percent of the labor force in underemployed. Bicol is an agricultural area, yet education is not oriented towards agriculture. Only 1.7 percent are graduates of agricultural courses while 75 percent are in education and social sciences. It is not surprising that unemployment is higher for those with more than six years of formal education.

*Agriculture.* Rice is the major crop grown. Bicol contributed 9 percent to national production in 1971, but its rice productivity was only 91 percent of the national average and was 44 percent below that of Central Luzon, the highest yielding rice region of the Philippines. This low performance is attributed to lack of irrigation systems and flood control and to inadequate roads. Only 6 percent of the cultivated area is irrigated, compared to 52 percent in Central Luzon, 40 percent in Ilocos and 25 percent in Cagayan Valley. The road density per square kilometer is .3 km./sq. km., compared to the minimum of 1 km./sq. km. There is no flood control within the river basin (Camarines Sur and Albay) where 54 percent of the region's rice production comes from. The annual typhoons that pass directly through the region on an average of 10 yearly are also a major climatic factor inhibiting production.

Farm sizes are small; 44 percent of farm households cultivate less than three hectares. Within the river basin, the average farm size is less than two hectares – too small for commercial agriculture. Tenancy is high; about a fourth of the farms, mostly rice-producing, are tenanted, and a third of the farm population works as tenants. Seventy-six percent of these tenants are in the river basin, a situation that the accelerated program of agrarian reform seeks to

Table 1.10. Families with incomes less than the threshold, by region, 1971.

| AREA | Food Threshold | | Total Threshold | |
|---|---|---|---|---|
| | Absolute (thousand) | Percent | Absolute (thousand) | Percent |
| Philippines | 3,744.73 | 59.0 | 5,039.5 | 79.4 |
| Ilocos | 212.50 | 72.6 | 447.3 | 85.2 |
| Cagayan Valley | 231.19 | 75.8 | 293.2 | 84.7 |
| Central Luzon | 224.48 | 36.5 | 178.1 | 68.5 |
| Southern Tagalog | 435.74 | 30.6 | 465.9 | 54.5 |
| Bicol | 351.66 | 70.9 | 758.6 | 87.3 |
| Western Visayas | 417.92 | 65.3 | 419.0 | 84.5 |
| Central Visayas | 388.14 | 70.7 | 572.0 | 85.4 |
| Eastern Visayas | 718.34 | 73.3 | 847.0 | 86.4 |
| Western Mindanao | | | | |
| Northern Mindanao | 339.30 | 65.1 | 449.0 | 86.1 |
| Southern Mindanao | 480.30 | 58.3 | 654.0 | 79.8 |
| Central Mindanao | | | | |

Source: Special Release No. 190, NCSO.

Table 1.11. Current income of the poor, threshold, poverty gap and proportion of gap to total family income, 1971.

| Area | Current Income of the poor (thousand pesos) | Threshold (thousand pesos) | Poverty Gap (thousand pesos) | Proportion of Gap to Total Family Income |
|---|---|---|---|---|
| Food threshold | | | | |
| Philippines | 5,745,556 | 11,235,000 | 5,489,444 | 23 |
| Bicol Region | 195,703 | 711,305 | 515,602 | 13.7 |
| Total threshold | | | | |
| Philippines | 10,595,410 | 25,070,000 | 14,474,590 | 61 |
| Bicol Region | 323,663 | 1,467,772 | 1,144,109 | 30.4 |

Source: Family Income and Expenditures 1971, NCSO.

Table 1.12 Quality indicators of housing, Bicol Region and the Philippines, 1970 (in percent).

| | Bicol Region | Philippines |
|---|---|---|
| Source of Water Supply | | |
| Piped water | 19.61 | 24.03 |
| Artesian well | 3.10 | 8.55 |
| Pump | 27.95 | 28.80 |
| Open well | 33.88 | 22.38 |
| Spring | 13.94 | 11.54 |
| Rainwater | 0.09 | 2.55 |
| Lakes, rivers, etc. | 0.79 | 2.16 |
| Type of Toilet Facilities | | |
| Flush/water-sealed | 12.23 | 22.59 |
| Antipolo/closed pit | 10.20 | 15.00 |
| Open pit | 22.79 | 22.93 |
| Public toilet | 1.74 | 1.83 |
| None | 53.05 | 36.73 |
| Type of Lighting | | |
| Electricity | 8.05 | 22.69 |
| Kerosene | 91.35 | 76.03 |
| Oil | 0.21 | 0.47 |
| Others | 0.39 | 0.81 |
| Type of Cooking Fuel | | |
| Electricity | 0.26 | 2.76 |
| Kerosene | 4.00 | 10.91 |
| Gas | 1.76 | 5.71 |
| Wood | 93.08 | 79.26 |
| Charcoal | 0.15 | 0.38 |
| Others | 0.33 | 0.98 |
| Household Appliances | | |
| Radio | 35.98 | 48.65 |
| Television | 0.12 | 5.48 |
| Refrigerator | 1.32 | 5.46 |
| None | 52.58 | 59.61 |

Sources: 1970 Census of Population and Housing, National Summary Vol. II, NCSO, and Social Indicators, Vol. II, NCSO.

alleviate. Land reform is expected to transfer ownership of farms to tillers within 15 years.

Most farms are cultivated with carabao and plow; less than 1 percent use mechanized farm equipment. Because of high transport costs, Bicol is among the lowest users of fertilizer: only 4.2 kilograms per hectare compared with 29 in Central Luzon and 48 in Southern Tagalog. Finally, production is inhibited by the scarcity of farm credit. Only a third of agricultural credit is provided by banking institutions, public and private; two-thirds comes from informal sources, usually at usurious rates.

Clearly, the constraints to development in Bicol are many. It is not surprising that the United Nations, in 1967, classified Bicol Region as a "downward transitional area."

## Spatial Planning and Rural Development

The basic objective of Philippine regional planning in areas such as the Bicol River Basin (figure 2) is to promote economic growth with greater social equity. The objective has emerged in recent years in relation to the experience with development during the last few decades when traditional economic strategies failed to bring about desired levels of growth or to increase significantly the income of large numbers of the poor.

### Futility of Traditional Models

At the heart of traditional development strategies was the almost exclusive emphasis on macro-economic growth and industrialization as the "engine of development,"[12] that is, on achieving rapid expansion of the national economy through capital-intensive, large-scale industrialization, a strategy used by most Western countries and which cast "an enormous spell on ruling elites and economists of developing countries."

Although the traditional development models emphasized growth, they largely ignored the equitable distribution of its benefit. They were based on the assumption that development could be most rapidly achieved by locating industrial enterprises in large urban areas which have substantial advantages of size, scale and efficiency. But the export-oriented or import-substitution industries often produced goods that had limited urban markets and did not expand economic activities beyond the cities. The theory contended that through industrialization in urban centers, benefits of growth and economic expansion would "trickle down" or "diffuse" from the cities to rural peripheries.

The strategies proved to be futile, and in most developing countries during the last two decades, economic growth has been slow, the gaps between rich and poor have widened, and the peripheral rural areas have continued to stagnate. Thus,

> "a growing body of opinion now favours balanced development embracing the concept of integrated rural development; the coordination of rural agrarian with urban-industrial development strategies; a wider application of models which emphasize human welfare and happiness, and employment and income generation while, if compatible, at the same time retaining the high GNP growth rate; and an end to the 'up-down' or 'dominant-subordinate relationship which, at all levels of interaction, characterize center-periphery models'. This changing development strategy is clearly reflected in the policies and program of the Philippines where the national development plan for 1974-1977 clearly states that 'no longer is maximum economic growth the singular apex of goals . . . equally desired are maximum employment, promotion of social development and more equitable distribution of income and wealth'. The plan pledges to reduce the imbalance among regions."[13]

The desire to redress regional imbalance, however, is inhibited by very real physical constraints: a spatial pattern of development that does not promote and spread growth to more areas in the country or increase economic participation within rural regions.

### Primacy of Few Urban Centers

The national spatial pattern is dominated by Metro Manila which has 23 percent of the Philippine population but accounts for 65 percent of total national family income, houses 56 percent of banking officers, employs 79 percent of manufacturing labor, accounts for 81 percent of manufactured goods, consumes 83 percent of electrical power, has 61 percent of hospital beds and has 63 percent of all vehicles in the country.

A similar pattern of economic and spatial development is seen at the regional level. The primacy of one or two centers is repeated in nearly all Philippine regions. In the Bicol River Basin, for instance, Legaspi and Naga dominate the landscape; the "secondary" centers are only a third or fourth the market size of the two cities. But even these two cities are not regional centers since an analysis of their linkages reveals that they serve only the municipalities in their respective provinces.

Historical and traditional approaches to development concentrated investments in large cities because urban centers provided essential labor, markets and transport and especially port facilities for industrial development. Historically, primate port towns such as Metro Manila, Cebu and Davao in the Philippines became favored locations for industrial development. As a result of initial concentrations of investments, these cities began to take on a modern appearance,

[12] W. Arthur Lewis. *The Theory of Economic Growth,* London, 1955; and W. W. Rostow, *The Stages of Economic Growth,* New York, Cambridge University Press, 1960.

[13] Kenneth Ruddle and Ray Chesterfield, "Change Received as Man-Made Hazard in a Rural Development Environment," *Development and Change,* 7/1976, pp. 330-331.

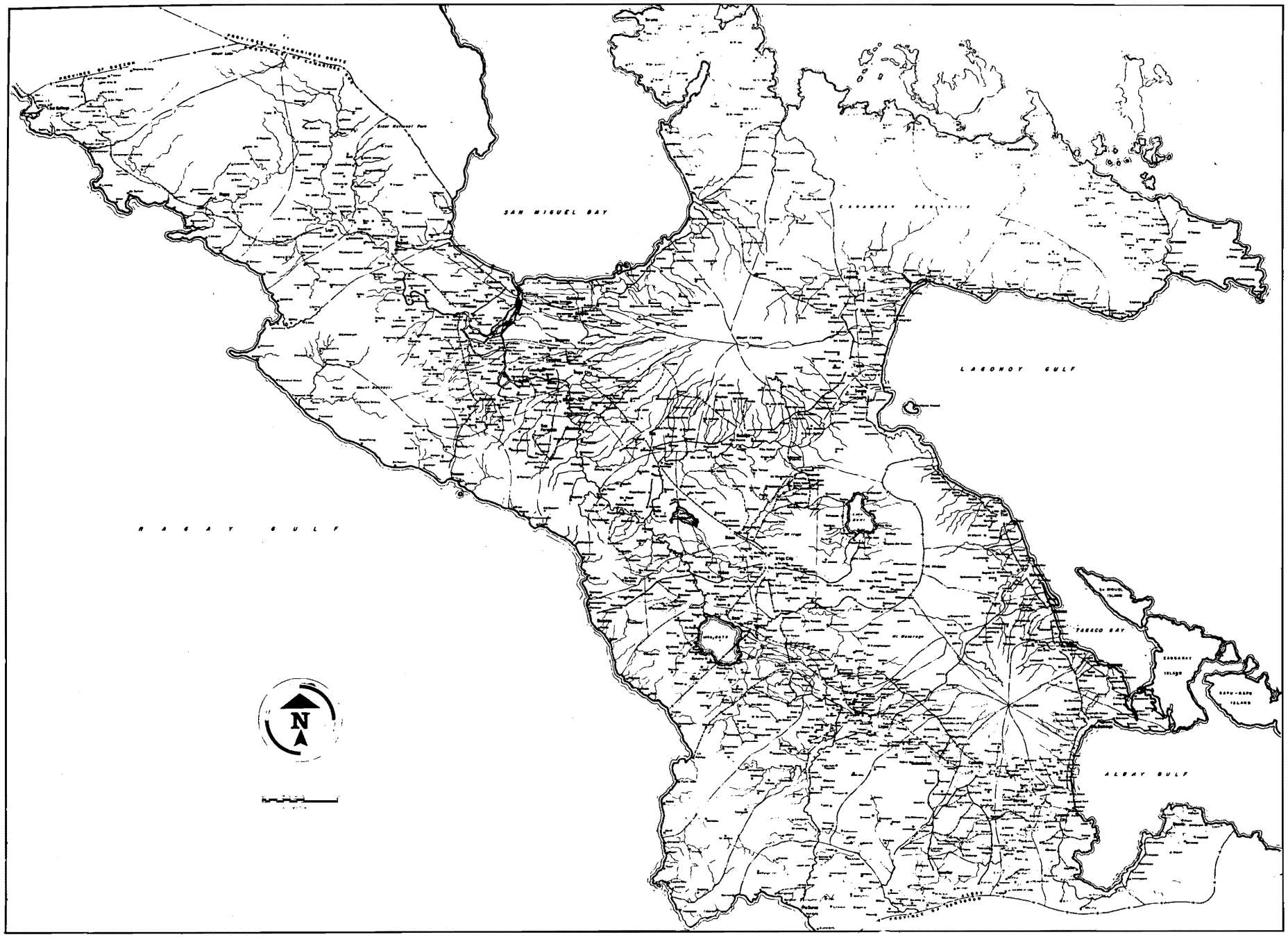



Figure 2. Map of Camarines Sur and Albay.

create new infrastructure and attract European and local elites with a relatively high level of purchasing power. Unrivaled in economic performance and productive resources, these large cities soon left smaller towns far behind in population growth and economic diversification.

Within easy reach from abroad by sea and later by air, the coastal primate cities became almost exclusive locations for large-scale economic activities, possessing as they did most of the nation's modern infrastructure and amenities. The situation has continued until the present: processing industries still locate their assembly plants in cities that command a network of interior communications. This pattern of investment has created a spatial and economic structure in the Philippines that has dominated development and has reduced other settlements to weak suppliers of agricultural products or to subordinate markets for city-manufactured goods.

One theorist observes of other developing economies:

> "Today's 'primacy' of the sea-board port cities is, in most cases, neither geographically determined nor deeply entrenched in present or future economic settings of the global scene, but is rather a result of specific historical evolutions.
>
> "It has, however, been stressed that a 'strategical' or numerical advantage, once achieved, continues in conditions of unplanned and rapid urbanization with enormous cumulative momentum. Therefore, 'primacy', once historically achieved, has a tendency not only to perpetuate itself but even to become even more conspicuous and ostentatious. The gap between the primate city and all other urban settlements in the country may grow even if its original economic advantage gradually disappears."[14]

[14]E. Brutskus, "Central vs. Decentralized Patterns of Urbanizations in Developing Countries," *ITCC Review,* Vol. I, No. 2, April 1977.

The historical development of Philippine cities was rooted in colonial commerce which focused on the tertiary sector, with little concern for the development of rural and agricultural hinterlands. In fact, there was no necessity then for rural development since the objective of colonial governments was to increase economic advantages based on export trade.

**Redirection of Strategies**

But the "exploding" population in primate cities during more recent times has demanded a shift in development strategies. The present realities require policies that promote natural resource development and increase agricultural production, which in turn require a shift in the location of investment from the cities to the countryside. This is easier said than done, however, because of the deep-rooted orientation of development towards urban centers. Complementing the shift in objectives must be new tools of planning analysis and research and new development approaches.

Spatial planning is becoming an increasingly important tool for linking rural areas — where agricultural development remains the key to population survival — to urban centers where finance, technology and organizational expertise needed to stimulate development are located. Integrated regional development offers better strategies for coordinating fragmented sectoral development efforts and is also a means of attaining spatial integration "to ensure a certain balance between prosperous regions and lagging ones, or between different districts within the same region."[15]

The problem is how to link isolated agricultural areas to towns, where urban services and facilities can become critical inputs for rural agriculture. It is

> "how to create a spatial system that is more balanced and articulated and that links urban centers with rural hinterlands in an integrated network of production, distribution and exchange. If participation in economic activity is to be expanded significantly in Asian countries, their spatial systems must be made conducive to increasing the access of rural people to services, facilities and inputs needed to raise agricultural production."[16]

[15]Gabriele Scimeni, "Planning Methods of Integrated Regional Development," *ITCC Review,* Vol. I, No. 2, April, 1977.

The balanced spatial development now being sought does not attempt to undermine the important functions performed by metropolitan centers, but seeks to create a spatial system that improves access of rural people to urban services and facilities by deconcentrating investments from one or two primate cities to more intermediate-sized centers, relocating in the process more basic services from primate cities to these intermediate centers in rural areas. It is a strategy of dispersal rather than of concentration. The issue addressed by spatial planning is how to reallocate resources to create an articulated network of development centers, integrated into a national system of production and exchange, that provides access to economic and social opportunities for a majority of the population, [17] who reside outside urban centers.

The singular effect of a skewed pattern of settlement distribution, or the growth of cities without articulated links to agricultural areas and without a hierarchy of descending-order centers, is to isolate large numbers of the population. This isolation triggers a chain of events constraining rural development:

1. With no access to markets, farmers do not increase output, nor do they modernize technology or suit farm produce to consumer requirements; thus,

[16]D. A. Rondinelli; J. F. Lombarde; and G. A. Yeh, "A Decentralized Urbanization Policy for Migration and Population Growth Planning in Asia," Prepared as a Special Edition of the *Asian Economic and Social Review,* 1977, p. 3.

[17]Dennis Rondinelli and Kenneth Ruddle, "Urban Functions in Rural Development," USAID Washington, 1976.

production is kept low, no surplus is generated;

2. Isolated farms are easily exploited by town traders because farmers must sell at harvest. Consequently, farm income is small, dissavings are normal and farm investment is almost unknown, preventing farmers from seeking technology to improve agriculture;

3. The resulting rural poverty drives unskilled migrants to live in urban slums and squatter areas where they strain the already inadequate urban services and facilities;

4. The overcrowding of cities leads to urban unemployment, low-quality urban services, environmental deterioration due to proliferation of slums, and increased urban expenditures which in turn draw investments away from rural development. Thus, without an integrated system of production and exchange, the vicious cycle of poverty is perpetuated.

**Need to Decentralize**

The spatial system of the Bicol River Basin represents an almost classic case of rural poverty in a developing country: the wide dispersal of small settlements performing mostly residentiary functions with amenities and services concentrated in few urban centers and located at great distances from rural settlements; the literal isolation of over a thousand small *barangays* (villages) without effective physical linkages to town centers where vital services such as marketing, health care and higher education are concentrated. Such a spatial system presents insurmountable obstacles to increasing production and exchange beyond household subsistence and thus retards rural development. For instance, distribution of farm inputs over long distances to outlying farms becomes prohibitive due to high transport costs. The same is true for marketing where farmers must first negotiate difficult footpaths before reaching feeder roads and wait for hours for infrequent transport to reach rice mills or markets, adding high transport costs to cost of production.

"Decentralized urbanization" is the main objective of integrated spatial planning aimed at breaking the vicious cycle of rural poverty, isolation, low productivity and underdevelopment. It is not a total shift away from urban development but a strategy supportive of developing "a hierarchy of cities and towns functionally linked with agricultural production areas [which] provides a decentralized network of development centers that can increase access of large segments of population to economic, social and political opportunities as well as to urban services and facilities. Urban functions can thus complement the wide range of technical inputs required to commercialize agriculture and increase rural productivity."[18]

"Promotion of social equity or the more equitable spread of the benefits of growth requires deconcentration of investment, but not a total disregard of urban centers. Indeed, "It may be argued that developing nations are not urbanized enough, that many of their problems stem from the fact that urbanization has been too slow and too constrained".[19] More urban places are needed that are more evenly distributed over the landscape. More widely spread, they would be more accessible to rural production areas and thus be able to create markets for farm produce, provide proximate locations for agro-industrial processing that draws raw materials from the immediate hinterland, provide off-farm employment and income for non-agricultural workers, absorb migrants who would otherwise move directly to the major metropolitan areas, and serve as intermediate links between rural areas and big urban centers.

Neither highly concentrated nor totally dispersed investment will achieve the goal of growth with equity. Both large urban centers and small rural communities are crucial elements of a developmentally oriented spatial system and they must both be substantially strengthened. To prevent a dualism of urban wealth and rural poverty, developing countries need a whole range of settlements — villages, market towns, rural service centers, intermediate-sized cities and large metropolitan centers — all linked together in a network of production, consumption and exchange, "in order to build strong internal economies."

"Historically," as E.A. Johnson argues, "the key to internal economic development, where it has occurred — in Japan and China, as well as in Europe and North America — has been the relationship between urban centers and the countryside. . ."[20] These strong internal economies are characterized by a spatial system of market towns appearing in "regularly dispersed pattern" over the landscape, providing market institutions that regularly absorb farm produce as well as supply rural people with farm inputs at stable prices. They are loci of specialized and skilled artisans producing goods needed in nearby farms instead of from factories hundreds of miles away. They absorb off-farm seasonal agricultural workers and offer non-formal training and apprenticeship to young rural labor being displaced by increasingly efficient agriculture. As interaction increases between rural and towns people, the market towns become social and political centers that increase the involvement and participation of rural residents in socio-political organizations that dispose political decision-making toward government assistance to rural areas.

As agriculture becomes more commercialized, more central places larger than market towns emerge that are within easy reach of smaller places. Farmers are now offered alternative markets and better prices for their produce as competing buyers become more accessible. With better prices comes higher farm income; increased income makes possible savings instead of dissavings; farmers build up capabilities to invest in better seeds and equipment, raising farm production further. Their demand for manufactured

[18] Rondinelli, Lombarde and Yeh, *op. cit.*, p. 13.

[19] Rondinelli, Lombarde and Yeh, *op. cit.*, p. 16.

[20] *Ibid.*, p. 18.

goods and urban services also increases, thus creating larger domestic market for urban enterpreneurs who are also encouraged to deconcentrate their investments to rural markets and develop distribution systems that link urban places to rural areas. This chain of events stimulates the demand for more articulated transport systems, more public utilities, better equipment and more regular transport, thus lowering transportation costs and encouraging stronger linkages between rural areas and urban centers. In brief, the linkages among dispersed market centers provide not only the basis for economic growth but the means by which a large majority of the population participate in, and benefit from, the development process.[21]

The lower level settlements would be connected to higher level centers by physical linkages such as roads, transport systems, communications, and power; by economic linkages such as markets for agricultural produce and manufactured goods; by socio-political linkages such as public institutions offering community and farm services; and by private sector service delivery linkages offering goods and services through a system of regional distributorship, dealership and retailers.

In the Philippines a more articulated spatial system, a hierarchy of settlements linked together in a national network of production exchange and consumption, would include the following:

1. Village centers that would service clusters of residentiary *barangays,* providing basic human services;
2. Intermediate rural service centers providing a wider range of goods and services, tying together the village centers and serving as the central place for groups of village centers;
3. Market towns performing assembly functions for agricultural goods and serving as the microregional distribution center for incoming manufactured items, as well as higher level services such as hospitals;
4. Sub-regional provincial centers performing higher level functions for a province and serving groups of secondary/tertiary market centers; and finally
5. The regional center, the focal point of regional economic, political and cultural activities, providing the entire range of goods and services required by the region, with the maximum presence of functions and establishments. The regional center is so designed as to preclude long distance trips to the national center except for rare and exceptional needs. It is also the manufacturing center of the region, performing the role of the national metropolitan center for the region.

**Policy Changes for Participation in Development**

A policy of decentralization which forms the core of integrated spatial planning implies major national policy shifts in the Philippines, especially in the stimulation of rural economies. While arguing that rural development "offers a solution to the multiple problem of food shortages, population growth, underemployment, income maldistribution and rising rural discontent," development experts also concede that such a policy shift may be difficult for leaders of developing countries due to "the fact that the immediate political risks of rural development are high and many of the needed tools are not in hand."[22] Moreover, age-old traditions in the flow of resource allocations are difficult to change and opposition to such a shift could be reflected by urban elite.

The ILO Mission to the Philippines in 1974 similarly diagnosed the constraints to the country's development and in conclusion called for "rural mobilization" while recognizing that obstacles to implementation are great. The new strategy, the ILO argued,

1. "calls for much fuller participation than in the past by many individual farmers or communities of farmers. Both successful evolution of the local government and communal decision-making systems and a greater coverage of the rural sector by extension, credit and marketing facilities will be necessary to bring into play all the potentially harnessable physical and human resources for agriculture proper, for medium and small-scale rural industries and for rural services.
2. "the strategy of mobilizing the economy's rural growth potential relies on increased participation by rural people in the decision-making which affects them most directly. Over-centralization of decision-making has, we believe, been a major constraint on sustained rural growth in the past; many 'bargain' investments and programmes have been passed over because of the inability and/or disinterest of higher levels of government in the design and implementation of policies for the rural sector. The Philippines is no exception to the general rule that higher levels of government tend to be poorly informed of the needs of people at the local level and of the best ways (for example, from a technological point of view) of satisfying those needs. In general, maximum progress depends on maximum participation, a situation in which all members of the society have a stake in that progress and contribute to it.
3. "the rural sector requires large investments in infrastructures such as feeder roads, irrigation works and electricity; the organization of mini-industrial estates; better local law enforcement and methods of resolving conflicts. Many such needs can be diagnosed successfully only with substantial local participation. Some require close vertical or

[21] *Ibid.*, p. 20.

[22] Samuel Butterfield, "Rural Development: Why It Is Hard for Developing Countries to Get Started," *International Development Review,* 2/1977, pp. 8-12.

horizontal collaboration at government level; still others depend primarily on national, regional or provincial decisions (for instance, large irrigation systems, small industry technical assistance programmes, over-all credit policies)."[23]

Assuming, therefore, that integrated spatial development is a requisite of economic growth with social equity, the staff of the project on "Urban Functions in Rural Development" proceeds in the following chapters to analyze the spatial structure of the Bicol River Basin, the relationships among settlements, and their linkages to each other and to urban centers outside the Basin in order to arrive at an understanding of past investment patterns and their implications for future development. Such an understanding of spatial structure, the concentration, dispersal and interconnections among people, services, facilities and productive activities, should guide regional planners in identifying gaps and weaknesses in the structure. The understanding thus gained can provide basic criteria for the formulation of locational guidelines for future investments. Since major development projects are undertaken first by public agencies in underdeveloped areas and then by the private sector, it is extremely important to provide guidance to such decisions. Such policies, to affect the rural landscape in some measure, must consider the repercussions of investments on both urban centers and the rural areas.

The World Bank, echoing ILO's findings, argues that "basic needs" should be met before grandiose projects are undertaken and has recognized that macro-economic development strategies may not be the most appropriate solution to reducing high levels of poverty.[24] It points out that "in terms of poverty reduction, even better incomes are only a means to an end. The ultimate goal is access of the poor to the goods and services required to fulfill their basic needs: food, health care, education and the like."

World Bank analysts observe that "it simply may not be possible to grow first and redistribute later." Instead, the mechanisms for redistribution may have to be treated as a first priority, and integrated spatial development planning is a key to creating an economic and spatial structure more conducive to equitable growth.

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[23] ILO, *op. cit.*

[24] David Morawetz, "Twenty-Five Years of Economic Development," *Finance and Development*, IMF – IBRD, Washington, September 1977, Vol. 14, No.3, pp. 12-13.

# CHAPTER II

# THE BICOL RIVER BASIN MUNICIPAL PROFILE

Any assessment of the socio-economic and physical conditions of the Bicol River Basin must include an analysis of the distribution of social, economic, physical and other resources among municipalities.

As Rondinelli and Ruddle write, "The location of spatial and economic activities is basic to development, and . . . . the location of public services, physical facilities and productive activities impresses in developing nations a spatial structure that influences not only the rate and distribution of national growth, but the quality of life in local community and individual access to opportunities."[1]

Municipalities within the Basin clearly are not homogenous. They form a hierarchy based on concentration of resources and levels of development. Analysis of municipal structures is important to the study of urban functions. First, such an effort would identify over-all levels of social and economic "well-being" for the Bicol River Basin. Second, relative levels of social and economic welfare for sub-areas of the Basin, as compared to the Basin as a whole, would be generated. Both sets of information could then present the baseline conditions against which planning decisions can be made regarding the development of particular centers and their hinterland areas in the Bicol River Basin.

### General Profile of BRB Municipalities

The Bicol River Basin is predominantly rural with an estimated population of over 1.7 million in

[1] D. Rondinelli and K. Ruddle, "Urban Functions in Rural Development: An Analysis of Integrated Spatial Development Policy," p. 22.

Table 2.1. The Bicol River Basin area, Bicol Region and Philippines classified by selected major indicators (NCSO: Census of Population and Housing and Census of Agriculture, 1970-1975).

| Selected Indicators | BRB | Region V (Bicol Region) | Philippines |
|---|---|---|---|
| 1975 land area (sq. km.) | 7,657.6 | 17,632.5 | 300,000.0 |
| 1975 population (000) | 1,730.0 | 3,193.7 | 43,070.6 |
| 1975 population density (persons per sq. km.) | 226 | 181 | 140 |
| Annual population growth 1970-1975 (%) | 1.5 | 1.4 | 2.9 |
| 1975 urban population (000) | 303.4 | NI[a] | NI[a] |
| Age (14 yrs. & below), 1975 | 753,183 | NI[a] | NI[a] |
| 1975 literate population (000) | 1,195.3 | 2,190.5 | NI[a] |
| 1970 total labor force (000) | 1,068.5 | 1,959.7 | 25,122.6 |
| 1970 experienced workers (000) | 509.4 | 921.8 | 11,775.2 |
| 1970 employed (percent to labor force) | 46.3 | 45.5 | 45.2 |
| Households served by flush or water-sealed toilets | 43,360 | 58,984 | 1,392,007 |
| Dwelling units served by electricity | 46,865 | 38,795 | 1,364,056 |
| 1975 municipal total income (₱M) | 32.2 | 51.6 | 1,499.3 |
| 1975 financial resources (₱M) | 539.71 | NI[a] | NI[a] |
| 1976 market collection (₱M) | 3.3 | NI[a] | NI[a] |
| Total agricultural land area (000 ha.) | 415.5 | 921.2 | 8,493.7 |
| Total arable area (000 ha.) | 186.1 | 356.9 | 4,644.2 |
| 1970 rice productivity (MT per ha.) | 1.8 | 1.7 | 1.8 |

[a] No information.

Source: UFRD secondary research based on NCSO data, 1975.

1975 within an area of 7,655.6 sq. km. This population represents slightly over 4 percent of the Philippine total. The Basin population grew at 1.5 percent annually from 1970 to 1975, a growth rate higher than that for the Bicol Region as a whole. This growth rate, however, is lower than that for the nation (table 2.1), indicating a significant rate of depopulation within Bicol.

The Bicol River Basin covers 54 municipalities including the three cities of Naga, Legaspi and Iriga. Seventeen[2] of the municipalities are in Albay with Legaspi City as the provincial capital. The remaining 37 are in Camarines Sur with Naga as the provincial capital. An average of over 31,000 people, or 5,226 households, is found in each municipality of the Basin. The average household size is six. The Basin has an average population density of 226 persons per sq. km., with a range of 48 persons per sq. km. in rural Del Gallego to 1,075 in urban Naga (see figure 3).

The BRB area has a total of 1,534 *barangays*[3] with from 6 to 75 *barangays* per municipality and an average of 1,127 persons per *barangay*. Three types of *barangays* are classified according to their population size in table 2.2.

Large *barangays* in the Basin account for only 4 percent of the total number; in fact, 20 out of the 54 municipalities do not have large *barangays*. Two-thirds of these large *barangays* are in municipalities along the Manila South Road.[4]

Table 2.2. Number of *barangays* and their average population size and range, classified by size of *barangays*. (NCSO: Census of Population and Housing, 1975).

| Size of *Barangays*[a] | Number of *Barangays* | Average Population | Range of Population |
|---|---|---|---|
| Large | 68 | 5,246 | 3,008 – 19,694 |
| Medium | 519 | 1,518 | 1,001 – 2,947 |
| Small | 947 | 614 | 22 – 1,000 |

[a]Categories of large, medium and small *barangays* are derived from the scale below:

| Rank | Range of Population size |
|---|---|
| 1. Very large | 6,001 and over |
| 2. Large | 3,001 to 6,000 |
| 3. Medium | 1,001 to 3,000 |
| 4. Small | 501 to 1,000 |
| 5. Very small | 500 and below |

where: Ranks 1 and 2 compose the large *barangays;* rank 3, the medium-sized *barangays;* and ranks 4 and 5, the small *barangays.*

Of all the *barangays* in the Basin, only about 13 percent are classified as urban settlements,[5] and these contain about 18 percent of the total population. The urban settlements are generally *poblacions.*

The average Basin resident is probably young (nearly half of the total population is 14 years old or younger), one of six members of a household, and literate, that is, able to read and write,[6] he has gone to school for at least a year, li... ...l percent of all Filipinos, has had more experience in farming or fishing than in any other occupation and, unlike half of the total number of Filipino experienced workers[7] who are employed, may be either underemployed or have no income-earning job at all. If he belongs to the half of the labor force that is employed, he supports about four dependents. He lives in a house that is built of light materials (e.g., cogon grass, nipa or bamboo), lighted by a kerosene lamp and serviced by an inadequate water system, if at all. His dwelling unit may not have a toilet; if it does, it is most probably not of the flush or water-sealed type. The Basin resident's poverty affects his municipal government's ability to provide services too, since every Basin resident generates only about ₱18.00 (US $2.50) a year in municipal taxes.

While poverty is thus most visibly expressed in low income and the poor quality of a Bicolano's housing, it is also seen in the deficient essential services necessary for human and social development.

[2]An island municipality in Albay, Rapu-Rapu, off Tabaco Gulf, is not included in the study area.

[3]The *barangay* is the smallest political unit in the country. The *poblacion* – usually the center of a municipality – which generally consists of more than one *barangay*, is considered as one *barangay* in this count.

[4]Municipalities along the Manila South Road, as seen from the transport accessibility analysis (one of the three analytical processes used), are relatively the most developed areas in the Basin. In the hierarchy of municipal groups based on transport accessibility, four other groups found to be substantially less developed than those along the Manila South Road are a) those linked by provincial (asphalted) roads, b) those served by earth or unsurfaced roads, c) railroad municipalities, and d) coastal municipalities.

[5]According to the NCSO, urban settlements refer to areas associated with the following concepts:

I. In their entirety, all cities and municipalities having a population density of at least 1,000 persons per sq. km.

II. *Poblacions* or central districts of municipalities which have a population density of at least 500 persons per sq. km.

III. *Poblacions* or districts (not included in I & II), regardless of population size, which have the following:

a. Street pattern, i.e., network of streets in either parallel or right-angle orientation;

b. At least six establishments (commercial, manufacturing, recreational and/or personal services);

c. At least three of the following:

(1) A town hall, church or chapel with religious services at least once a month;

(2) A public plaza, park or cemetery;

(3) A marketplace or building like a school, hospital, puericulture and health center or library.

IV. Barrios having at least 1,000 inhabitants which meet the conditions set fourth in III above, and where the occupation of the inhabitants is predominantly non-farming or fishing.

[6]The term literate person, as defined by the government census office, is someone with the minimum ability to read and to write his name.

[7]Experienced workers, as defined by the NCSO, refer to those aged 10 and over who have worked or been employed for at least two consecutive weeks with or without training. They are not necessarily employed at the time of the census.

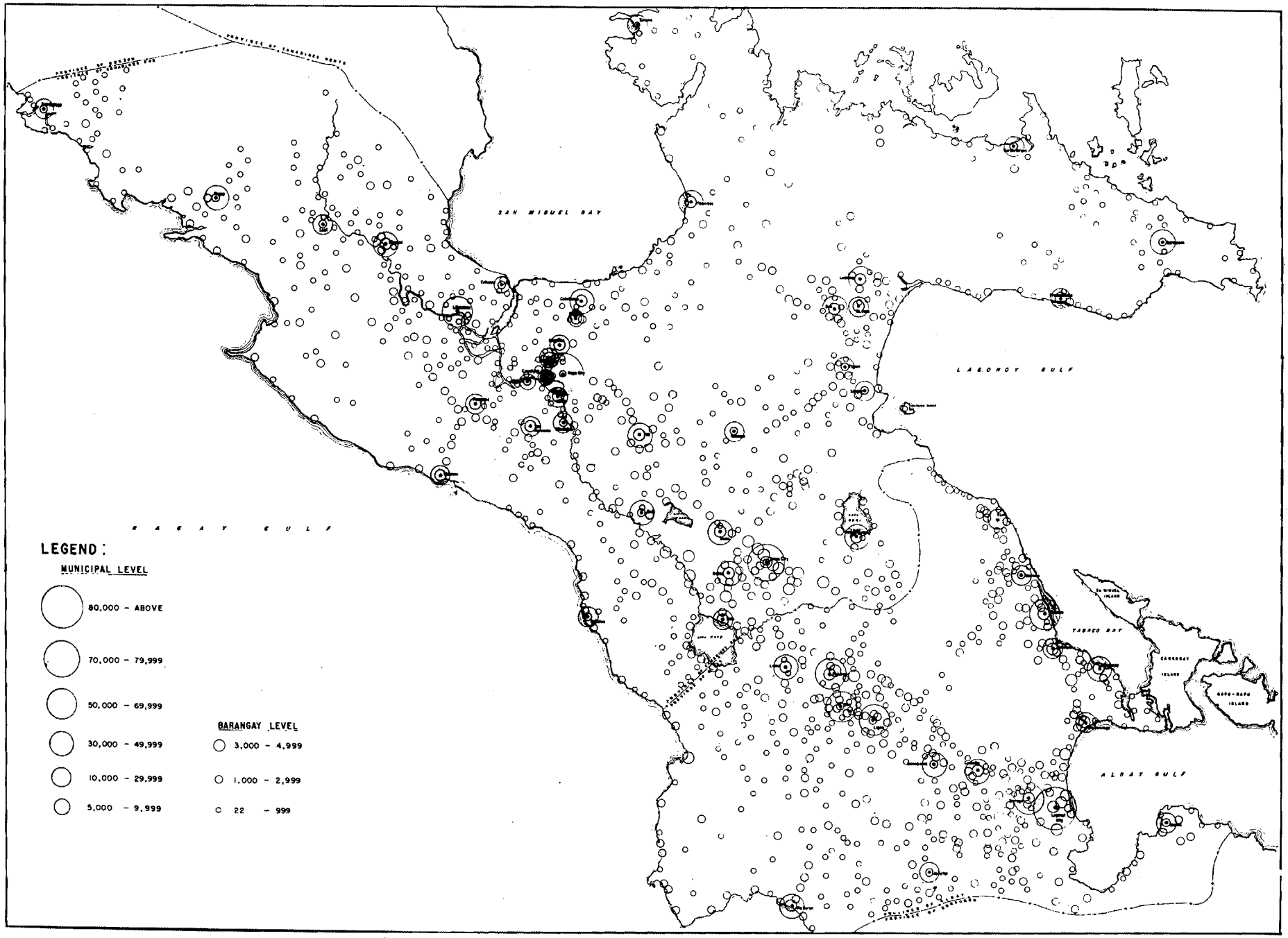



Figure 3. Population map.

The road system, for instance, is generally in poor condition and does not facilitate the movement of people and goods. The Manila South Road (MSR), which stretches about 140 kilometers from Legaspi to Sipocot, is the only concrete road system in the Bicol River Basin. It directly services only 15 out of 54 municipalities, however, and, indirectly, less than half of the Basin's population. Besides, the MSR passes generally through the *poblacions* and the large *barangays* of the 15 municipalities, leaving most rural areas with little or no access to the functions and services that are found in the more developed areas. Seven municipalities are completely out of the reach of any road system. Their only link to the rest of the Basin is through rail or water transportation which is generally irregular and unscheduled.

Furthermore, health care institutions and facilities are severely inadequate. Not only is there a dearth of hospitals; the ratio of beds to population served is especially poor (table 2.3).

Table 2.3. Proportion of population served by hospital beds, total hospital bed capacity and total population, classified by province (DOH 5, PHO Albay and Camarines Sur, 1976).

| Province | Population Served for Every Bed | Total Bed Capacity | Population (000) |
|---|---|---|---|
| Albay | 695:1 | 1,016 | 706.3 |
| Camarines Sur | 1,878:1 | 545 | 1,023.7 |
| Both provinces | 1,108:1 | 1,561[a] | 1,630.1 |

[a]The Bicol Sanitarium in Cabusao, Camarines Sur is not included because it has been designed especially for leprosy patients.

Most of the functioning hospitals are privately owned and are quite expensive, making them less accessible to the ordinary Basin residents. Moreover, about two-thirds of these hospitals are found within the most accessible municipalities (those along the MSR) in the Basin. The least accessible areas (railroad and coastal municipalities) have practically no hospitals to serve their population.

There seems to be no lack of primary and elementary schools, which are provided at almost no cost by the national government. However, higher education in the form of secondary schools, colleges and technical-vocational schools, which are generally privately owned, are few and not well distributed.

The Basin municipal total income of ₱33 million was only 2 percent that of the nation as a whole, as of 1975. It ranged from ₱94.3 thousand in one small municipality to ₱5.1 million, a very wide range reflecting extreme inequalities in the ability of the Basin municipalities to provide basic municipal services to its residents. The municipal total income increased by about 12.7 percent per annum between 1970 and 1975. The rate of increase seems to conform with the hierarchy of municipalities according to accessibility. It is worth noting that the railroad municipalities seem to have had the most rapid average increase.[8]

Public market collections and financial resources exhibit the same inequality. These resources are concentrated in a handful of more developed municipalities, leaving the rest with very little. The total market collection of Naga's public market, for instance, accounts for almost 30 percent of the Basin's total. The remaining 70 percent is distributed among the 53 other municipalities in the area.

More than half of the Basin's total land area is devoted to agriculture. Of the total agricultural land, less than half (45%) is considered arable,[9] the largest of which, including the idle ones, is found in Camarines Sur. This province which claims about two-thirds of the total Basin area tends to have a larger agricultural area than Albay, although the latter reports higher productivity in both rice and coconut, the major crops. Irrigation seems to have little effect on rice productivity, for many irrigated areas have low rice yields. The Basin's average rice yield is a mere 1.8 metric tons per hectare against a potential of 6 metric tons. This actual yield is comparable to that of the nation's, but higher than that of the entire region.

Finally, most fish production is mainly for sustenance: large-scale commercial fishing is minimal, although rich fishing grounds abound in the sea surrounding the Bicol Peninsula. In sum, the Bicol River Basin is predominantly a subsistence economy with rich potential for agricultural development.

### Distribution of Facilities, Resources and Access in the Bicol River Basin

An analysis of social, economic and physical resources in the Basin reveals that it has at least three types of municipalities:

1. A group of six municipalities — four of which form the two urbanized centers of Naga-Camaligan[10] and Legaspi-Daraga — that can be characterized as economically developing, at least in relation to all other municipalities in the Basin;
2. About 10 municipalities with socio-economic and physical characteristics substantially less developed than those of the first group, but with potential resources for higher levels of development; and
3. A large group of 38 municipalities that are clearly underdeveloped and economically depressed and in which a majority of the poor live.

[8]The municipal total income of Del Gallego rose tremendously from ₱94.4 thousand in 1970 to ₱576.1 thousand in 1975 (Source: Department of Finance, 1970 and 1975).

[9]According to NCSO, arable land consists either of land devoted to temporary crops such as rice or land that is lying idle.

[10]Naga and Camaligan are two politically separate areas. However, because they are functionally interrelated and physically contiguous, they are considered as one in this study. The same functional interdependency and contiguity are seen between Legaspi and Daraga. With these fusions, the Basin municipalities have been reduced to 52 for analytical purposes.

An unequal distribution of facilities, resources and access characterizes the municipal structure of the Bicol River Basin. The glaring inequality appears in all aspects of the Basin's demographic, social, economic and institutional characteristics. The high concentration of people, resources and functions in four large municipalities, for instance, is clearly a reflection of the lack of basic services in the 48 other smaller municipalities. The most developed areas in the Basin have average population sizes twice as large as those of the other two sets of municipalities.[11]

In part, the high level of poverty in the Bicol River Basin is related to a skewed distribution of social, economic and institutional resources in the area. The pattern of distribution seems to favor a few settlements and perpetuate poverty in the rest. The people's response to this pattern of distribution is reflected in their continued out-migration from the Basin and their settling in urban areas that are already crowded but where access to resources, facilities and economic opportunities is relatively easier. On the other hand, the municipalities that benefit from population concentration feel the need for increased facilities and services. Thus, the attraction of the already developed areas has caused increasing immigration, creating further service problems. Power and water supply, for instance, in a developing area like Naga, needs to be highly efficient to service its rapidly growing population. Hospitals in Naga can barely cope with the health care demands of people not only in its own area but, by virtue of its status as a provincial center, also in the whole province. This unequal pattern of distribution of social and economic services and the isolation of settlements have been described as the skewed pattern of spatial development that constrains growth and inhibits its spread in developing nations.[12]

[11]Three main classifications of the Basin municipalities emerged as a result of the secondary data analyses. Each municipal group is discussed in detail later in this chapter.

[12]Rondinelli and Ruddle, *Urban Functions in Rural Development: An Analysis of Integrated Spatial Development Policy*, 1976, p. 17.

The municipalities that lie along the Manila South Road are comparatively the most developed among the Basin municipalities (figure 4). A fairly large proportion of the total population, economic and social establishments and other facilities is found within these few municipalities. In this group belong the two primary cities of Naga and Legaspi and their respective second level urban centers, Iriga and Tabaco. The average distance of the two second level centers to their respective provincial centers is about 33 kilometers along very good roads and with all modes of land transport available.

The primacy of the two most developed areas of Naga-Camaligan in Camarines Sur and Legaspi-Daraga in Albay and of the secondary level centers of Iriga and Tabaco is evident when municipalities are studied in terms of their socio-demographic, economic and physical factors (table 2.4). These four municipalities comprise what UFRD terms the economically developing group in the Basin, while the 48 others are either less developed or underdeveloped.

The underdeveloped municipalities fare very poorly in agriculture. In fact, despite their trend towards more urbanization, the developed areas yield more rice than the underdeveloped municipalities (table 2.5) and have, on the average, larger agricultural and arable lands. Agricultural facilities, farm input and technical know-how are more accessible in the developed areas, which accounts for their higher agricultural production. So are better roads and transportation making the marketing of agriculture products easier.

**The economically developing municipalities**

Only four of the Basin municipalities can be considered relatively well-developed: Naga-Camaligan, Legaspi-Daraga, Iriga, and Tabaco. All except Tabaco, which is served by provincial road, are along the Manila South Road.

As a group, the economically developing municipalities rate the highest on nearly all selected major indicators (table 2.4). They have less than one-fourth of the total Basin population, averaging some 96,000 people per municipality. Forty percent of these are residents of urban centers. While Legaspi-Daraga is most populated in this group as well as in the whole Basin, it is Naga-Camaligan that has the highest population density and urban population.

Literacy is highest in this economically developed group, with Naga-Camaligan reporting the largest number of literate people. The average number of employed persons per municipality, however, is slightly lower in the developed than in the underdeveloped group. Of the four economically developed municipalities, Legaspi-Daraga has the highest proportion of employed population, and Naga-Camaligan has the lowest. The latter has the highest proportion of dependency.

Power and water service is most efficient in the economically developed municipalities. About 71 percent and 54 percent of the Basin households supplied by power and water, respectively, are in this group. Of the four, Tabaco has more households served by water. On the other hand, power supply is higher in Legaspi-Daraga.

Institutions offering higher education (including vocational education) and health care facilities are concentrated in this group. Legaspi-Daraga has the most of these institutions. In number of economic establishments and financial institutions, which are all found in the developing municipalities, Legaspi-Daraga has most of the former, and Naga has most of the latter.

As to economic resources and assets, the municipal total income remains much higher in the developing municipalities than in the two other groups as of 1975. Of the overall municipal total income of the 54 Basin municipalities, 45 percent is generated by this group, averaging about ₱3.8 million or about six times more than the second group. Both total financial resources and total market collections are highest among municipalities of this group. Of the four, Naga-Camaligan has the largest share of the municipal total income, financial resources and market collections.

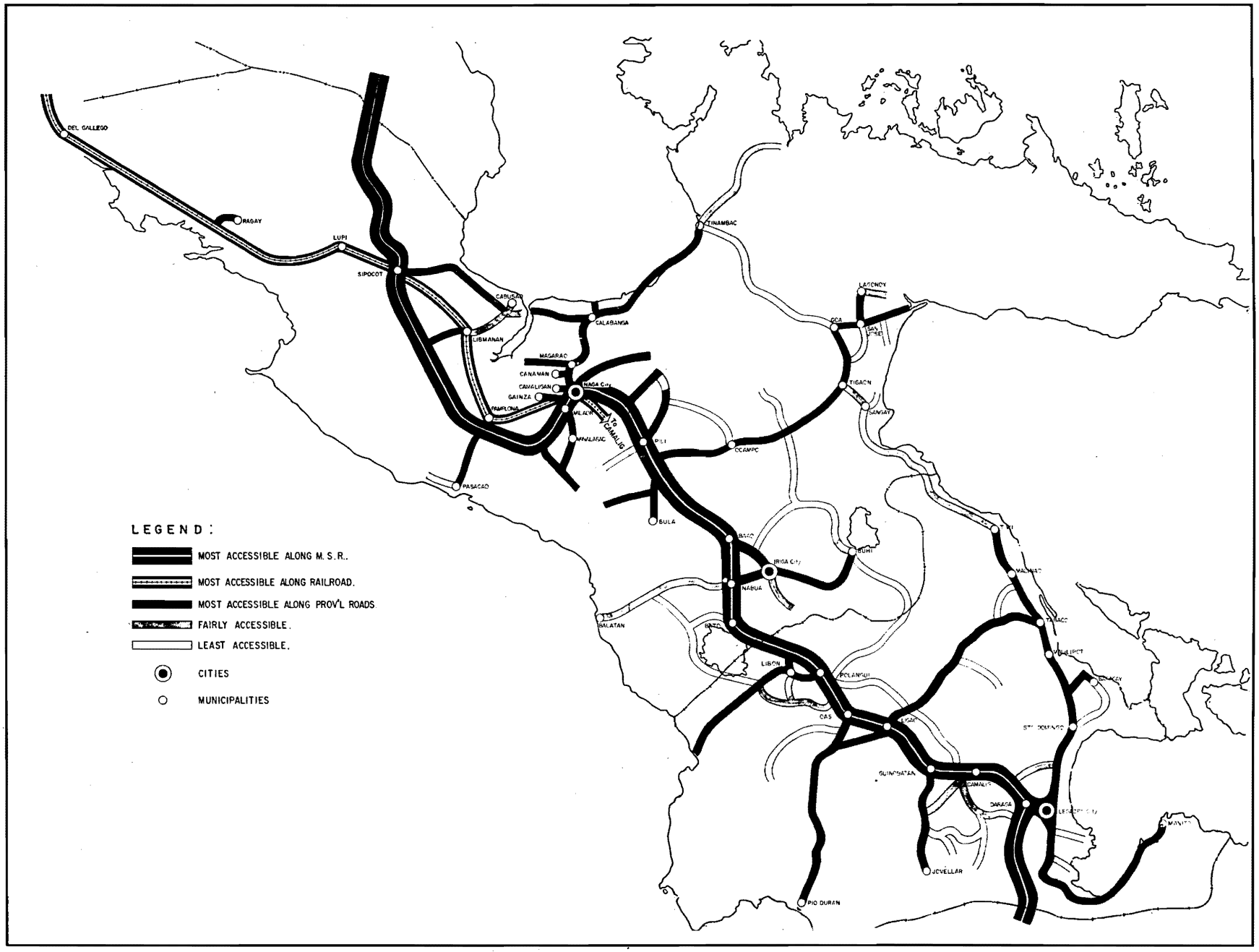



**Figure 4. Zones of accessibility.**

Table 2.4 Summary of selected socio-demographic, economic and physical indicators,[a] classified by the three general types of municipalities in the Bicol River Basin.

| Type of Municipality | 1975 Pop. Total Ave. (000) | Ave. (000) | Urban Pop. (percent to total pop. average) | Literacy (ave. %) | Employment (ave. %) | Financial Resources (per capita) | MTI[b] (per capita) | Market Receipts (per capita) | Post Elem. School (per 000 pop.) | Hospital Beds (per 000 pop.) | EW[c] in Farming, Fishing etc., (ave. %) | Economic Establishments (per pop.) | No. of HH[d] served by water supply | No. of HH served by power supply |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developing municipalities (4) | 386 | 96 | 41 | 87 | 45 | 1,326 | 37 | 6 | .09 | 3 | 34 | 20 | 48 | 8 |
| Less developed municipalities (10) | 456 | 45 | 8 | 86 | 45 | 60 | 14 | 2 | .02 | 5 | 61 | 13 | 20 | 1 |
| Underdeveloped municipalities (38) | 885 | 23 | 12 | 85 | 48 | 57 | 13 | 0.3 | .01 | 2 | 68 | 11 | 8 | 1 |
| Basin Total | 1,727 | 33 | 18 | 86 | 46 | 341 | 19 | 1.9 | .03 | 9 | 64 | 14 | 20 | 3 |

[a]The absolute values are computed based on this formula: Per capita = $\frac{\text{Indicator (x)}}{\text{Total pop.}}$ except for percentages.

[b]Municipal Tax Income.

[c]Experienced workers, average percentage of those engaged in farming and fishing to the labor force.

[d]Household.

Source: NCSO, Census of Population and Housing: 1970, 1975; Department of Finance, 1970; Provincial Development Staff of Albay and Camarines Sur, 1975.

Table 2.5. Summary of selected agriculture-related indicators, classified by the three general types of municipalities in the Bicol River Basin.

| Type of Municipality | Agric Land (ha.) | | Arable Land (ha.) | | RICE | | | | COCONUT | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (MT/ha.) | | Value (₱M) | | Yield (MT/ha.) | | Value (₱M) | |
| | Total (000) | Ave. (000) | Total (000) | Ave. (000) | Total | Ave. | Total | Ave. | Total | Ave. | Total | Ave. |
| Economically developing municipalities (4) | 39.8 | 9.9 | 15.7 | 3.9 | 8.2 | 2.1 | 10.9 | 2.7 | 4.2 | 1.1 | 5.9 | 1.5 |
| Less developed municipalities (10) | 103.3 | 10.3 | 49.7 | 4.9 | 21.0 | 2.1 | 31.8 | 3.2 | 19.2 | 1.9 | 16.3 | 1.6 |
| Underdeveloped municipalities (38) | 272.0 | 7.2 | 120.6 | 3.2 | 58.6 | 1.5 | 64.6 | 1.7 | 46.4 | 1.3 | 36.2 | 0.9 |
| Basin Total | 415.2 | 7.9 | 186.1 | 3.6 | 87.8 | 1.7 | 107.3 | 2.1 | 69.8 | 1.3 | 58.5 | 1.1 |

Source: NCSO, Census of Agriculture, 1971.

In agricultural performance, the developing municipalities follow the less developed group closely. Legaspi-Daraga has the largest agricultural area and arable lands. The developing municipalities raise about as much rice as the less developed municipalities, but their coconut yield is lower than the latter's (table 2.5). Their value of production in rice and coconut is also lower than that of the less developed municipalities. Tabaco produces the most of both rice and coconut.

Based on these limited indicators it seems that, on the whole, developing municipalities in Albay tend to do better in agriculture than those in Camarines Sur.

**The less developed municipalities**

Ten Basin municipalities belong to the second group that may be described as less developed: the four municipalities of Polangui, Guinobatan, Ligao and Camalig in Albay and the six municipalities of Goa, Nabua, Pili, Libmanan, Tigaon and Sipocot in Camarines Sur. Only Goa, Libmanan and Tigaon are linked by provincial roads. All others are along the Manila South Road.

On most of the selected demographic, social, economic and physical variables, the less developed municipalities are more like the underdeveloped than the developing municipalities, that is, their level of development is far lower statistically than that of the developing municipalities.

The overall population of this group is slightly over one-fourth of the total Basin population, or an average of 45,000 people per municipality, which is about half that of the first group. The average urban population is a very minimal 4,000, compared to the 39,300 per municipality of the developed group. Of the 10 municipalities, Libmanan has the largest population while Goa has the highest urban population. The proportion of employed population to total labor force of this group does not differ from that of the developing group, which is slightly less than that of the underdeveloped municipalities.

The number of households served by water and power supply is fewer than that in the developed municipalities. The average number of households served by water supply is less than one-third of that in the developing areas. Nine of the ten developing municipalities report households served by water supply, with Polangui having the highest proportion. The statistics showing the average number of households served by power supply are even more discouraging. Only about 900 households per municipality in the less developed group are served by power supply; they comprise only about 10 percent of those served in the developed municipalities. Moreover, only six of the ten municipalities have households served by power supply.

The municipalities in the less developed group have an average of only about 600 establishments each, or less than one-third that in the developing

municipalities. They average only one financial institution per municipality, against nine in the developed group.

Health care and educational institutions are likewise much fewer than in the developed group. Each municipality has an average of only two institutions of higher education.

This group's municipal total income appears much lower than that of the underdeveloped group, but when averages are reckoned, the descending order of the three municipal groups is maintained. The average municipal tax income of the less developed group is only about one-sixth that of the developing group but double that of the underdeveloped group. Ligao reports larger financial resources than any of the developing municipalities. On the other hand, Polangui seems to have a larger market than any of the others in the group with the highest market collections.

In the Bicol River Basin, this group of less developed municipalities has the largest average agricultural lands and arable lands. Its average rice and coconut yields and values of production are the highest among all municipalities. Large agricultural lands are mostly found in the developing municipalities of Camarines Sur, notably in Libmanan and Sipocot. Libmanan and Pili have the largest areas of arable land. Polangui in Albay has the highest rice and coconut yields and values of production in the Bicol River Basin.

#### The underdeveloped municipalities

Almost three-fourths of the Bicol River Basin municipalities (38) are what may be called underdeveloped municipalities. They have the least facilities, resources and access in the Basin area and have the poorest performance in agriculture. Only four of them lie proximate to the Manila South Road.

The underdeveloped municipalities have 51 percent of the total Basin population but, on the average, only less than half the population per municipality of the less developed municipalities. Their urban population is slightly less than that of the less developed group. Their average proportion of employed persons is the highest because their younger people work on the farm instead of attending school.

On the average, the households in the underdeveloped municipalities served by water and power supply are only about 8 percent and 6 percent, respectively, of those in the developing group. Only five of the 38 municipalities have institutions offering higher education.

The average municipal total income is only 8 percent that of the developing municipalities and half that of the less developed municipalities. Eight of the 38 municipalities do not have a single financial institution, and 15 have no markets.

The average area of arable agricultural lands is low compared to those of the two other municipal groups. So are the average rice and coconut yields and values of production, which are even lower than the average Basin figures.

To conclude, the general features of the three municipal groups are quite distinct from each other. The relatively developed areas with the most human resources, urban functions and services and easy access are the market centers of the Bicol River Basin. The less developed areas-although not large market centers-are primarily agricultural production areas. The third group of municipalities is on the lowest scale on all social and economic indicators, a fact that reflects its extreme underdevelopment.

## SUMMARY

The entire chapter suggests that poverty and underdevelopment in the Bicol River Basin is a general effect of the existing unequal distribution of resources, opportunities, services and access over space. The baseline study reveals the high concentration of population, resources and functions in a few areas in the Bicol Basin. Health, education and market facilities, for instance, are clustered in only a handful of areas. Furthermore, the transport accessibility analysis illustrates that the distribution of facilities and resources favors municipalities with better road access. Specifically, it shows that the municipalities lying along the Manila South road (the best road system in the Basin) have a monopoly of almost all resources, functions and services. As the type of road system that services a municipality moves from better to worse, the level of development of the affected municipality diminishes. In effect, the analysis indicates that underdevelopment stems from inaccessibility.

The heavy concentration of facilities and services in a handful of urban areas within the Basin creates and reinforces an unhealthy imbalance in economy and quality of life between these few developed areas and the rest. As people from the countryside flock to the urban centers to avail of its schools or employment opportunities, the rural areas are left unattended. This pattern impedes the growth of rural areas outside the few urban centers in the Bicol Basin. At the same time, the evidence shows that urban centers are even now confronted with problems on how to cope with increasing population growth accompanied by deteriorating efficiency of urban facilities and services.

Based on their socio-demographic, physical and economic characteristics, the Basin municipalities can be classified into three:

1. The *economically developing group* consists of only four areas: Naga-Camaligan, Legaspi-Daraga, Iriga and Tabaco. They compose the urban centers of the Basin, led by the two provincial centers (Naga-Camaligan and Legaspi-Daraga). In this few areas are a large proportion of the population and the best schooled group in the entire Basin. Facilities and services are concentrated here. They are the market centers, and the educational centers as well. Because the four developing areas are not wanting in most urban functions, their further development is made easier and faster.

Despite their orientation towards urbanization the economically developing group rates compar-

atively better in agricultural resources and produce. On the whole, it ranks next to the second group of municipalities, but the difference is not very marked. Their easy access to agricultural inputs and machineries allows them to perform well in this aspect.

2. The *less developed group* is composed of 10 municipalities. Although next to the developing areas in level, this group is generally far less developed in its socio-demographic, economic and physical aspects. Its average population, which scarcely enjoys water and power supply in the homes, is less than half that of the first group. Its average municipal total income is barely half that of the first group. Access to health care and education is minimal. Roads and transport facilities are grossly insufficient. In those two aspects the less developed group is almost as worse off as the underdeveloped group.

Comparatively, this group performs quite well in agriculture. Besides having the largest average agricultural and arable lands, its crop yields and values of production are the highest among the three groups of municipalities.

3. To the *underdeveloped group* belong the majority of the Basin municipalities (38 in all). This group is the least accessible by road, has the least number of functions, resources, municipal total income, and social and economic institutions. It has more than half of the Basin population although, on the average, each municipality has only one-fourth that of the developing areas. It is also the most inefficiently served by power and water. This group's agricultural production is equally low, just barely enough for consumption.

# CHAPTER III

# FUNCTIONS AND SETTLEMENT HIERARCHY IN THE BICOL RIVER BASIN

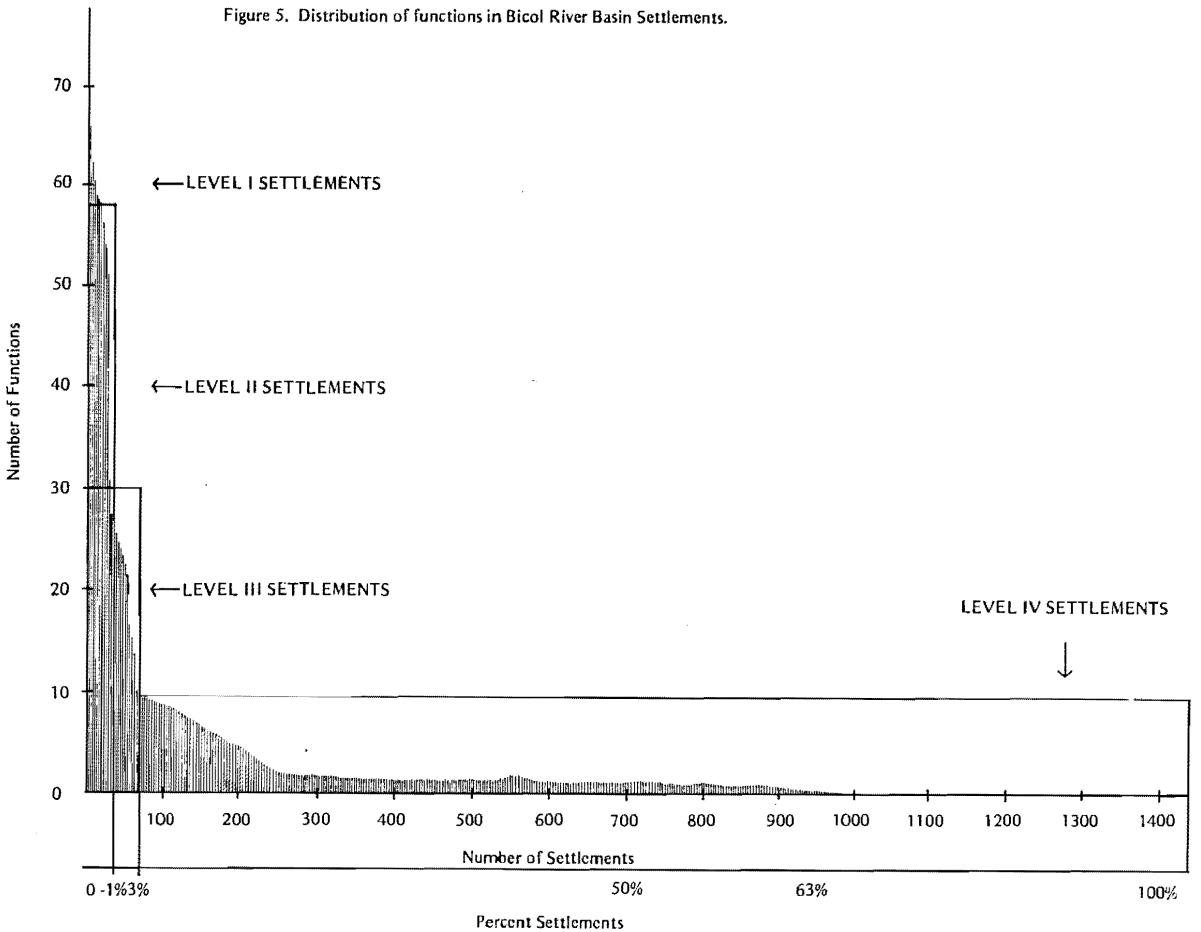
Spatial and functional analyses of the Bicol River Basin reveal that it is a sub-regional area in which almost all services and facilities of consequence to rural development are concentrated in two provincial cities and several town centers, most of which are clustered along or near the Manila South Road that cuts through the center of the Basin to produce a ribbon of relatively higher level development. Thus, most of the services and facilities are in a few central places that are not widely accessible to people living outside their immediate boundaries, and a large portion of the rural areas is left unserved by central functions.

The analyses also indicate that the overwhelming majority of services and facilities contained in these centers are generally inadequate for meeting even basic human needs, much less for stimulating or complementing development efforts in the Basin's rural hinterlands. Even in the relatively more developed centers, establishments necessary to generate economic development are sorely lacking.

### Distribution of Functions

Using scalogram analysis and other spatially related methods, 64 major functions — services, facilities and organizations — that contribute to spatial centrality were inventoried and scaled so that the characteristics and distribution of functions performed by settlements within the Basin could be analyzed. Among the settlements — cities, towns, villages as well as scattered hamlets — more than one-third do not contain any of the fuctions (fig. 5).

Figure 5. Distribution of functions in Bicol River Basin Settlements.



More than 40 percent of the settlements have only one to three of the functions. Of the 1,419 places analyzed, only 56 have sufficient "central functions"[1] to be considered as central places. Of these, only five registered centrality indices[2] equal to or above the median centrality of all settlements, indicating an extremely high concentration of functions in few central places (table 3.1).

Table 3.1. Centers with indices equal to or above the median centrality in the Bicol Basin settlement structure (median centrality index = 211).

| Rank | Name of Settlement | Centrality Index |
|---|---|---|
| 1 | Legaspi-Daraga | 422 |
| 2 | Naga-Camaligan | 383 |
| 3 | Iriga | 298 |
| 4 | Pili BUA[a] | 239 |
| 5 | Tabaco | 237 |

[a]"Built-up area" includes both the town *poblacion* and communities, structures and establishments that are contiguous to the *poblacion*. The Pili BUA includes the barrios of San Agustin, San Jose and Cadlan.

The most ubiquitous of the functions – farmers' associations, small rice and corn mills or storage sheds, cottage industries and civic organizations – are low-level or unproductive institutions, and even they are found only in slightly more than half of all settlements. Almost three-fourths of the Basin's population is found in the settlements containing only these few services or facilities. Nearly a third not only lives in settlements having no functions at all but are accessible only by foot. Forty percent of the population lives in communities with road connections, but these links are gravel and earth roads that become muddy, virtually impassable strips during the wet season, thus practically isolating the communities. Moreover, only about 30 percent of all these communities, or 37 percent of the Basin population, are within five kilometers[3] of any one of the 56 central places that have some functions of consequence to rural development.

In addition, less than 10 percent of all barrios in the Basin have some facility or service to meet the basic needs of the rural population outside of primary education. For instance, there are only 337 rural health workers serving 1.4 million people in the Basin's rural *barangays*. Doctors are rarely found in rural barrios. Periodic markets, which are the most primitive of economic exchange arrangements, are found in only 17 of all the barrios in the rural areas.

### Hierarchy in the Basin Settlement Structure

Scalogram analysis, Guttman scaling and analysis of secondary socio-economic, demographic and physical data were used to construct a hierarchy of settlements and functions in the Bicol River Basin, yielding a four-level settlement structure of provincial centers, local service centers, rural centers and non-central places (table 3.2 and figure 6).

### Provincial Centers – Level I

In terms of functional complexity, two central places – the Naga-Camaligan and Legaspi-Daraga urban areas – are at the peak of the Basin's settlement hierarchy. Although these two contain most of the functions in the Basin, their combined residentiary population is only 10 percent of Bicol Basin's more than 1.7 million population. Relative to all other settlements in the Basin, however, they represent the two most populous centers. Between them they dominate the Basin's marketing, commercial, communications and administrative activities. In general, their hinterlands cover portions of their respective provinces only.

Naga and Legaspi have the two largest markets in the Basin through which selected agricultural commodities are exported to Manila and nearby areas and through which nearly all of the Basin's manufactured goods are imported from Manila. Nearly all periodic markets in the Basin deal through these two major markets. Trade linkages between these central markets and others within the Basin, however, seem to be both highly selective and sporadic and do not provide an institutionalized exchange network needed to stimulate agricultural productivity in the rural hinterlands.[4]

The two centers contain most of the higher level communications, economic, recreational, administrative and marketing functions found in the Basin. Even they, however, perform few secondary (industrial or manufacturing) activities and offer no significant basis for inter-regional trade.

The limited reach of both centers is shown by the travel pattern survey conducted by the Inter-Modal Transport Study of the BRBDP. The survey recorded the total number of persons traveling between and among centers, using 500 person-trips[5] between one center to another as a cut-off to denote significant interaction. Travel surveys show the Naga and Legaspi centers to be basically provincial centers whose services do not reach out very far into the surrounding rural hinterlands. As shown in figure 7, large areas are apparently excluded from the

[1]Facilities located within and services produced in a settlement but serving populations living outside of that settlement. In classical location theory, these are associated with "central goods and services that are produced or sold in a few central points of a region (but) are consumed at many scattered points" (Johnson, 1970).

[2]Measures of centrality arrived at using Marshall and David's techniques.

[3]Estimated to be the standard minimum accessibility by BRBDP transport planners.

[4]See Market Study in Chapter IV.

[5]"Person-trips" is defined by the Basin transport planners as the number of persons traveling between one center to another.

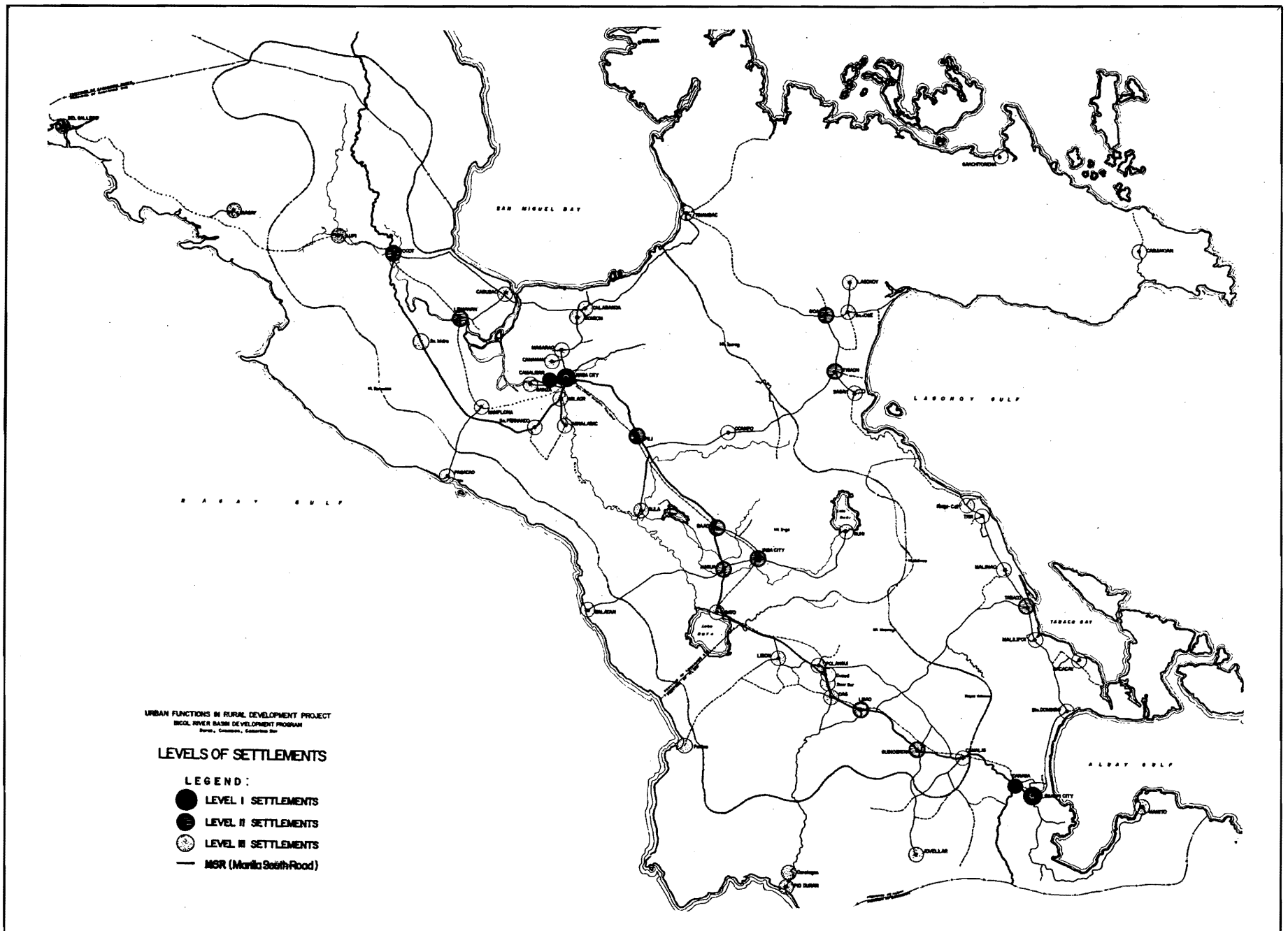



Figure 6. Levels of settlements.

Table 3.2a. Profile of levels of settlements in the Bicol River Basin.

| Level of Hierarchy | No. of Settlements | Range of Functions | Average No. of Functions | No. of Settlements =, > than Ave. No. of Functions | Average Centrality Index | Settlements | Functional Characteristics |
|---|---|---|---|---|---|---|---|
| I | 2 | 60 – 61 | 60 | 2 | 403 | Legaspi-Daraga | Provincial service centers |
| II | 11 | 31 – 54 | 39 | 4 | 140 | Iriga City, Tabaco, Pili BUA, Ligao, Baao | Local service centers |
| | | | | | | Nabua, Libmanan, Sipocot, Guinobatan, Goa, Tigaon | |
| III | 43 | 10 – 28 | 18 | 21 | 40 | 37 *poblacions* 6 large barrios | Small rural centers |
| IV | 1,363 | 0 – 9 | 2 | 637 | 1.3 | 2 *poblacions* 1,361 barrios | Non-central places |

Table 3.2b. Profile of levels of settlements in the Bicol Basin.

| Level of Hierarchy | No. of Settlements | % to Total No. of Places | % to Total Basin Population | Average Population Size |
|---|---|---|---|---|
| I | 2 | .14 | 10.58 | 89,892 |
| II | 11 | .77 | 7.28 | 11,107 |
| III | 43 | 3.03 | 10.52 | 4,196 |
| IV | 1,363 | 96.06 | 71.62 | 922 |

Figure 7. Significant* travel patterns, Bicol River Basin.

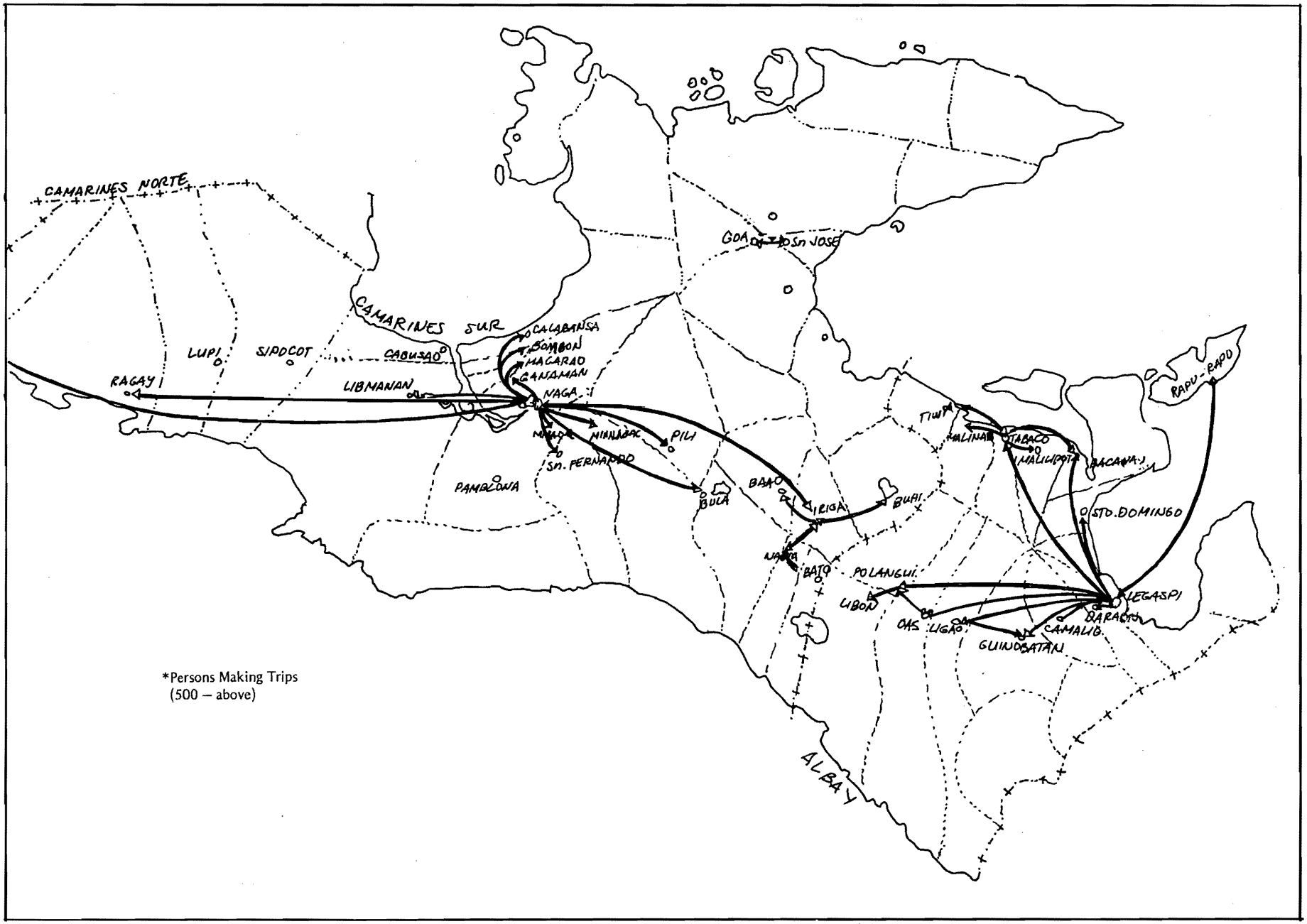



**Figure 7. Significant* travel patterns, Bicol River Basin.**

Camarines Sur travel pattern of which Naga is the principal node. The same is true of the Albay pattern, which has Legaspi as its node.

*Naga City.* Naga contains the largest public market in the entire Basin accounting for 29 percent of all market receipts. Manufactured items, from personal wear to groceries, are distributed throughout Camarines Sur mainly through Naga. The city commands the distribution of farm implements not only in Camarines Sur but also in the entire Bicol Region. The bulk of trading in farm inputs for the province is also mainly undertaken in Naga. Naga seems to be the sole distribution point for sugar, in Camarines Sur at least and possibly for Albay as well.

The size of the Naga market threshold can be said to be the combined population of Naga and 8 other municipalities, under its direct influence within a 10-kilometer radius, which have no public markets because of their proximity to the large Naga market. This combined threshold was 188,300 people in 1975, which may account for the primacy of Naga as a market in the Basin. Indirectly, at somewhat higher levels of market activity, Naga's influence extends to over 60 kilometers in all directions, touching the secondary and tertiary markets of Camarines Sur, i.e., Pili, Goa, Iriga, Sipocot and Libmanan.

Naga registers 26 percent of all business, service, financial and real-estate establishments and a similar share of wholesale and retail establishments, as well as 20 percent of all banks. This last proportion definitely increases when all other finance-related establishments, including insurance companies, are considered since Naga has the largest concentration of banking and finance-related services in the entire Bicol region. In addition, it contains more than one-fifth of community, social and personal service establishments in the Basin, as well as 20 percent of all construction firms in Camarines Sur.

Administratively, although the official capital of the province is Pili, provincial government offices are located in Naga, making it the venue for most, if not all, provincial decision-making and program monitoring activities. Moreover, 8 key Bicol regional or Basin development offices are located in and around Naga, making its administrative functions comparable to those of Legaspi, the official regional administrative center. These offices include the 1) Bicol River Basin Program, 2) National Irrigation Administration, 3) Department of Social Services and Development, 4) Bureau of Fisheries, 5) Bureau of Soils, 6) Bureau of Forest Development, 7) Bureau of Plant Industry, and 8) USAID Bicol Basin Mission.

In addition, Naga is the seat of the Catholic Archdiocese covering the Bicol Region. Considering that church activities extend far beyond purely religious functions and that the church can often influence social and economic decisions, the Archbishop's headquarters at Naga indeed contributes significantly to the administrative importance of the city. In fact, the presence of the Archbishop's office historically has been a factor in one of the biggest religious festivals in the country – the feast of the Lady of Peñafrancia – being held in Naga. During this event, which is still held annually, Naga's population easily doubles with the influx of devotees from all over the country.

The biggest operational railroad terminal and yard in Bicol is located in Naga. In 1975, the Naga railway station accounted for 28 percent of all outgoing passengers, 29 percent of all incoming cargo and 28 percent of all outgoing cargo in Bicol. It offers five trips to Manila and three to Legaspi daily,[6] no other station in Bicol has a comparable schedule of train trips.

After Sipocot town, Naga is the first major stop in Bicol on the Manila South Road. Three major roads pass through Naga that link it to the northeast portion of Camarines Sur up to Tinambac and to the northern stretch of towns ending in the Balongay River. One major national bus line with a terminal in the city uses this route, as do three regional lines and a host of mini-buses and "jeepneys".

Naga is also the hub of the most lively river transport system in the Basin. No data exist by which the volume of cargo and passengers using river transport may be gauged, but a day on the river landing, especially in the morning, cannot but impress an observer with the fairly significant amount of incoming and outgoing passenger and cargo loads in rivercraft. Apparently, most cargo consists of small consumer items, agricultural produce and fish.

Naga does not have an airport but uses the Pili airport located 12 kilometers away.

Naga's location as a transport locus is complemented by a nearly complete range of communications equipment. It has radio communications facilities, telegraph, telegram, radio-telegraph, telephone, and postal facilities with telegraphic transfer, telegraph and letter delivery capabilities. Although Naga has no television station, its homes receive programs beamed from a station located in Iriga. The city has four radio stations broadcasting throughout Camarines Sur.

*Legaspi-Daraga.* Legaspi-Daraga's public markets are much smaller than Naga's even if combined. While Legaspi does not equal Naga in marketing activities in the Basin, it has approximately the same volume of trade as confirmed by a market survey conducted by the UFRD project. The number of responses citing Legaspi as the primary source or destination of commodities in Albay was large.

Based on the same survey, Legaspi seems to be the main outlet of rice for Albay. The movement of abaca focuses in Legaspi where the large cottage industry turns out produce items that are either directly exported to Japan or the United States or shipped to Manila and other major cities in the country. Other agricultural products traded in Legaspi are sugar, vegetables and meat. Like Naga, Legaspi dominates its province in the distribution of non-agricultural goods. Indeed, a major part of these

[6]According to the 1977 PNR Naga station schedule, three train trips pass through Naga from Legaspi and two leave from Naga going to Manila. From Manila three trips pass through Naga for Legaspi.

commodities arrive in Naga from Manila and are transhipped from Naga to Legaspi, from which they are distributed to town markets in Albay and some periodic markets in the rural *barangays*.

Any discussion of the Legaspi market must consider Daraga market, which is as active and of almost the same size. Only 2.8 kilometers west of Legaspi, Daraga forms a continuous urban belt with Legaspi. A traveler not familiar with the region would not know where the Daraga town proper ends and where Legaspi begins. Combined Legaspi-Daraga has a market threshold population of 151,500 people. It ranks second in population to Naga which has a combined population threshold of 188,300. Daraga is also the junction of the Manila South Road to Sorsogon. Sorsogon residents market in Daraga which helps explain the unusual size of the Daraga market.

Unlike Naga, however, which has absorbed the marketing functions of 8 municipalities within its 10-kilometer radius, Legaspi has not seemed to absorb any marketing functions of nearby Albay towns. All Albay towns, unlike Camarines Sur towns, have active public market regardless of their distances from each other. This can be explained by the larger localized market thresholds of Albay towns.

The average population of Albay towns was 41,500 in 1975, against 25,660 in Camarines Sur. Albay municipalities have an average population density of 215 against 194 in Camarines Sur. Albay towns are not only more populated than Camarines Sur, they are also more compact settlements. Furthermore, the road density in Albay is higher than in Camarines Sur, indicating better accessibility of Albay residents to their market. And while the average distance between towns in Camarines Sur is 8.5 kilometers, in Albay it is only 7.3 kilometers. These factors explain the more active Albay markets and their linkages which are more developed than those of Camarines Sur.

Legaspi accounts for more wholesale-retail business services, financial, and real-estate establishments combined than Naga. It has nearly a third of those found in the Basin, as well as almost 52 percent of all experienced workers in the Basin's manufacturing sector. The few major secondary sector activities, particularly coconut oil processing and cassava flour production, are in fact located in or around Legaspi. In addition the cottage industries in Legaspi are larger and better organized. Much of the abaca craft peddled to tourists or exhibited as indigenous Philippine products abroad comes from the cottage industries of the city. Ironically, however, all four major exporters of abaca craft are non-Bicolanos and are Manila-based. In view of this, it is not far-fetched to assume that the major portion of the remittances from the sale of these products does not find its way back to Bicol.

Like Naga, Legaspi is the center of finance-related establishments in its province. Moreover, the majority of the regional offices of private companies operate from Legaspi. These offices form a part of Legaspi's 34 percent share of commercial establishments within the Basin, a figure slightly more than Naga's.

The majority of the regional offices of government agencies in the Bicol Region are located in Legaspi-Daraga. The Regional Development Council, charged with coordinating development activities in the region, is found in Legaspi, as is the NEDA regional office which is officially charged with coordinating planning activities. The city, therefore, has the regional decision-making apparatus officially located within it.

The advent of the Bicol River Basin Program, with its concomitant decision-making influence and coordinative powers in development planning and activities, has somewhat affected the regional administrative position of Legaspi. Nevertheless, the city solidly exercises the provincial administrative function in Albay, and Legaspi decision-makers often influence the location of new investments in Albay province. A case in point is the location of the BRBDP Industrial Estate project which has been shifted at least twice due to influence emanating from Legaspi.

Legaspi commands the inter- and intra-regional transport by air and sea. By road, Sorsogon is accessible from Legaspi. So are Camarines Sur and — through that province — Camarines Norte. The city has five road outlets with three modes of transport for inter-regional or inter-provincial travel: by land, air and sea.

Legaspi has 18 percent of all experienced transport — communications workers in the Basin. In this respect, Legaspi leads Naga by 3 percent, making it the center of the Basin's transport and communications network. By land, Legaspi is the node for four roads linking Tiwi, the farthest northwestern town in Albay; Malinao across Albay gulf; the towns straddling the MSR up to Libon; and the *barangays* along the southern stretch of the MSR towards Sorsogon.

By air, Legaspi connects to Catanduanes with one flight daily; to Cebu with thrice weekly flights; and to Manila with two flights daily. Legaspi's airport is by far the best equipped in the region and is classed as a trunkline facility.

The Legaspi seaport is designated as the regional port with ships coming from or bound for Manila, Cebu, Cagayan and other ports. Its ships ply the Catanduanes-Legaspi-Masbate routes with export commodities of coconut oil and Manila hemp.

The two provincial centers between them accounted for ₱1.5 million of all public market receipts in 1976, representing 45 percent of the Basin's total. Together they share more than 64 percent of all commercial establishments in the Basin. Decisions of regional and provincial significance reached locally are made in these two centers. They are also the communication loci for their respective provinces. This finding is further reinforced by the fact that 25 percent of all experienced workers in the transport and communications sector is accounted for by these two centers. Correspondingly, both of them have the broadest range of communications facilities

Table 3.3. Comparison of centrality scores[a] of provincial centers by sector.

| Center | Population | Annual Growth Rate | SECTOR | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Economic | Physical | Social Services | Com. and Trans. | Extension | Community | Recreational | |
| Legaspi-Daraga | 92,389 | 2.36 | 8 | 8 | 8 | 7 | 8 | 7 | 7 | 60 |
| Naga-Camaligan | 87,395 | 1.76 | 8 | 8 | 8 | 6 | 8 | 8 | 7 | 61 |

[a]Highest sectoral score is 8, indicating that all 8 economic complexity indicators are present.

anywhere in the Basin. In addition to all these, the few secondary sector activities (manufacturing) in the sub-region are concentrated in the two centers, but more so in Legaspi City. Table 3.3 shows the sectoral centrality scores of these two provincial centers.

**Local Service Centers — Level II**

At a second level are 11 settlements — Iriga, Tabaco, Pili, Goa, Tigaon, Libmanan, Sipocot, Nabua, Baao, Ligao and Guinobatan — which as a group seems to function as local service centers with from 30 to 54 central functions. These centers perform a few area-wide functions and a larger number of local commercial, administrative, marketing and recreational functions than do the barrios. They tend, however, to be within the influence areas of the two provincial centers and to serve more as complementary areas than as service centers for their own hinterlands. Most are clustered along the national highway or are at a junction with the provincial roads.

*Incipient area-wide service centers.* Among the local service centers, the city of Iriga and the large port town of Tabaco stand out as incipient area centers. Both centers have relatively further reaches than all other settlements with the exception of the provincial centers. Moreover, unlike other local service centers, they obviously service population in several municipalities other than their own.

Their centrality indices are far greater than those of other centers in their category except for the Pili built-up-area (table 3.4). Iriga City shows 9 percent of all market receipts in the Basin, and together all local service centers share 29 percent. Data on market receipts and the market survey, however, seem to indicate that no other center outside of Iriga and Tabaco provides area-wide functions. Iriga City in Camarines Sur and Tabaco in Albay are major markets apparently acting as intermediate outlets of the Naga and Legaspi market centers. While little information is available by which the volume of marketing activities may be estimated in these two intermediate marketing centers, the marketing survey (see marketing linkages in chapter 4) seems to indicate intensity in certain commodities that rivals that of either of the provincial centers.

Iriga is centrally located in a triangle of five "Rinconada" towns in Camarines Sur which include Buhi, Nabua, Baao and Bato. Iriga's prominence in Rinconada is indicated by its 1976 public market stalls receipts which amounted to ₱298,660, or over three times that of the nearest market of Nabua which grossed ₱86,300 in the same year. The other three nearby markets exhibit the effects of Iriga's prominence. The nearest market 8 kilometers west of Baao, is less than 8 percent the size of Iriga, and only Buhi, relatively farther from Iriga, 14 kilometers to the northwest, is a little larger at 10 percent the Iriga market.

By its size and strategic location, Iriga, 38 kilometers east of Naga along the Manila South Road, is a Camarines Sur market secondary to Naga. However, it may be noted that the aggregate market threshold

Table 3.4. Centrality indices of local service centers

| Level II Center | Centrality Index |
|---|---|
| Iriga City | 298 |
| Tabaco *poblacion* | 237 |
| Goa *poblacion* | 106 |
| Tigaon *poblacion* | 99 |
| Pili *poblacion* and barrios of San Agustin, San Jose, Cadlan | 239 |
| Nabua *poblacion* | 100 |
| Ligao *poblacion* | 129 |
| Libmanan *poblacion* | 125 |
| Baao *poblacion* | 100 |
| Sipocot *poblacion* | 102 |
| Guinobatan *poblacion* | 116 |

population of Iriga market is the combined population of the Rinconada towns to which Iriga is culturally, physically (by road surface alignment), and economically linked. This threshold was a combined population of 219,700 people in 1975. It is larger than Naga's 181,000 or Legaspi-Daraga's 151,000 people. But the presence of active markets in Nabua and Buhi serves to blunt somewhat the primacy of the Iriga market.

The Tabaco market is a 3-story building like the Naga market. It is very active and ranks second in public market stall receipts. The direct influence of Tabaco's large market is felt in nearby Malilipot and Malinao, two small towns 4.5 and 5 kilometers north and south of Tabaco, respectively. The combined public market stalls receipts of the two towns in 1976 amounted only to ₱8,600, or about 3 percent of the Tabaco market.

Effectively, the size of the Tabaco local market threshold can be identified as the combined population of Tabaco, Malinao and Malilipot which was 110,400 in 1975. This reflects population within a radius of 4.7 kilometers from Tabaco. It is 55 percent of Naga's local market threshold and about 70 percent of the combined Legaspi-Daraga threshold population. The intermediate reach of the Tabaco market is 12.5 kilometers north to Tiwi, 13.2 kilometers to Bacacay, and 15.4 kilometers to Sto. Domingo.

*Secondary market centers.* Aside from Iriga and Tabaco, most local service centers have active markets. Two of them, especially, merit brief descriptions since the other analyses indicate their having relatively strong market functions below the levels of Iriga and Tabaco. One is Goa in the northern reach of Camarines Sur close to the isolated Caramoan peninsula, and the other is Ligao midway between Iriga and Legaspi. Their location marks them as geographically strategic centers if the market system in the region is to be expanded.

Ligao's geographic advantage is obvious on the map. The center connects to two major provincial roads of Albay: to the Manila South Road and to the road linking Pio Duran, an important coastal fishing town at the Ragay Gulf, due south. Moreover, the 25-kilometer shortcut to Tabaco that winds around the northwest side of Mayon Volcano begins at Ligao, bypassing Legaspi on the opposite side. Ligao, therefore, is the central node in a coast-to-coast road from the Pacific side of Albay to the other side of the peninsula at Ragay Gulf. Its direct connection to Tabaco without passing Legaspi is also an important link, to the economic disadvantage of Legaspi-Daraga.

Ligao's own population was 61,500 in 1975, but its total market threshold can include Pio Duran's 31,100 or a total of 92,600, accounting for the active Ligao market. In this threshold must be considered those who must go to Ligao to buy fish at Pio Duran, since one of Ligao's major functions is to market the fish catch of Pio Duran to other inland Albay municipalities such as Oas, Guinobatan and Camalig.

Goa, 52 kilometers east of Naga, occupies a central location among a group of interior towns of Camarines Sur known as the Partido area, composed of the towns of Ocampo, San Jose, Sangay, Tigaon and Lagonoy. Goa is also linked through bad roads (impassable during the rainy season as of 1977) to Tinambac, a San Miguel Bay coastal town due west of Goa. But owing to the weak link and the distance, Tinambac is not now considered part of the Goa hinterland.

In terms of commercial and service functions, local service centers taken individually do not have a range of services comparable to that of the provincial centers. While some register a fairly high concentration of central functions, others are not unlike Level III settlements. In particular, Libmanan, Ligao, Nabua, Guinobatan, Sipocot, Goa, Tigaon and Pili are below the level III centers of Bacacay and Camalig in number of municipal business services, financial and real estate establishments.

Most level II towns are not very differentiated from level III towns in commercial and service activities. Moreover, in terms of manufacturing activities, these towns have little more than a few cottage industries. Together they account for slightly over 24 percent of all experienced workers in the secondary sector. This figure may appear high, but the proportion of experienced workers to the total labor force is quite small (17%).

The weakness of commercial and manufacturing activities, to be expected in view of the general state of depression in the Basin, can also be explained by the fact that level II centers tend to be within the influence areas of Naga and Legaspi, which perform most commercial services needed by them. Correspondingly, at least in commercial activity, they constitute complementary areas to the provincial centers rather than independent service centers for a defined hinterland.

Level II centers enjoy a distinct advantage over other settlements, excluding Naga and Legaspi, in their share of community and social services. The schools of Iriga, Sipocot, Guinobatan and Tabaco serve at least one nearby municipality. Iriga, Tabaco, Ligao and Baao extend hospital services to an average of two municipalities effectively within 10 kilometers of their centers.

Administratively, these centers are not different from the other *poblacions* in the Basin primarily serving their own residents. In the case of Iriga, the city administration has jurisdiction over a small but relatively high density area. Typically, within these centers are the municipal and city administration, the municipal court and police, and a small group of lawyers. All business requiring municipal resolution by municipal authorities is conducted in the centers.

Level II settlements are connected by an average of three modes of transport: 1) roads over which a broad range of transport facilities run — buses, mini-buses, jeepneys, trucks and cars; 2) rail freight and passenger trains; 3) seacraft and ocean-going vessels as well as smaller motor vehicles, as in the case of Tabaco. Towns like Libmanan which have access to river transport are served by large motor-equipped outrigger boats capable of carrying more than a score of passengers and a fair quantity of cargo.

Table 3.5. Average centrality scores by hierarchic levels and number of settlements with average or above scores.

| Level of Hierarchy | No. of Settlements | SECTOR | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Economic | | Physical | | Social | | Com. & Trans. | | Extension | | Community | | Recreational | |
| | | Ave. score | Centers = or > than ave. score | Ave. score | Centers = or > than ave. score | Ave. score | Centers = or > than ave. score | Ave. score | Centers = or > than ave. score | Ave. score | Centers = or > than ave. score | Ave. score | Centers = or > than ave score | Ave. score | Centers = or > than ave. score |
| I | 2 | 8 | 2 | 8 | 2 | 8 | 2 | 7 | 1 | 8 | 1 | 8 | 1 | 7 | 2 |
| II | 11 | 7 | 6 | 7 | 6 | 4 | 5 | 3 | 5 | 5 | 4 | 5 | 4 | 4 | 4 |
| III | 43 | 3 | 20 | 3 | 26 | 2 | 29 | 1 | 20 | 3 | 35 | 3 | 21 | 2 | 30 |
| IV | 1,363 | 0 | 566 | 0 | 1,361 | 0 | 1,361 | 0 | 1,361 | 0 | 1,361 | 1 | 615 | 0 | 1,361 |

These centers have at least a telegraph station and a post office. Some like Iriga and Tabaco display a fairly wide range of other communications services such as radio-telegraph, telephones, and radio stations. Iriga has one TV station.

Half of the level II centers are located in or near the Manila South Road, which accounts for the frequency of buses passing through some of them. Since the Philippine National Railway runs parallel to the MSR, most of the same centers, including Sipocot, Pili, Baao, Iriga, Bato, Polangui, Ligao and Guinobatan, are accessible by rail. Libmanan is also accessible by rail but is bypassed by the MSR. The reverse is true for Nabua.

Despite the relatively high accessibility of level II towns to the railways and the MSR, only Iriga and Tabaco have terminals with repair facilities for buses and trains. Most towns have bus stops or train stations classed as express stops. A little more than 7 percent of the total Basin population resides in level II settlements, and the average population of these centers is 11,107. Four towns report a higher population size; seven other centers have a population size smaller than the average.

**Rural Centers — Level III**

A third level of 43 settlements — less than 5 percent of all communities in the Basin — acts as small rural centers in which from 10 to 29 functions appear. Most of these functions are highly localized and seem accessible only to people living in the immediate vicinity of the barrio or *poblacion*. These settlements have relatively small populations, averaging 4,000, and their economic significance seems to be limited to performing low-level residentiary functions.

The central places most directly serving rural populations are these level III settlements. They may be described then as "rural centers." At level III are 37 *poblacions* and six built-up areas (large *barangays* or several contiguous ones) with populations of 3,000 to 15,000. While their range of annual rates is between 85.8 and a negative 3.8, average growth is less than those of level II and III settlements.

Together these centers constitute only slightly more than 3 percent of the number of settlements in the Basin. The center-to-barrio ratio is roughly 1:30, but for the most part, these centers provide very highly localized functions reaching out only to the peripheries of their boundaries. However, functions with municipality — wide coverage are occasionally found in level III settlements.

Twenty of the 43 level III settlements have public markets whose number of permanent stalls accounts for 17.5 percent of the total stalls which are open and conduct business daily throughout the Basin. In addition, about 43 percent of the temporary stalls in the Basin are found in these markets. All settlements have general stores ("sari-sari" or mini stores or small grocery stores).

The majority of these markets are no more than collection points for agricultural produce that is shippped raw to the level I centers or the larger level II centers for processing. In some instances, limited processing is done in level III *poblacions* before the goods are sent to the major markets.

Surveys indicate that trading is mostly done with the nearest major markets. Thus, Buhi trades primarily with nearby Iriga; Oas with Ligao; Sto Domingo with Legaspi which is nearer than Tabaco; Pasacao with Naga. Some "leapfrogging" occurs, but this is explained by the nature of the commodity traded. Malilipot trades directly with Legaspi since its

main products – abaca and handicraft from its extensive cottage industries – find a large market in Legaspi where they are exported to other regions. Calabanga specializes in fish and thus directly trades with distant centers, such as Goa 64.5 kilometers away.

Commodities supplied from the major markets are apparently very limited in range – if not also in variety – in most level III settlements. While no volume data were generated from the market survey, the range of manufactured items supplied by selected major markets to level III centers was roughly extracted.

Naga City evidently is a consumption area for manufactured goods since it supplies only one type of consumer item to the level III settlements in Minalabac, Milaor, Magarao, and Calabanga. The towns of Balatan and Bato seem to get a greater range of manufactured supplies than Bula or Ocampo. It is possible, that Pili or Baao, rather than Iriga, primary supplies Bula and Ocampo with manufactured goods.

Guinobatan, a level II center three towns away from Legaspi to the northeast, surprisingly seems to receive a larger range of goods from that provincial market center than Sto. Domingo, the next town to the north and a level III settlement. Apparently, people from Sto. Domingo would rather go to Legaspi to shop.

Three level III towns – Malinao, Malilipot and Bacacay – are in Tabaco's market area. They obtain only personal wear and groceries from Tabaco, however. Sto. Domingo residents obtain items from both Legaspi and Tabaco.

Clearly the range of goods provided by major markets to level III markets is rather limited. It is of course possible that the reason for this is that residents of level III settlements shop in the major markets in the Basin; in other words, level III residents go to the major markets for manufactured commodities. This possibility is unlikely, however, because travel pattern data show not only that an overwhelming majority of trips are intra-municipal but also that the main purpose for travel mentioned in the survey is to go to work or to school from home. Only 5 percent of all Basin trips are attributable to shopping, indicating very localized shopping habits.

Manufacturing activities at the third level of the settlement structure are extremely limited. A few large activities exists, such as the pulp and paper mill in Malinao town, but for the most part the industry sector is limited to cottage industries turning out abaca craft, candies and pastries. There is also a scattering of warehouses, copra storehouses and trading establishments (*comprada*), sawmills, and furniture upholstery shops. Rice and corn mills are ubiquitous. Altogether these small establishments account for about 25 percent of all "urban" establishments in the Basin.

A little over half (58 percent) of level III settlements have rural banks, most of them established or re-established as recently as 1977 as a result of the policy initiated by BRBDP and supported by central government to make agricultural financing more readily available to farmers. In this context, the traditional credit system apparently still operates in many rural areas.

Extension services are the most frequently found functions in rural centers. They are supplied by the Bureau of Agricultural Extension, Bureau of Plant Industry, Bureau of Animal Industry and the Department of Local Government and Community Development. Correspondingly, farmers' associations (mostly government-organized *"samahang nayons"* or pre-cooperatives) to which extension technicians are attached are also found frequently.

Seventeen of the settlements have power supply, but only about 6 percent of households in the 43 centers are served. Power facilities which were formally controlled by private companies were turned into cooperatives in 1977 in line with government policy. Since the power generators are located in provincial or local service centers (level I or II), rural centers are now completely served by power generated from higher level centers. Two-thirds (67%) of the level III centers are served by piped-water system, but only about 10 percent of their residents receive service.

High schools, both private and public, are the most frequently found educational facilities in rural centers. In truth the Basin municipalities are generally well served by high schools, which accounts for the high literacy rate. Nearly half of all rural centers have a private clinic, although the number of doctors is still inadequate to serve the majority of households. Hospitals are rare in level III settlements. Residents generally go to provincial centers or local service centers for this service.

Basic recreational facilities are well distributed throughout the Basin. Basketball courts are found in 81 percent of the settlements, and many *poblacion* children have access to playgrounds with basic equipment. Cockpits are found in nearly half of the settlements and are the locale of Sunday cockfighting events. More sophisticated or costly sports facilities are rare. There are no bowling alleys or other such facilities except for occasional billiard equipment in makeshift halls.

Six of the centers are railroad towns, three of which do not have other transport links. Four, including one of the railroad towns, straddle the Manila South Road. Sixteen towns are on or near the coast. Two are on either side of Albay Gulf. Two others face Tabaco Bay. Five are strung along the shoreline of the Lagonoy Gulf. Another four are along San Miguel Bay. Four are established far from each other on the coast of Ragay Gulf, and one is along the Pacific Ocean. The rest are interior towns or centers located between the Manila South Road and the sea or are near the foothills of the Mt. Isarog ranges. Although all centers are linked by road, with

the exception of those along the Manila South Road, most of the routes are in poor condition. Six towns have train express stops; two in Camarines Sur have bus stations with repair facilities. Although a third of the settlements are coastal towns, only one has a port of some importance. Pasacao has a national port which is being improved by the BRBDP. In its present state, however, it cannot compare with the Legaspi or Tabaco port facilities.

Train fares are standardized. Transport costs on roads are another matter, however. Along the MSR and major secondary roads that are in good or fair condition, the Board of Transport approved rates apply. Passenger fares on bad roads, however, are apparently dictated by road type and condition as well as by the number of vehicles traversing the route.[7] The Naga-Gainza route, a distance of 4 kilometers, costs ₱0.75, forty-five centavos more than the approved BOT rate. The Libon-Pantao (28 kilometers) fare is ₱4.50, which is ₱3.05 more than the allowed fare.

Similar conditions govern commodity transport costs. The San Juan (Oas) to Tula-tula (Ligao) run costs a high ₱6.03 per ton per kilometer, which is about ₱4.50 more than the cost of a comparable run from Guinobatan town to one of the barrios of Camalig. The transport cost for palay is a high ₱4.21 per ton per kilometer from Sagrada, Baao municipality, to Hanawan, Ocampo, both in Camarines Sur province. As a further indication of the scarcity of transport in the interior, some routes like the Oas to San Juan (Oas municipality) route, have a waiting time of 94 minutes.

Like other municipalities, all level III towns have assorted buses, jeepneys and even open trucks for passenger transport. Bulk commodities are carried on cargo trucks. Road transport is the primary mode for the majority (40 centers) although the average number of modes is two.

Complementing the transport facilities is a government telegraph station in each of the 37 level III *poblacions.* None of the large barrios report telegraph facilities, but they have postal services housed in the same office as the telegraph station. A para-military radio station network supervised by the municipal police is a communication facility availed of during emergencies.

Two types of administrative functions characterize rural centers: those related to the official municipal functions of *poblacions* clustering in the six large *barangays* and of non-*poblacion* built-up areas.

Like all other official municipal centers, level III *poblacions* have a municipal hall, a police post, the municipal court, municipal offices of extension agencies and occasional field offices of national agencies. They also have a municipal development office charged with coordinating development activities in the municipality. These administrative and protective functions should ordinarily provide the basic "mass" that will attract other institutions and services to the *poblacion.* Informal data seem to indicate, however, that people do not so much go to the *poblacion* for activities associated with these functions as vice versa. It is apparently the municipal government functionaries who are usually forced to seek out the rural population to perform even routinary administrative functions like residence certification (channeled by the municipal government to barrio captains) or assorted licensing.

The more effective population-attracting institution that traditionally has complemented government functions in the interior towns is the church. The picture of a crowded town, a bustling market and an excited cockpit throng has always been associated with Sundays when the parish priest gives his sermons on subjects ranging from the Trinity to family planning during the homily of the Catholic mass. This is particularly typical of smaller rural settlements.

The *poblacions* of higher ranking towns among level III settlements have more frequent activities. The town of Polangui in particular seems to distinguish itself from the other level III centers in terms of its municipal hall transactions. This is indicated by its total income which is the highest among level III municipalities and of which 76 percent is generated locally.

The seven large *barangays* do not function in the same administrative functional hierarchy; they simply mediate for administrative processess that eventually have to be completed in the town hall. Thus, their barrio captains inform their respective barrio populations about requirements of the municipal government. Routine processes are facilitated at the barrio hall by the barrio captains. The administrative functions of these large *barangays*, however, are increasingly being expanded by deliberate government policies to locate high schools, district rural health and extension offices in the large barrios. Moreover, the seven large barrios at level III which already have such facilities serve more than their respective barrios since, administratively, these functions cover districts of two or more barrios.

### Non-Central Places — Level IV

The overwhelming majority of settlements — over 1,000 or about 95 percent of the total — fall into a fourth category of residential non-central places. These are *barangays* — villages, hamlets, or several clustered farmsteads — of, at most, a few hundred families engaged in subsistence or near-subsistence agriculture, working as tenants on plantations or on small family-owned plots. The demographic surveys indicate that the majority have populations of from about 400 to 1,000, generally too small to support any significant form of economic service activity — even periodic markets, which are the most basic of agricultural exchange arrangements. Most communities in this category have less than 10 functions; the great majority have only a few or none at all. The only functions consistently found in these barrios are ubiquitous local units serving a neighborhood or cluster of houses:

[7] All figures are drawn from the BRBDP Intermodal Transport Survey, 1977.

*sari-sari* stores and sometimes a chapel, a farmer's association or an elementary school.

The majority of the settlements and population are found in the Basin's peripheral areas. Some places are located among the foothills of watersheds; coastal settlements are often clustered in the Goa-Tigaon area and the Tiwi-Tabaco-Sto. Domingo corridor; and other places are dispersed in the Caramoan peninsula.

While data limitations prevented precise analysis of differentiations among non-central places, it is clear that level IV settlements are virtually non-differentiated. An investigation of non-central places within 4 kilometers of the MSR and those at least 8 kilometers from it yielded the same range of functions appearing in 40 to 50 percent of the communities in both locations, namely:

1. Farmers associations
2. Chapel or primary school
3. *Sari-sari* store
4. Makeshift basketball or volleyball court.

The same is generally true of the range of services that *sometimes* appears in relatively large barrios:

1. Small agro-processing plants or cottage industries
2. Civic or sports club
3. Extension workers.

Exceptions are protective agencies (e.g., constabulary stations), private clinics and piped water which are much rarer in distant barrios. Moreover, it appears that barrios with some complexity, i.e., that contain 6 to 9 functions, tend to be within 4 to 8 kilometers of a central place.

Twelve other places with similar centrality characteristics in nine other municipalities in the Basin have distances to the nearest center ranging from 3.5 to 22 kilometers. However, like the settlements listed in table 3.6, all but four of them are within 4 to 8 kilometers of their *poblacion*.

The initial impression is that these barrios generally mark the boundaries of effective reach of local service and rural centers. It is interesting to note that a listing of goods made by a researcher at one of these interior barrios away from the MSR showed a fair range of items categorized as follows:

1. Personal items, e.g., soap, talcum powder, razor blades
2. Writing materials, e.g., pencils, paper
3. Cooking ingredients, e.g., laurel leaves, ginger, garlic, edible oil
4. Kerosene and batteries
5. Vegetables and fruits
6. Sewing items, e.g., needles, thread, safety pins
7. Processed food items, e.g., milk, sardines, sausages, canned peas, cigarettes, sugar, soft drinks, bread, biscuits.

When the researcher moved to another barrio about 2 kilometers away, only half of the items were available in *sari-sari* stores, and even fewer could be found in a barrio another kilometer farther away.

Table 3.6 Median distances of level IV barrios reporting 6 to 9 functions and services.

| Municipality | No. of Barrios | Median Distance to Nearest Center (km.) |
|---|---|---|
| Ligao | 5 | 5.0 |
| Polangui | 5 | 5.6 |
| Libmanan | 3 | 7.8 |
| Calabanga | 5 | 4.0 |
| Bato | 3 | 4.0 |
| Cabusao | 4 | 5.1 |

The majority of the barrios show very little functional complexity no matter where they are. When barrios with zero centrality score in each municipality are examined against average distances of barrios to their respective municipal centers, many settlements in a municipality are found to have zero scores when average distance to *poblacion* is relatively small. Evidently, even when rural settlements are geographically close to centers, they do not seem to benefit functionally from their nearest centers. This suggests that, generally, rural people have little effective access to central functions – even those that are relatively near – and, concomitantly, central places lack the scale of urban functions that will enable them to reach out further and effectively to serve rural places. By implication, accessibility of rural areas is always meaningless when the majority of centers do not have adequate functions.

The foregoing discussion illustrates the usefulness of the division of the Basin's settlements into levels in terms of analysis. Indeed, there are sound methodological and technical criteria for dividing settlements into the four-level hierarchy on the basis of scalogram and Guttman scale. However, it must be stressed that Guttman scaling of functions provided a functional profile of built-up areas or comparatively urbanized areas within the Basin with relatively little differentiation (table 3.7). There were few breaks in the scale scores. Level I and some level II settlements differ from each other marginally (see figure 8).

Table 3.7 Selected Guttman scale statistics for 121[a] built-up areas, Bicol River Basin.

| Settlement | Scale Score | Scale Step |
|---|---|---|
| Legaspi/Daraga | 41 | 33 |
| Naga/Camaligan | 40 | 32 |
| Iriga | 39 | 31 |
| Tabaco *poblacion* | 34 | 30 |
| Goa *poblacion* | 32 | 29 |

[a]Guttman scaling exercise preceded the manual scalogram, and the BUA's listed as cases in the former included, as a separate settlement, a cluster of barrios in Pili that later analysis showed to be contiguous and therefore organically a part of the Pili center. This finding led to a correction of the list so that only 120 BUA's were listed in the manual scalogram.

Table 3.7. (Cont'd.)

| Settlement | Scale Score | Scale Step | Settlement | Scale Score | Scale Step | Settlement | Scale Score | Scale Step |
|---|---|---|---|---|---|---|---|---|
| Tigaon *poblacion* | 31 | 28 | Malilipot | 10 | 10 | Sagrada Familia, Buhi | 2 | 2 |
| Pili *poblacion* | 29 | 27 | Bacacay | 10 | 10 | Antipolo, Buhi | 2 | 2 |
| Nabua *poblacion* | 27 | 26 | Jovellar | 10 | 10 | Fabrica, Bula | 2 | 2 |
| Baao *poblacion* | 25 | 25 | Sangay | 9 | 9 | Sabang, Calabanga | 2 | 2 |
| Sipocot *poblacion* | 24 | 24 | Bula | 9 | 9 | Cagbunga-Dahilig, Gainza | 2 | 2 |
| Guinobatan *poblacion* | 24 | 24 | Manito | 9 | 9 | San Antonio-Mambulo Nuevo, | | |
| Libmanan *poblacion* | 23 | 23 | Caratagan, Pio Duran | 9 | 9 | Libmanan | 2 | 2 |
| Camalig *poblacion* | 23 | 23 | Garchitorena *poblacion* | 8 | 8 | Carangcang, Magarao | 2 | 2 |
| Oas *poblacion* | 23 | 23 | Pamplona | 8 | 8 | San Antonio, Milaor | 2 | 2 |
| Tinambac *poblacion* | 22 | 22 | Lupi | 8 | 8 | Himaao, Pili | 2 | 2 |
| Lagonoy *poblacion* | 22 | 22 | Cabusao | 7 | 7 | Cararayan-Tinagis, Pili | 2 | 2 |
| Tiwi *poblacion* | 21 | 21 | Siruma | 7 | 7 | Pamukid, San Fernando | 2 | 2 |
| Calabanga *poblacion* | 20 | 20 | Presentacion | 6 | 6 | Estancia, Malinao | 2 | 2 |
| Pio Duran *poblacion* | 19 | 19 | Cale/Naga, Tiwi | 5 | 5 | Buyo, Manito | 2 | 2 |
| Ragay *poblacion* | 18 | 18 | Banga Caves, Ragay | 5 | 5 | Tambo, Buhi | 2 | 2 |
| Buhi *poblacion* | 17 | 17 | Sto. Domingo, Nabua BUA | 4 | 4 | Mananao, Tinambac | 2 | 2 |
| Ocampo *poblacion* | 17 | 17 | Danao, Magurang, Polangui | 4 | 4 | Ilawod, Guinobatan | 1 | 1 |
| Pasacao *poblacion* | 17 | 17 | Catabangan, Ragay | 4 | 4 | Pantao, Libon | 1 | 1 |
| Sto. Domingo *poblacion* | 16 | 16 | Sinuknipan, Del Gallego | 4 | 4 | Colacling, Lupi BUA | 1 | 1 |
| Del Gallego *poblacion* | 16 | 16 | Barcelonita, Cabusao BUA | 4 | 4 | San Roque, Daraga | 1 | 1 |
| Caramoan *poblacion* | 15 | 15 | Maguiring, Calabanga | 4 | 4 | San Roque, Tabaco BUA | 1 | 1 |
| Malinao *poblacion* | 14 | 14 | Burabod, Lagonoy BUA | 4 | 4 | Canaman, Pasacao | 1 | 1 |
| Canaman *poblacion* | 13 | 13 | Tamban, Tinambac | 4 | 4 | Bonga, Bacacay | 1 | 1 |
| Libon *poblacion* | 13 | 13 | Ombao, Bula | 4 | 4 | Cotmon, Camalig | 1 | 1 |
| Bato *poblacion* | 13 | 13 | Maangas, Presentacion | 4 | 4 | San Antonio, Tabaco | 1 | 1 |
| San Jose *poblacion* | 13 | 13 | Impig, Sipocot | 4 | 4 | Palsong, Bula BUA | 1 | 1 |
| Bombon *poblacion* | 13 | 13 | Tierra Nevada, Tinambac | 4 | 4 | Baligang, Camalig | 1 | 1 |
| Minalabac *poblacion* | 12 | 12 | Quipayo, Calabanga BUA | 3 | 3 | Masarawag, Guinobatan | 1 | 1 |
| San Jose, Pili BUA | 12 | 12 | San Gabriel, Pamplona | 3 | 3 | Muladbucad, Guinobatan | 1 | 1 |
| Polangui | 11 | 11 | Bahao, Libmanan BUA | 3 | 3 | Antipolo, Minalabac | 1 | 1 |
| Balatan | 11 | 11 | Baranghawon, Mariroc BUA | 3 | 3 | Nato, Sangay | 1 | 1 |
| Milaor | 11 | 11 | Catagbacan, Goa BUA | 3 | 3 | Sagpon, Daraga | 0 | 0 |
| San Fernando | 11 | 11 | Salugan, San Jose | 3 | 3 | Malinao-San Isidro, Libmanan | 0 | 0 |
| Gainza | 11 | 11 | Nagoron, Polangui | 2 | 2 | Gibgos, Caramoan BUA | 0 | 0 |
| Ligao | 11 | 11 | Tinago, Ligao | 2 | 2 | Sogod, Bacacay | 0 | 0 |
| Magarao | 10 | 10 | Sta. Justina, Buhi | 2 | 2 | San Vicente, Jovellar | 0 | 0 |

Table 3.7. (Cont'd.)

| Settlement | Scale Score | Scale Step |
|---|---|---|
| Balogo, Oas | 0 | 0 |
| San Fernando-Sto. Domingo BUA | 0 | 0 |
| Hiwacloy, Goa | 0 | 0 |
| Lamon-Masalay, Goa | 0 | 0 |
| Sipaco, Lagonoy BUA | 0 | 0 |
| Dalupasan, Pasacao | 0 | 0 |
| Vito, Siruma | 0 | 0 |
| Canangcan, Tigaon | 0 | 0 |
| May-Anao, Tigaon | 0 | 0 |

Comparison of scale scores with profiles of economic, social, physical and demographic characteristics indicates that Naga and Legaspi are clearly the Basin's primary central places, but that level II centers do not differ from each other significantly or from some level III communities. Some level III communities are indistinguisable, for all practical purposes, from many larger settlements in level IV. In reality, then, there is little functional specialization or division of labor among settlements in the Bicol River Basin. This apparently reflects the predominance of its subsistence agricultural economy and low levels of income.

Not suprisingly, within the national spatial system of the Philippines, even the Bicol Basin's largest centers – the two provincial cities – are only third level settlements. An analysis of the Philippines settlement hierarchy recently undertaken by the PPDO of the Department of Public Works designates Manila as the nation's primate city, which is at least 10 times the size of the only two other regional centers, Davao and Cebu. Naga and Legaspi fall within a third level of settlements performing sub-regional commercial and administrative functions. Table 3.8 shows all the large "manufacturing and processing" establishments in Bicol Basin in 1975. It shows that while the two cities account for almost 40% of all large establishments, these establishments do not represent a modern manufacturing sector. In fact, these two centers contain virtually no real manufacturing activities and, except for limited agricultural exports, provide little or no economic base for exchange with other centers outside the Basin. They have obviously limited absorptive capacity for migrants, offer limited non-agricultural employment opportunities. They are currently mere channels for population out-migration and the outflow of resources from the Basin rather than stimulators of area-wide development.

### Population Thresholds

Central place theory defines the threshold of a function as the "minimum number of consumers necessary to support the performance of that function. Strictly speaking, the concept of threshold refers to purchasing power rather than numbers of people."[8] But since data on purchasing power are rarely easy to obtain, many threshold studies substitute the size of the smallest center in which the function appears, although effective thresholds include consumers outside of the center.

In the Bicol River Basin, however, threshold analysis yields few meaningful results because many functions appear very irregularly in the scalogram (figure 9). Tabel 3.9 presents the few threshold values that were deemed valid. Ideally, threshold analysis should contribute greatly to a construction of a hierarchy of functions which can be useful in analyzing sets of functions, especially as they compare against the 4-level settlement structure discussed earlier. Nevertheless, the threshold exercises underline the inarticulation of the Basin's central place system in terms of a viable pattern of central functions sufficiently distributed in appropriate centers.

[8]John U. Marshall, *The Location of Service Towns: An Approach to the Analysis of Central Place Systems*. Toronto: University of Toronto Press, 1969, p. 97.

### Capabilities of Functions

Reliance on secondary data in the study limited the extent and depth of analysis that could be made regarding the capacities of level I settlements to support a wide variety of economic and social functions. The limited data do show, however, that not only are functions found in few central places, but that they are generally weak in terms of serving residents of the places in which they are located. For example, only 13 settlements in the Basin have piped water systems: Legaspi/Daraga, Ligao and Oas, Polangui, Tabaco, Iriga, Libmanan and Cabusao, Naga, Camaligan, Canaman, and Magarao. It might be mentioned that the Iriga system has been inoperative since 1970, and all but one do not meet present domestic water demand. At present, functioning systems serve only 19 to 45 percent of potential users in their respective areas. Only Libmanan-Cabusao seems to have a system adequately meeting present demands, although even its municipal authorities insist that the system needs expanding. Exports have ascertained that the system needs to be improved to make distribution more efficient and to insure proper safety measures. Such a state of inefficiency and inadequacy of urban function obtains throughout the Basin's central places – even in the two relatively large centers of Naga and Legaspi.

## SUMMARY

Spatial and functional analyses indicate that the Bicol River Basin functional and settlement structure is extremely skewed. Significant economic and social functions are inequitably distributed in favor of the few relatively urbanized centers in the Basin.

This situation, it may be argued, is not necessarily problematic. Indeed, for the sake of efficiency and economy, facilities ought to be located

Figure 8. Scalogram showing centrality of settlements.*

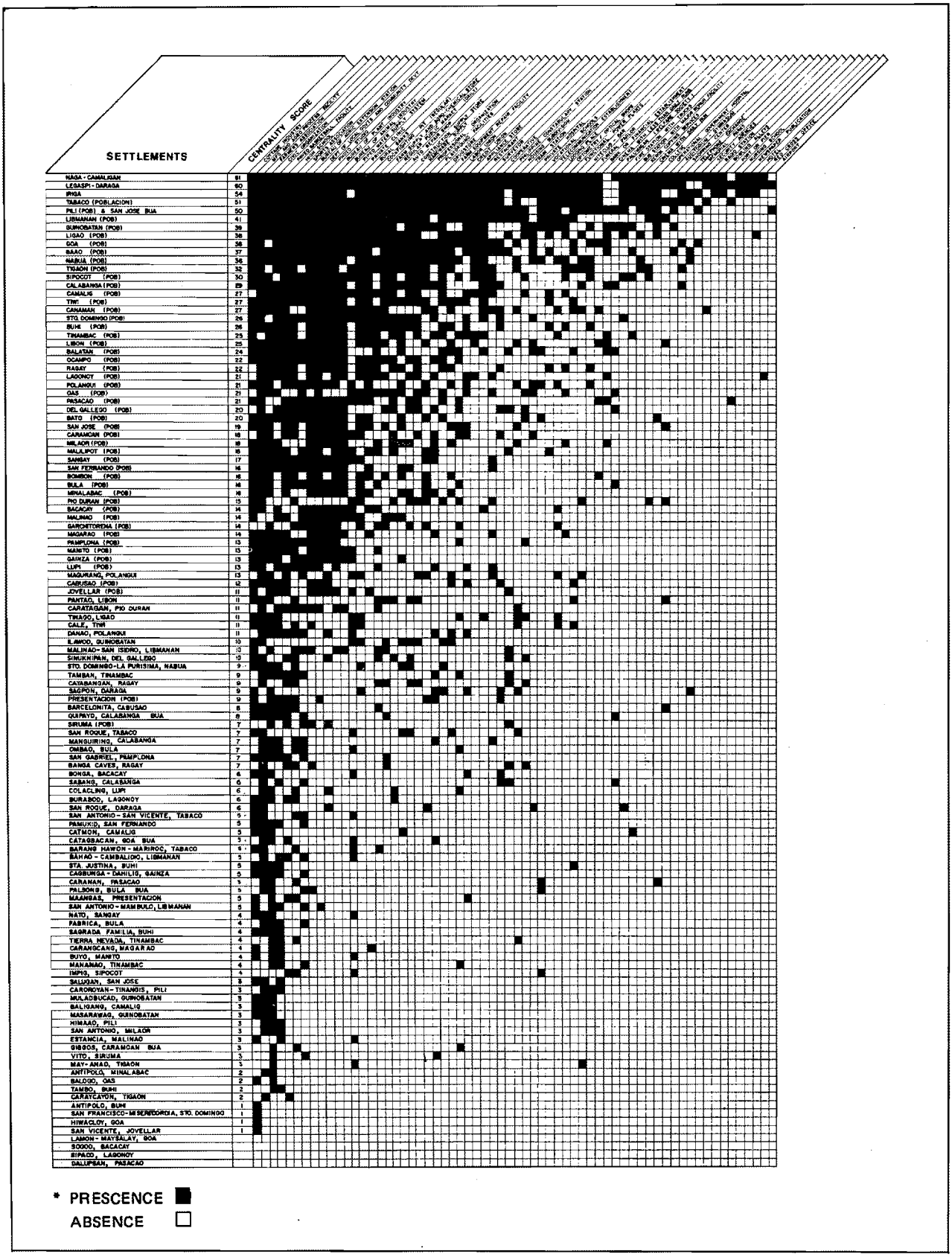
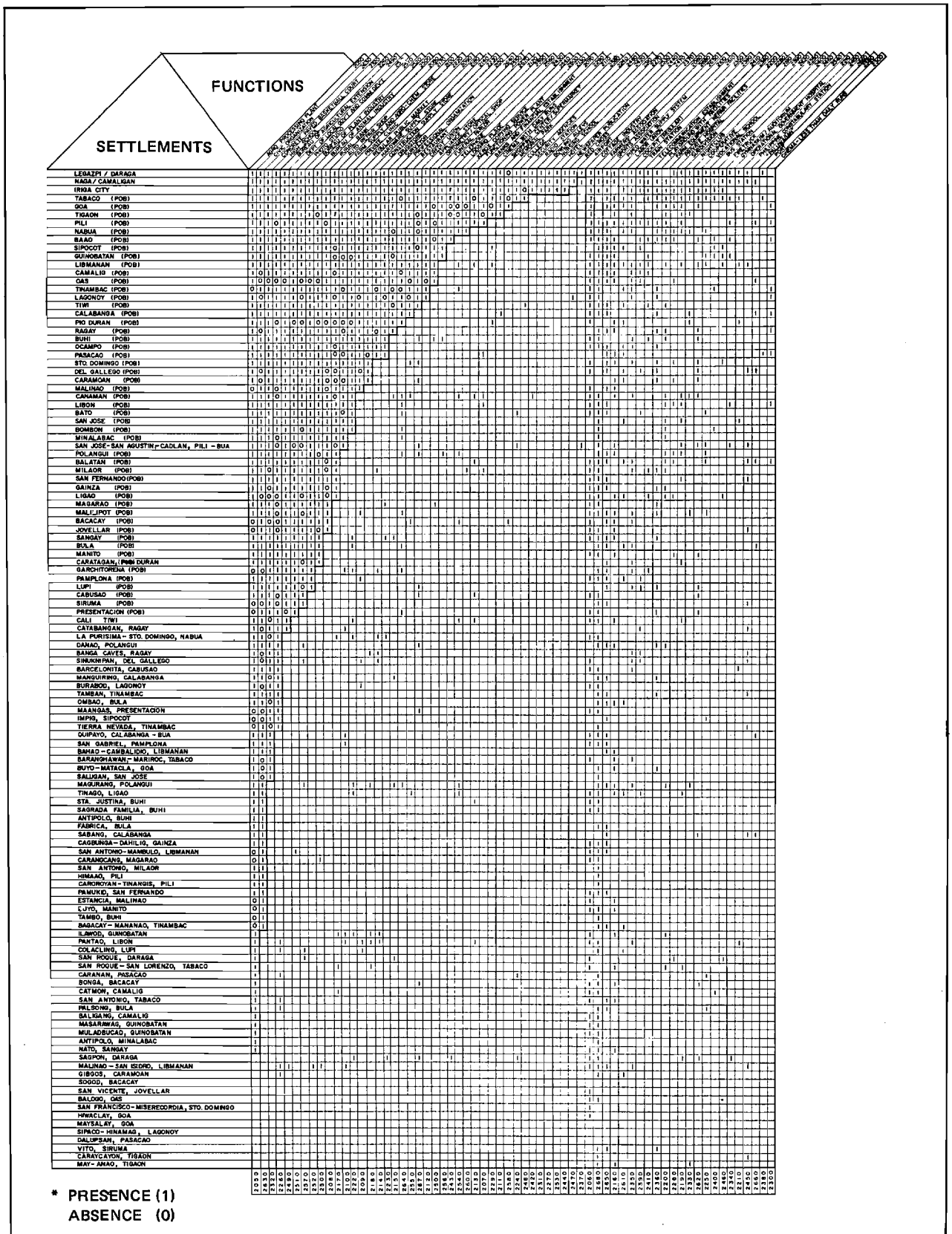


Figure 9. Manual scalogram of urban functions.*




* PRESENCE (1)
ABSENCE (0)

Table 3.8 Large manufacturing and processing establisments[a] in Bicol River Basin, 1975.

| Location | Craft Industry (wood and abaca) | | Pulp and Paper | | Agro-industries (rice-mills, feed-mills and equip. mfg.) | | Food and beverages | | Construction | | Metal work | | Logging | | Tobacco (chewing) production | | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Naga-Camaligan | 1 | 2.4 | – | | 7 | 70.0 | 12 | 28.6 | 1 | 100 | 1 | 100 | 2 | 40.0 | 1 | 50.0 | 25 | 23.9 |
| Legaspi-Daraga | 5 | 12.2 | – | | – | | 9 | 21.4 | – | | – | | 1 | 20.0 | – | | 15 | 14.4 |
| Sto. Domingo | 9 | 22.0 | – | | – | | – | | – | | – | | – | | – | | 9 | 8.6 |
| Malilipot | 11 | 26.8 | – | | – | | – | | – | | – | | – | | – | | 11 | 10.5 |
| Camalig | 8 | 19.5 | 1 | 33.3 | – | | 3 | 7.1 | – | | – | | – | | – | | 12 | 11.5 |
| Tabaco | 3 | 7.3 | – | | – | | 3 | 7.1 | – | | – | | – | | 1 | 50.0 | 7 | 6.7 |
| Bacacay | 3 | 7.3 | – | | – | | – | | – | | – | | – | | – | | 3 | 2.9 |
| Tiwi | 1 | 2.4 | – | | – | | – | | – | | – | | – | | – | | 1 | 0.9 |
| Canaman | – | | – | | 1 | 10.0 | – | | – | | – | | – | | – | | 1 | 0.9 |
| Pili | – | | – | | 1 | 10.0 | 1 | 2.4 | – | | – | | – | | – | | 2 | 1.9 |
| Milaor | – | | – | | 1 | 10.0 | 1 | 2.4 | – | | – | | – | | – | | 2 | 1.9 |
| Lupi | – | | – | | – | | – | | – | | – | | 2 | 40.0 | – | | 2 | 1.9 |
| Guinobatan | – | | – | | – | | 3 | 7.1 | – | | – | | – | | – | | 3 | 2.9 |
| Polangui | – | | – | | – | | 3 | 7.1 | – | | – | | – | | – | | 3 | 2.9 |
| Bato | – | | – | | – | | 1 | 2.4 | – | | – | | – | | – | | 1 | 0.9 |
| Pio Duran | – | | – | | – | | 1 | 2.4 | – | | – | | – | | – | | 1 | 0.9 |
| Goa | – | | – | | – | | 1 | 2.4 | – | | – | | – | | – | | 1 | 0.9 |
| Libmanan | – | | – | | – | | 1 | 2.4 | – | | – | | – | | – | | 1 | 0.9 |
| Sipocot | – | | – | | – | | 1 | 2.4 | – | | – | | – | | – | | 1 | 0.9 |
| Pasacao | – | | – | | – | | 1 | 2.4 | – | | – | | – | | – | | 1 | 0.9 |
| Malinao | – | | – | | – | | 1 | 2.4 | – | | – | | – | | – | | 1 | 0.9 |
| Tigaon | – | | 1 | 33.3 | – | | – | | – | | – | | – | | – | | 1 | 0.9 |
| Presentacion | – | | 1 | 33.3 | – | | – | | – | | – | | – | | – | | 1 | 0.9 |
| Total | 41 | 100.0 | 3 | 100.0 | 10 | 100.0 | 42 | 100.0 | 1 | 100.0 | 1 | 100.0 | 5 | 100.0 | 2 | 100.0 | 105 | 100.0 |

[a]Large establishments- those with ₱50,000 gross income yearly and with at least 10 employees.

Source: Directory of large establishments by industry and by province, 1975 NCSO.

Table 3.9. Percentages of Bicol River population in barrios with functions and threshold values.

| Function | Number of Settlements w/Functions | Percentage of Settlements Possessing Functions[a] | Percentage of Bicol Pop. Living in Barrios w/ Functions[b] | Threshold Value |
|---|---|---|---|---|
| Farmers' association | 583 | 41.06 | 36.54 | – |
| Mfg. processing plant | 410 | 48.87 | 31.72 | 1,013 |
| Cottage industry | 379 | 26.69 | 25.65 | – |
| Civic organization | 379 | 26.69 | 25.77 | – |
| Piped water supply system | 178 | 12.54 | 30.78 | – |
| Sports association | 193 | 13.59 | 34.67 | – |
| Concrete paved basketball facility | 191 | 13.45 | 36.91 | – |
| High school | 111 | 7.82 | 32.50 | 1,642 |
| Auto repair shop | 55 | 3.87 | 25.46 | 2,055 |
| Private clinic | 54 | 3.80 | 26.44 | 3,329 |
| Bureau of Agric. Extension | 87 | 6.13 | 29.12 | – |
| Photographic studio | 68 | 4.79 | 27.54 | – |
| Cooperative | 31 | 2.18 | 18.17 | – |
| Professional organization | 58 | 4.08 | 23.42 | – |
| Construction supply store | 48 | 3.38 | 23.65 | – |
| Hardware and supply store | 44 | 3.10 | 23.73 | 3,431 |
| Bureau of Plant Industry | 61 | 4.30 | 26.65 | 3,008 |
| Subdivision | 40 | 2.82 | 20.60 | – |
| Farm supply and agro-chemical store | 48 | 3.38 | 24.28 | – |
| Bureau of Animal Industry | 55 | 3.87 | 25.98 | – |
| Farm equipment repair facility | 42 | 2.96 | 21.97 | – |
| Restaurant | 27 | 1.90 | 20.56 | – |
| Dept. of Local Gov't and Community Dev. | 58 | 4.08 | 27.59 | – |
| Daily public market | 46 | 3.24 | 24.21 | – |
| Drugstore | 26 | 1.83 | 20.72 | 5,032 |
| Playground with facilities | 42 | 2.96 | 21.28 | – |
| Cockpit, regular | 51 | 3.59 | 24.06 | – |
| Xerox copying services | 13 | 0.92 | 16.56 | 6,645 |
| Rural Bank | 41 | 2.89 | 24.65 | 3,431 |
| Labor union | 32 | 2.25 | 20.28 | – |
| Phil. Constabulary station | 30 | 2.11 | 9.06 | – |
| Appliance store (w/out installment sales) | 25 | 1.76 | 19.72 | 5,032 |
| Surveyor | 24 | 1.69 | 20.00 | – |
| Credit union | 26 | 1.83 | 19.12 | – |
| Night club | 25 | 1.76 | 18.13 | – |
| Functioning power plant or station | 18 | 1.27 | 16.31 | – |
| Telecommunications establishment | 16 | 1.13 | 17.70 | – |
| Vocational school | 19 | 1.34 | 17.14 | – |
| Gymnasium/auditorium | 23 | 1.62 | 14.07 | – |
| Bank or financial establishment | 16 | 1.13 | 16.48 | 6,645 |
| Bus station with major repair facilities | 22 | 1.55 | 16.46 | – |

[a]Percentage of settlements possessing functions was derived using this formula:

$$= \frac{\text{No. of settlements with particular functions}}{\text{Total no. of settlements (w/ or w/out functions)}} \times 100$$

[b]Percentage of Bicol population living in barrios with functions was derived using this formula:

$$= \frac{\text{No. of population with particular function}}{\text{Total Basin population (1,700,069)}} \times 100$$

Table 3.9 (Cont'd.)

| Function | Number of Settlements w/Functions | Percentage of Settlements Possessing Functions[a] | Percentage of Bicol Pop. Living in Barrios w/ Functions[b] | Threshold Value |
|---|---|---|---|---|
| Private hospital | 22 | 1.55 | 19.48 | – |
| Lodging place | 19 | 1.34 | 16.90 | – |
| Funeral parlor | 14 | 0.99 | 17.43 | – |
| Bowling alley | 3 | 0.21 | 13.25 | 48,968 |
| College | 15 | 1.06 | 16.35 | 6,587 |
| Optometry/optical shop | 15 | 1.06 | 18.14 | 6,911 |
| Telephone | 13 | 0.92 | 15.91 | – |
| Train station | 25 | 1.76 | 18.68 | – |
| *Paluwagan* (welfare society) | 11 | 0.77 | 8.25 | – |
| Memorial park | 8 | 0.56 | 9.07 | – |
| Cinema with daily runs | 12 | 0.85 | 15.71 | – |
| Shopping center | 9 | 0.63 | 16.00 | 9,113 |
| Operational government hospital | 11 | 0.77 | 12.68 | – |
| Hotel | 4 | 0.28 | 13.44 | 14,528 |
| Security agency | 4 | 0.28 | 11.48 | 14,528 |
| Radio station | 6 | 0.42 | 14.91 | – |
| Cinema with less than daily runs at least once a week | 10 | 0.70 | 3.20 | – |
| Port | 7 | 0.49 | 6.87 | – |
| Nursing school | 6 | 0.42 | 13.77 | 13,985 |
| Newspaper publication | 5 | 0.35 | 13.47 | – |
| Fire truck | 10 | 0.72 | 16.28 | – |
| Red Cross | 3 | 0.21 | 10.84 | – |
| Airport | 2 | 0.14 | 10.99 | 8,641 |

in as few as possible central places which by virtue of central location and accessibility can serve the needs of all the population within a given area. Analyses show, however, that most central functions are too concentrated in few centers. Moreover, these centers are confined in a narrow strip along the Manila South Road and are not accessible to the majority of the rural population in the interior areas and hinterlands of the Bicol Basin. In addition, even among these centers, central facilities and services are unevenly distributed. An analysis of 121 centers, designated as "built-up areas," showed that nearly 60% of all central functions appear in less than 20% of these centers. More than 20% of these places did not contain any of the central functions.

This is not all. One would hope that rural communities already deprived of effective access to central functions would at least have the benefit of basic[9] facilities and goods. Distance and functional analyses of clusters of barrios located 5 kilometers and further from the *poblacions* reveal that very few functions are available in rural communities. The picture that emerges is one of virtual isolation of majority of the Bicol Basin's rural population from urban functions.

The inequitable distribution and inadequacy of urban functions is reflected in the highly skewed hierarchy of settlements in the Basin. A four-level hierarchy was determined with 96% of all the Basin's settlements belonging to the fourth level (non-central places), a category denoting the absence of any significant sets of functions. As expected, the hierarchy exhibited very little functional specialization or division of labor. Actually, only the Basin's two provincial centers (level I) effectively differentiate themselves from the other settlements. This reflects the very limited modern economic sector existing in the Basin. Indeed, outside of the two cities of Naga and Legaspi, there is virtually no secondary sector to speak of. Much of the "manufacturing" activities reported are in fact cottage industries or small agro-processing activities.

Moreover, indications are that even the Basin's existing complement of central places does not generally have the set of functions necessary to serve the economic and social requirements of the rural population, much less the requirements of actively supporting government development efforts in the area. For example, of the 56 identified centers in the Basin, only 33 have public markets, less than half have doctors and dentists, and not many have pharmacies or drugstores. With regards higher level urban utilities such as urban power or water systems, BRBDP evaluation points to the need for large-scale upgrading where these systems exist.

From all these, the conclusion that the Basin's urban structure is neither functionally adequate nor spatially organized to support the BRBDP's rural development thrust cannot be avoided. While the analysis in Chapter II shows that underdevelopment in the municipalities as a whole stems from inaccessibility, the analyses in this chapter indicate that the Basin's current functional and settlement structure is one factor that perpetuates the inequitable pattern of development in the area.

[9]Basic facilities are small-threshold and low-level services constituting the minimum needed by people, e.g., rural health unit, elementary or high school, periodic market or farm supply store and agricultural extension service.

# CHAPTER IV

# SPATIAL LINKAGES

### The Importance of Linkages

Rural development requires extensive interaction between rural communities and the urban centers that serve as markets and as locations for services and facilities needed by rural areas. Spatial integration as a prerequisite to rural development requires intensive interaction between all levels of settlements – from villages to market towns to intermediate cities and metropolitan centers. "Neither the goals of increased productivity and income expansion, nor those of greater equity in income distribution can be attained without increasing interaction. Spatial integration transforms societies and accelerates modernization."[1]

Where linkages are absent or very weak, localized dependence and subsistence agriculture are perpetuated in rural areas. This slows down development efforts since it is difficult to market agricultural products. Commercialization of agriculture can occur only when a network of mutually dependent organizations and communities emerges in a region. The integration of subsistence communities into a larger regional economy in such areas as the Bicol River Basin can increase the incentives for farmers to attain greater productivity. Linkages or interactions among dispersed groups and organizations are the primary means of expanding the system of exchange and eventually transforming underdeveloped societies. Thus, a number of linkages among settlements in a region and between a region and external places must be strengthened.

[1]D. Rondinelli and K. Ruddle. "Integrating Spatial Development," Ekistics 257, April 1977.

The linkage studies done by the UFRD project investigated the degree of interaction among, and integration of, communities in the Basin. Four types of linkages were studied: economic, physical, social and political-administrative.

*Economic linkages* include the system of exchange of goods and services with public markets as physical nodes. But marketing systems such as those for cereal exchange (especially in dealing with futures) also operate through brokers linked to financing houses. In rural areas, economic linkages take the form of farm-to-market exchange and the flow of farm inputs and processed goods from markets to farms. In a monoculture rice economy such as that of the Bicol River Basin, rice farms must be linked to rice mills and the mills linked to consumer points. The extension of market linkages creates incentives for other types of economic interactions; growth of manufacturing and commercial activities within urban centers is encouraged, and this increases the demand for a wide variety of goods and services, thereby stimulating employment and income among more people. The reach and intensity of economic linkages are heavily dependent on economic organization and the distribution of producers, financiers, marketers and consumers. Economic exchange is stimulated to a high degree by differentiation of economic activities within a region; generally, the higher the degree of specialization among settlements, the greater is the degree of economic exchange.

Regarding *physical linkages,* the most obvious linkage between settlements is the transport network consisting of road, rail, river, sea and air modes of transport. The communication network likewise is part of the physical linkage systems. The importance of both cannot be overemphasized because through them flow people, goods, ideas, values, attitudes, and communications. The transport system provides very basic links that connect centers (settlements) and areas (urban hinterlands, rural farming areas) that form the basic elements of a spatial system.

Moreover, transportation networks reduce travel time, lower shipping costs, widen marketing opportunities, facilitate movement of labor (and migration) and extend services to rural communities. There seems to exist a positive relationship between investment in transport and economic growth. In many parts of developing countries, the construction of new roads or the upgrading of existing ones create new market centers or invigorate small ones.

*Social linkages* shape the pattern of settlements and determine the degree of interaction among communities. Association among settlements is defined by traditional social systems of kinship, intermarriages, and historical and cultural ethnic relations. While urban transactions can be impersonal and objective, based mainly on commercial practices, most rural transactions are strongly influenced by kinship patterns, patron-client relationships, the *compadre* system,[2] and traditional credit system. Religious festivities such as fiestas,[3] or traditional annual town-wide gatherings, channel people into particular places. The patterns of migration, either permanent or temporary (for work), influence the pattern of urban concentration and the nature of travel within a region. Shopping trips from rural areas to market towns are not only economically motivated;

[2]A system of extended kinship forged by being godparent to a child.

[3]Feast of a town's patron saint, annually celebrated by 2-day feasting and public activities in the Philippines.

they are also occasions to see the town, go to movie-houses, restaurants, bars, and enjoy games, dances, and other social activities.

*Political-administrative linkages* are reflected in formal government structures and informal relationships, flows of budget resources, the hierarchy of administrative authority, supervision and approval patterns, transactions among government agencies and political subdivisions, informal political influence systems and decision chains, and interdependencies of national, provincial, municipal and *barangay* political organizations and the systems of public service delivery. The importance of organizational linkages, especially in rural areas, must be viewed in the light of their ability to integrate the spatial system either through direct government intervention in economic activities or by providing the right environment and conditions through incentives so that the community itself provides the organizational inputs to development. In developing countries, active intervention on the part of the government is usual. "As urban centers grow and new central places emerge, political and administrative linkages change. The number of social functions performed by government tends to increase as communities grow."[4]

The existence of political-administrative linkages encourages increased participation of organized social groups in the affairs of the government. Political-administrative interactions between settlements and between levels of political subdivisions promote the emergence of social and economic groups, especially in rural areas. Participation of these groups in political decision-making helps government control to become decentralized. Such integration can promote more equitable delivery of services as recipient groups begin to influence the allocation of resources.

[4]Rondinelli, *op. cit.*

## General Findings

Some general observations emerge from the analysis of the linkage studies:[5]

### Two Major Subsystems in BRB

An analysis of all four types of linkages indicates that the spatial system in the Bicol River Basin is dispersed and not well-integrated. Basically, there are two separate sub-basin spatial systems: one in Camarines Sur with a strong central node in Naga City, the unofficial provincial capital, and another in Albay with a somewhat weaker node in the provincial capital of Legaspi City. These two administrative centers are also the two largest market centers. Transport routes converge in Naga and Legaspi, and higher level services and facilities agglomerate in these two urban centers. It is not surprising, then, that physical, social, economic and political links focus on these two settlements.

But while Naga and Legaspi are centers of their own provincial hinterlands and are linked strongly to a set of nearby towns, the linkages between the two provincial centers are not intensive. For instance, there is no travel link between Naga and Legaspi beyond 230 person trips per day, which is a low and economically insignificant level for an area of over 700,000 hectares containing 1.7 million people in 1,419 settlements. The Basin is not an integrated economic spatial system, and the inclusion of Sorsogon within its boundaries adds a third spatial subsystem.

The integration of these Basin subsystems offers a prime challenge to the planning and implementation strategies of BRBDP which espouses an integrated rural development approach. Within these two major Basin subsystems, three minor systems are evident: Tabaco in Albay and Iriga and Goa in Camarines Sur. Interactions within the areas covered by the three minor systems are centered in the three largest towns of each. The average reach[6] from the central node outward is 5 kilometers for the three minor systems and 20 kilometers for the two major Basin subsystems, indicating highly localized influence areas. For instance, the distance between Naga and Iriga is 38 kilometers, and that between Naga and Legaspi is 102 kilometers.

[5]Six major market centers (town level) and six periodic markets (village level) were surveyed for origin and destination of market transactions. Data from the BRBDP Transport Study and SSRU Travel Patterns were used in the study on transport linkages. Origin studies were conducted on hospitals (10 beds and up), large schools (technical schools, high schools and colleges), and brides and grooms. The UP College of Public Administration was contracted for a sub-study on political-administrative structures and services linkages.

### Clustering of Settlements

Analysis of the four sets of linkages, measurement of the geographic proximity of the system's settlements to each other, and examination of transport access among the Basin settlements indicate a definite pattern of clustering (figure 10).

Naga City is the economic center for a cluster of settlements closely linked to it. Eight neighboring town centers within 10 kilometers of Naga have become its satellites, being heavily dependent on it for many urban functions, especially marketing. The dependency of these eight settlements on Naga is so great that no public markets have developed in any of them. Moreover, five fairly large towns beyond a 10-kilometer radius from Naga City also have strong linkages to it. A number of other settlements have indirect linkages with Naga through intermediate towns. For instance, Bula links first with Pili, Cabusao with Libmanan, and the three railroad towns of Lupi, Ragay and Del Gallego with Sipocot. The three latter centers in turn have direct ties with Naga.

The Legaspi cluster is structured in much the same way as the Naga cluster, although the towns linking directly with Legaspi as the central node are fewer and are relatively farther from it compared to

[6]The reach of an area is the distance or extent to which its influence is felt. This is measured in terms of kilometrage.

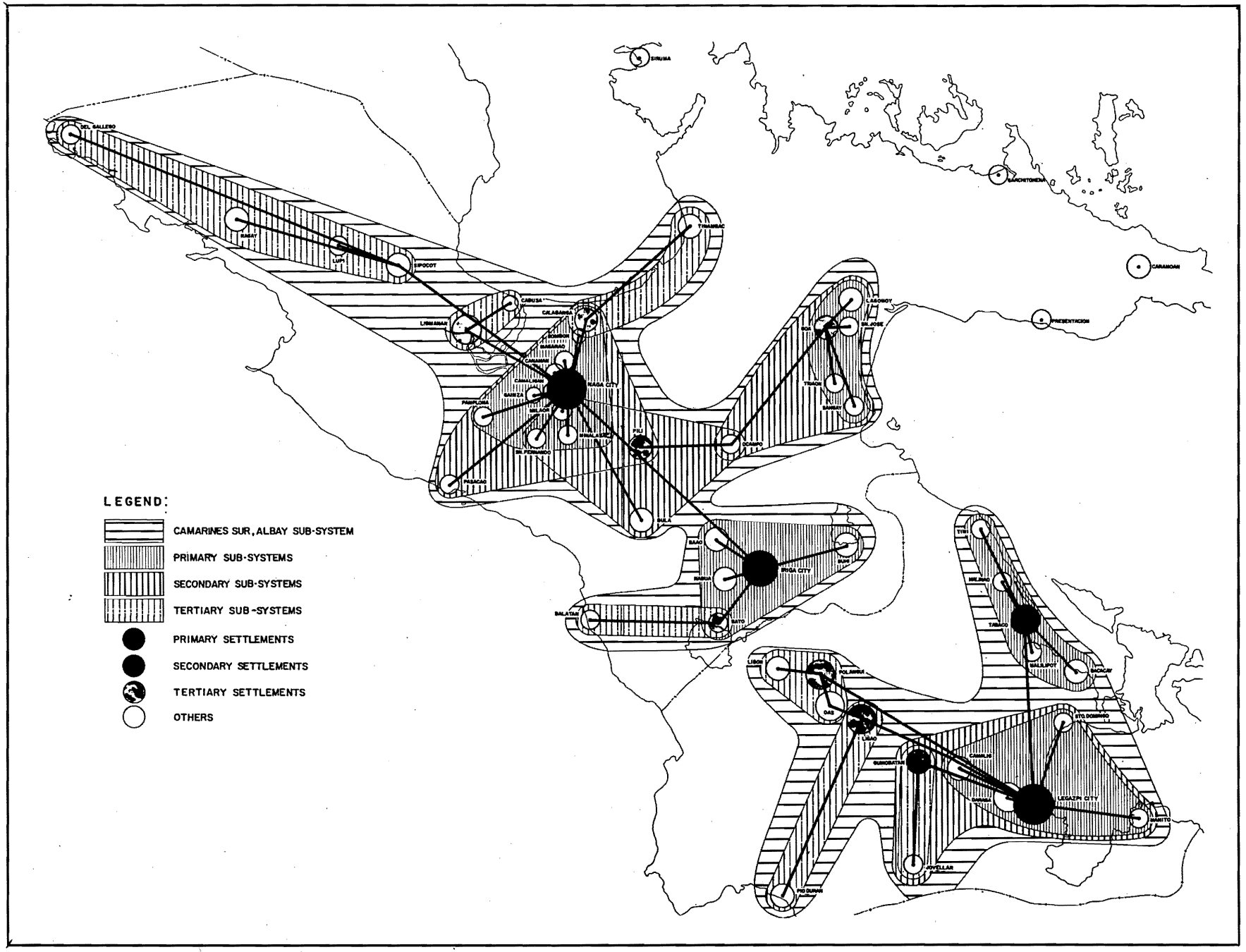



Figure 10. Settlement Clusters.

those directly linking with Naga. These towns are Guinobatan, Polangui, and Ligao, connected to Legaspi mainly through roads. Each has linkages with one or two other smaller settlements nearby and has stronger interactions with Legaspi.

The minor nodes of Iriga, Goa and Tabaco are linked strongly to their respective major centers: Iriga and Goa directly interact with Naga, and Tabaco with Legaspi.

### Limited Interaction between BRB Clusters

Analysis of travel patterns, markets and social services indicates very limited interaction between the Basin's two major clusters of settlements. This is due in part to the nature of prevailing market functions which is merely transfer trading of similar goods rather than active exchange trading of different goods and services. The similarity between BRB agricultural produce (palay-rice, copra/coconut and abaca, in that order) and imported manufactured goods from Manila does not encourage economic exchange. Communities in the Basin have insignificant manufacturing activities, mostly rice milling, and they therefore have no particular specialization which can encourage labor movement or exchange of goods. Schools and hospitals serve local residents mostly, except those in Legaspi which also serve settlements in nearby Sorsogon.

## Economic Linkages[7]

The Bicol River Basin is a dependent agricultural economy linked to the national metropolitan center, Metro Manila. Lacking agro-industrial processing facilities, BRB is a raw materials supplier to the Philippines' primate city, on which the Basin depends for processed goods. This trade relationship between an urban industrial economy and a rural agricultural economy is to the disadvantage of the latter. The problem is exacerbated by poor transport links between the Basin and Manila. Typhoons, which come regularly by the end of the year, can block the Bicol highway and stop rail services and airline flights, isolating the Basin until repairs have been made.

### Major Markets in the Basin

The analysis of major market linkages shows that the Basin's market linkages are localized and are mainly agriculture (see figures 11 and 12):

1. Basin markets are localized centers.

An analysis of commodity linkages of six selected major markets in the Basin indicates that they function largely as local markets. In Naga, for instance, 47 percent of the commodity transactions are intra-city transactions (table 4.1). The remaining 53 percent are inter-settlement transactions made between Naga City and areas ranging from 2 to 454 kilometers away (Manila). The Legaspi market shows similar proportions of transactions. Trading in Tabaco and Ligao is confined within their own areas (60 percent and 53 percent, respectively). In addition, if the trading links of Tabaco to its immediate neighboring municipality only 5 kilometers away is considered localized, fully 70 percent of Tabaco's trading activities would be local.

Goa, the smallest market among the six, exhibits the same localized characteristic as Tabaco, having 68 percent of its trading links within itself and with neighboring San Jose only 3.5 kilometers away. In fact, for all six major markets, if a radius of 10 kilometers is considered localized, i.e., servicing the immediate locality, an average of 62 percent of their links would be such. Since Naga and Legaspi have 11 to 12 percent of their transactions with Manila, only one-fourth of their linkages can be considered as indicating some centrality.[8]

2. Basin markets have limited reach.

The provincial market centers of Naga and Legaspi do not link to all places within their respective hinterlands. Naga reaches 28 out of 37 Camarines Sur municipalities (table 4.2), while Legaspi is directly linked to 12 out of 17 Albay municipalities. However, the transactions of Naga with 13 municipalities in Camarines Sur are only occasional or less than one percent of the time. Legaspi transactions with two of the 12 Albay municipalities linked to it can be considered occasional, indicating a more compressed economic hinterland.

The reach of Naga and Legaspi outside their own respective provinces is minimal. Naga transacts with only four municipalities, and, with two of these, only occasionally or less than one percent. Legaspi, on the other hand, transacts with only five Camarines Sur municipalities out of 37. The limited interaction between the major market centers is indicated by their very low direct trading exchange. Naga's commodity transactions with Legaspi are only 3 percent of Naga's total transactions. Conversely, Legaspi's transactions with Naga are only 2 percent of Legaspi's total commodity transactions.

Size and reach of markets appear to be closely associated. The number of transactions of Naga and Legaspi with areas outside the region is more than twice that of the larger markets of Tabaco and Iriga and four to six times more than that of the smaller markets of Ligao and Goa. Except those with Manila, however, these interactions are mostly occasional. The limited reach of the Basin's markets becomes clear when distance in kilometers is considered. On the

[7] Six major markets, namely, Naga, Legaspi, Iriga, Tabaco, Ligao and Goa, were surveyed to investigate the commodity flows in the Basin which would indicate the reach of commodities to other Basin settlements and the degree of economic interaction between settlements. One hundred each of producers and middlemen were sampled and interviewed.

[8] Centrality of functions or of a central place means the degree to which a place serves residents of places other than its own.

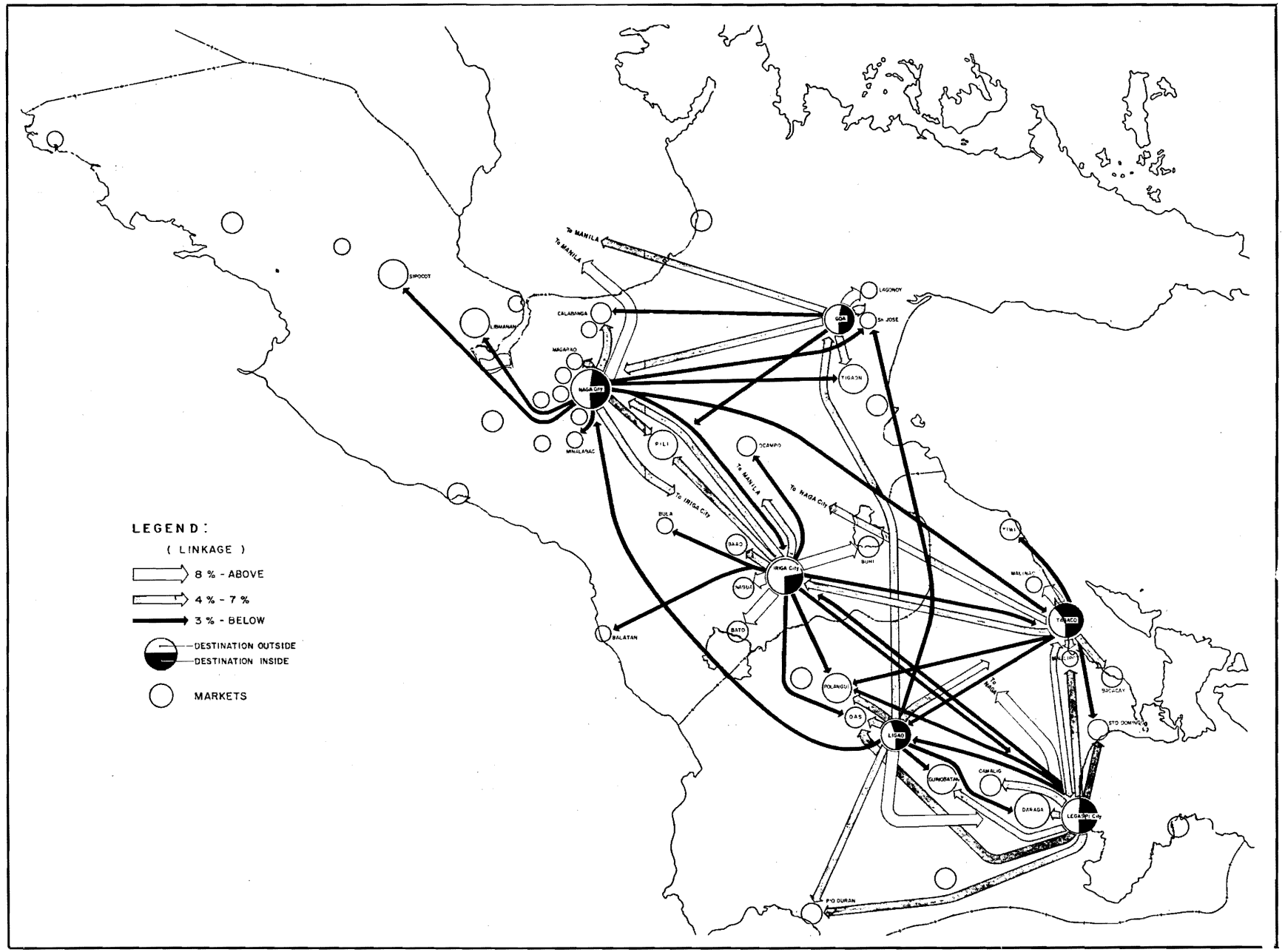



**Figure 11. Linkage of 6 Major Markets (Agricultural & Manufacturing)**

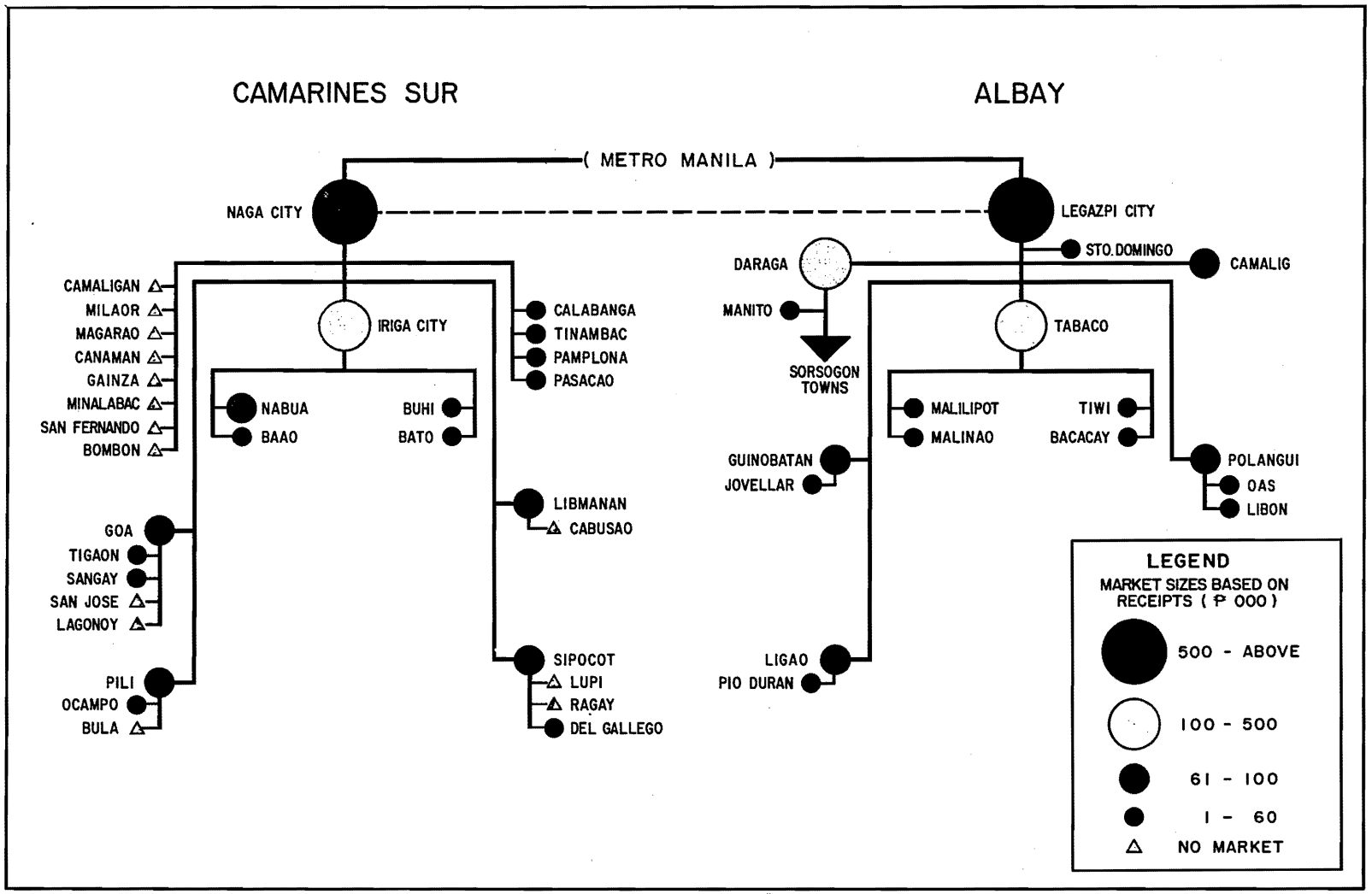



Figure 12. BRB Organization of Market Centers.

Table 4.1. Structure of market centers, Bicol River Basin.

| Level | Market Center | Larger Market Center | Population 1975 (000) | Market Receipts 1975 (000) | Distance from Larger Market Center (km.) |
|---|---|---|---|---|---|
| CAMARINES SUR | | | | | |
| I. Primary[a] Markets | Naga | Manila | 83.0 | 960.0 | 454.0 |
| A. Neighboring areas[b] | | | | | |
| 1. Camaligan | | Naga | 9.8 | NM[c] | 2.0 |
| 2. Milaor | | Naga | 13.1 | NM | 3.2 |
| 3. Magarao | | Naga | 11.8 | NM | 4.3 |
| 4. Canaman | | Naga | 14.5 | NM | 4.7 |
| 5. Gainza | | Naga | 5.9 | NM | 5.2 |
| 6. Minalabac | | Naga | 27.0 | NM | 3.4 |
| 7. San Fernando | | Naga | 15.5 | NM | 8.2 |
| 8. Bombon | | Naga | 7.4 | NM | 9.4 |
| Total (average) | | | 105.0 | | (5.3) |
| B. Immediate areas[d] | | | | | |
| 1. Pamplona | | Naga | 18.3 | 7.7 | 12.5 |
| 2. Calabanga | | Naga | 40.0 | 25.1 | 12.7 |
| 3. Pasacao | | Naga | 21.0 | 4.8 | 26.0 |
| 4. Tinambac | | Naga | 34.4 | 12.0 | 34.2 |
| 5. Pili | | Naga | 36.6 | 77.5 | 15.0 |
| Total (average) | | | 150.3 | 127.1 | (20.0) |
| C. Intermediate areas | | | | | |
| 1. Bula | | Naga | 30.2 | 21.8 | 8.0 |
| 2. Libmanan | | Naga | 66.6 | 77.6 | 31.8 |
| 3. Cabusao | | Naga | 10.1 | NM | 22.9 |
| 4. Sipocot | | Naga | 39.4 | 63.6 | 37.9 |
| 5. Lupi | | Naga | 19.6 | NM | 46.1 |
| 6. Ragay | | Naga | 32.7 | NM | 65.0 |
| 7. Del Gallego | | Naga | 13.7 | 6.2 | [e] |
| Total (average) | | | 212.3 | 169.2 | (35.1) |

[a]The terms primary, secondary and tertiary refer to size, not to functional roles and complexity.
[b]Within 10-km. radius.
[c]No market.
[d]Beyond 10-km. radius; Siruma markets at Tinambac.
[e]The Del Gallego residents market at Tagkawayan, a town which is only less than one hour away by rail.

Source: UFRD Secondary Research based on NCSO 1975 data, Municipal Treasurer's 1975 Annual Report and BRBDP Transport Study, 1976.

Table 4.1 (Contd.)

| Level | Market Center | Larger Market Center | Population 1975 (000) | Market Receipts 1975 (000) | Distance from Larger Market Center (km.) |
|---|---|---|---|---|---|
| II. Secondary Markets | Iriga | Naga | 75.6 | 298.6 | 38.0 |
| A. Neighboring areas | | | | | |
| 1. Baao | | Iriga | 30.2 | 21.8 | 8.0 |
| 2. Nabua | | Iriga | 48.6 | 86.3 | 5.7 |
| 3. Buhi | | Iriga | 44.2 | 29.8 | 14.0 |
| 4. Bato | | Iriga | 28.4 | 10.6 | 12.2 |
| 5. Balatan (linked to Nabua) | | Iriga | | | f |
| Total (average) | | | 151.4 | 148.5 | (10.0) |
| III. Tertiary Markets | | | | | |
| A. Goa | Naga | | 34.0 | 100.8 | 52.0 |
| 1. Immediate areas | | | | | |
| a. San Jose | | Goa | 21.8 | NM | 3.5 |
| b. Lagonoy | | Goa | 33.2 | NM | 7.3 |
| c. Tigaon | | Goa | 25.2 | 71.0 | 7.5 |
| d. Sangay | | Goa | 18.0 | 2.0 | 12.5 |
| e. Ocampo | | Goa | 36.9 | 3.2 | 24.5 |
| Total (average) | | | 135.1 | 76.2 | (55.3) |
| ALBAY | | | | | |
| I. Primary Markets | Legaspi | Manila | 88.3 | 271.0 | 556.0 |
| A. Neighboring areas | | | | | |
| 1. Daraga | | Legaspi | 63.2 | 237.5 | 2.8 |
| 2. Camalig | | Legaspi | 41.7 | 35.6 | 11.5 |
| 3. Manito | | Legaspi | 13.6 | 1.8 | 41.5 |
| 4. Sto. Domingo | | Legaspi | 17.5 | 15.4 | 14.0 |
| Total (average) | | | 136.0 | 290.3 | (22.3) |
| II. Secondary Markets | Tabaco | Legaspi | 65.2 | 394.0 | 29.4 |
| A. Neighboring areas | | | | | |
| 1. Malilipot | | Tabaco | 20.4 | 5.0 | 4.5 |
| 2. Malinao | | Tabaco | 24.8 | 3.6 | 5.0 |
| 3. Tiwi | | Tabaco | 24.3 | 20.4 | 12.5 |
| 4. Bacacay | | Tabaco | 39.5 | 14.3 | 13.2 |
| Total (average) | | | 109.0 | 43.3 | (35.2) |
| III. Tertiary Markets | | | | | |
| | Guinobatan | Legaspi | 49.7 | 130.0 | 18.2 |
| | Jovellar | Guinobatan | 14.1 | 2.0 | 17.5 |
| | Polangui | Legaspi | 52.5 | 135.0 | 36.9 |
| | Oas | Polangui | 50.2 | 34.2 | 4.6 |
| | Libon | Polangui | 47.8 | 8.0 | 5.8 |
| | Ligao | Legaspi | 61.5 | 74.4 | 27.8 |
| | Pio Duran | Ligao | 31.1 | 42.9 | 36.0 |
| Total (average) | | | 143.2 | 87.1 | (16.9) |

[f]Also the market for isolated towns of Presentacion, Garchitorena and Caramoan with combined population of 60,100.

Table 4.2. Places of intensive links to selected major market centers.

| Intensity of Linkages | MARKET CENTER | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NAGA (CS)[a] | | | LEGASPI (AL)[c] | | | TABACO (AI) | | | IRIGA (CS) | | | LIGAO (AI) | | | GOA (CS) | | |
| | Place | % | km.[b] | Place | % | km. | Place | % | km. | Place | % | km. | Place | % | km. | Place | % | km. |
| Primary: more than 10% | Naga | 47 | 0 | Legaspi | 47 | 0 | Tabaco | 60 | 0 | Iriga | 26 | 0 | Ligao | 53 | 0 | Goa | 46 | 0 |
| | Manila | 11 | 4.54 | Manila | 12 | 556 | Malinao | 10 | 5.0 | Buhi | 12 | 14.0 | Legaspi | 12 | 27.8 | San Jose | 22 | 3.5 |
| | | | | | | | | | | Nabua | 12 | 5.7 | | | | Lagonoy | 15 | 7.3 |
| | | | | | | | | | | Bato | 10 | 12.2 | | | | | | |
| Secondary: 3% to 10% | Calabanga | 8 | 12.5 | Sto. Domingo | 7 | 14.0 | Legaspi | 8 | 29.4 | Baao | 9 | 8.0 | Tabaco | 8 | 57.2 | Tigaon | 5 | 7.5 |
| | Magarao | 5 | 4.3 | Tabaco | 5 | 29.4 | Bacacay | 8 | 13.2 | Manila | 8 | 492.0 | Pio Duran | 5 | 36.0 | Manila | 4 | 452.4 |
| | Pili | 4 | 15.0 | Daraga | 5 | 2.8 | Naga | 4 | 138.7 | Naga | 4 | 38.0 | Oas | 4 | 4.5 | | | |
| | Camaligan | 3 | 2.0 | Camalig | 4 | 11.55 | Malilipot | 3 | 4.5 | Pili | 3 | 23.0 | Polangui | 3 | 9.1 | Naga | 3 | 52.0 |
| | Legaspi | 3 | 102.0 | Oas | 4 | 32.30 | Manila | 3 | 583.5 | | | | Goa (CS) | 3 | 92.5 | | | |
| | | | | Guinobatan | 4 | 18.25 | | | | | | | | | | | | |
| | | | | Pio Duran | 3 | 63.80 | | | | | | | | | | | | |
| | | | | Malilipot | 3 | 24.90 | | | | | | | | | | | | |
| Tertiary: 1% to 3% | Tigaon | 2 | 44.5 | Naga (CS) | 2 | 102.0 | Tiwi | 2 | 12.5 | Polangui | 2 | 28.2 | San Jose | 2 | 96.0 | Calabanga | 1 | 64.7 |
| | Tabaco (AI) | 2 | 138.7 | Polangui | 1 | 36.9 | Polangui | 2 | 30.2 | Balatan | 2 | 30.2 | Legaspi | 2 | 27.8 | Pili | 1 | 37.0 |
| | Canaman | 2 | 4.7 | Ligao | 1 | 27.8 | Sto. Domingo | 1 | 15.4 | Legaspi | 2 | 64.1 | Guino-batan | 2 | 9.55 | | | |
| | Iriga | 1 | 38.0 | | | | Ligao | 1 | 57.2 | Ocampo | 2 | 35.5 | Daraga | 1 | 25.0 | | | |
| | Sipocot | 1 | 37.9 | | | | | | | Bula | 2 | 33.0 | Manila | 1 | 471.5 | | | |
| | San Jose | 1 | 55.5 | | | | | | | Tabaco | 1 | 108.8 | | | | | | |
| | Libmanan | 1 | 31.0 | | | | | | | Oas | 1 | 31.8 | | | | | | |
| | Minalabac | 1 | 3.4 | | | | | | | | | | | | | | | |
| Occasional: Less than 1% | 13 CS towns<br>2 AI towns<br>7 outside region | | | 4 CS towns<br>2 AI towns<br>5 outside region | | | 2 CS towns<br>2 AI towns<br>2 outside region | | | 6 CS towns<br>5 AI towns<br>2 outside region | | | 6 CS towns<br>2 AI towns | | | 6 CS towns<br>3 AI towns<br>1 outside region | | |
| | 15 CS towns<br>4 AI towns<br>8 outside region | | | 5 CS towns<br>12 AI towns<br>6 outside region | | | 3 CS towns<br>8 AI towns<br>3 outside region | | | 15 CS towns<br>8 AI towns<br>3 outside region | | | 8 CS towns<br>7 AI towns<br>1 outside region | | | 12 CS towns<br>3 AI towns<br>2 outside region | | |

[a]Camarines Sur.

[b]Distance in kilometers from market center.

[c]Albay.

Source: UFRD. Market Research, 1977.

average, the reach of the six major markets within the Basin is no more than 14 kilometers (table 4.3). Ligao indicates the farthest average reach of almost 18 kilometers, due perhaps to the fish obtained from Pio Duran 36 kilometers southward to Ragay Gulf. The rest of the selected markets indicate a range of from 12 to 15 kilometers, with Goa having the nearest reach.

As with manufactured goods, the market for agricultural commodities is very localized. For instance, while Naga obtains 73 percent of its agricultural commodities from within 20 kilometers, it sells 73 percent of its goods only in areas within a 10-kilometers radius (table 4.4). It could be said that despite the size of the Naga market, it is, after all, a local market.

3. Basin markets are agricultural markets.

Except for Iriga, the major markets trade more agricultural products than manufactured goods (table 4.5). The smallest market, but with the highest proportions of agricultural goods, is Goa, the central node of five hilly Partido municipalities at the foothills of Mt. Isarog in Camarines Sur. The agricultural goods traded in the six markets are similar: palay, rice, copra, coconut, fresh and dried fish, poultry and livestock; no particular market exhibits any marked specialization for a particular commodity. As stated earlier, processed or manufactured goods come from outside the region (86 percent from Manila), and they are similar for all markets. These processed goods are agricultural-veterinary products, groceries, appliances and household utensils, personal wear, drugs and medicine. The nature of market activity is therefore merely a transfer function and is not even an exchange function, which would explain the very little interaction between markets within the Basin.

An analysis of secondary data for establishments in the Basin indicates that about 13 percent are "manufacturing"; a third are agriculture-related, being mainly rice and corn mills; and the rest are cottage industries, mostly in Albay, turning out hand-made abaca handicrafts. Large industrial manufacturing activities, with a few exceptions, e.g., an oil mill in Legaspi, cannot be found in Bicol, which discourages labor mobility and economic exchange.

Table 4.3. Reach of each market center, average distance (in km.) by source and destination, Bicol River Basin, 1976.

| Market Center | Agricultural | | Manufactured | | Wtd. Average Reach | | |
|---|---|---|---|---|---|---|---|
| | Source | Destination | Source | Destination | Agric. | Mfd. | Mean |
| Naga City | 17.8 | 16.9 | 12.3 | 10.8 | 17.3 | 11.2 | 15.0 |
| Legaspi City | 18.3 | 10.7 | 34.7 | 7.6 | 14.7 | 12.8 | 14.0 |
| Iriga City | 8.1 | 9.7 | 18.7 | 14.7 | 9.0 | 15.8 | 14.8 |
| Tabaco | 12.3 | 2.0 | 37.0 | 10.6 | 8.0 | 20.3 | 12.8 |
| Ligao | 12.2 | 17.8 | 38.3 | 26.3 | 15.0 | 31.0 | 17.8 |
| Goa | 9.2 | 5.6 | 18.2 | 6.7 | 7.0 | 9.6 | 7.5 |
| Average | 13.2 | 10.3 | 23.2 | 12.9 | | | |
| Average for agricultural or manufactured goods | | 11.7 | | 15.7 | | | |
| Average for both agricultural and manufactured goods | | | 13.6 | | | | |

Source: UFRD Market Research, 1977.

4. Basin markets have limited external trade.

Most of the trading activities between municipalities, or 80 to 97 percent of sampled transactions, take place among market centers within the Basin. Export of agricultural commodities consists mostly of copra and abaca, with Legaspi and Tabaco showing the most frequent extra-regional transactions. As may be expected, the smaller markets of Goa and Ligao have minimal export linkages. Iriga has the highest percentage of import trade: about one-third of its goods from outside the region, mainly from Metro Manila (table 4.6).

### The Periodic Markets[9]

There are 16 periodic markets in the Basin serving mainly as agricultural collection points (first-level market assembly function) for isolated *barangays* far from market towns. They operate once

[9]The case studies are in a separate volume which also describes the methodologies used.

Table 4.4. Relative reach of major markets by products, by source, by destination and distance, Bicol River, Basin 1976 (in percent).

| Market Center | Agricultural | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. of Places | Sources of goods traded | | | | No. of Places | Destination of goods traded | | | |
| | | 0-10 km. | 11-20 km. | 21-50 km. | 51+ km. | | 0-10 km. | 11-20 km. | 21-50 km. | 50+ km. |
| Naga City | 89 | 38.2 | 34.8 | 16.9 | 10.1 | 102 | 73.5 | 3.9 | 3.9 | 18.7 |
| Legaspi City | 110 | 44.5 | 11.8 | 24.5 | 19.1 | 110 | 58.2 | 3.6 | 16.4 | 21.8 |
| Iriga City | 46 | 65.2 | 26.1 | 8.7 | – | 62 | 61.3 | 11.3 | 16.1 | 11.3 |
| Tabaco | 111 | 74.8 | 4.5 | 2.7 | 18.0 | 112 | 71.4 | 12.5 | 1.8 | 14.3 |
| Ligao | 114 | 78.9 | 0.9 | 14.0 | 6.2 | 117 | 70.1 | 0 | 15.4 | 14.5 |
| Goa | 120 | 86.7 | 0.8 | 2.5 | 10.0 | 191 | – | – | – | – |
| | Manufactured | | | | | | | | | |
| Naga City | 69 | 37.7 | 1.4 | 2.9 | 58.0 | 87 | 67.8 | 4.6 | 10.3 | 17.2 |
| Legaspi City | 60 | 11.7 | 10.0 | 5.0 | 73.3 | 96 | 61.5 | 30.2 | 3.1 | 4.2 |
| Iriga City | 16 | 32.9 | 14.8 | 16.2 | 36.1 | 438 | 48.9 | 25.8 | 18.0 | 7.3 |
| Tabaco | 64 | 28.1 | 3.1 | 25.0 | 43.8 | 82 | 54.9 | 28.0 | 4.9 | 12.2 |
| Ligao | 31 | 6.5 | 0 | 32.3 | 61.2 | 34 | 44.1 | 0 | 0 | 55.9 |
| Goa | 25 | 52.0 | 0 | 0 | 48.0 | 62 | 85.5 | 0 | 0 | 14.5 |

Source: UFRD Market Research, 1977.

or twice weekly and are located in small to medium-sized *barangays* with an average population of 1,600. Besides providing wholesale assembly services to farmers, they offer low-level retail services in manufactured goods, fish and livestock products for farm household consumption.

Six periodic markets were surveyed for the functions they perform, market conditions, and potential for becoming rural service centers – the lowest level central places in a hierarchy of settlements (see figure 13).

These six periodic markets are centrally located, serving an average of 20 *barangays* each. While four are accessible by road, transport services are generally infrequent. During the six-month rainy season, the roads become impassable and the periodic markets become isolated. In two periodic markets, 90 percent of the farmers have to travel on foot since there are no roads:

> "For marketing purposes in Paulba (municipality of Ligao in Albay province), residents of these *barangays* generally go on foot or by animal-drawn sleds when traveling with a heavy load. According to informed sources within Paulba, residents of the far-flung *barangays* start hiking even the night before the market days (Wednesdays and Sundays) to reach the market in the early morning, do their marketing and start trekking back on foot before the sun gets too hot."[10]

These village markets are, on the average, 10 kilometers from a town market. Their trading area is a radius of about 5 kilometers but commodities come in from, or are ultimately sold to, as far as 25 to 35 kilometers away. Of the six periodic markets studied, four started as locations of cockpits[11] within the

[10] "Case Study of Six Periodic Markets in the Bicol River Basin," Vol. III-B, Urban Functions in Rural Development Project, Center for Policy and Development Studies, UP Los Baños, Laguna, 1977. p. 187.

[11] Cockpits are arenas for cockfighting, a popular gambling sport.

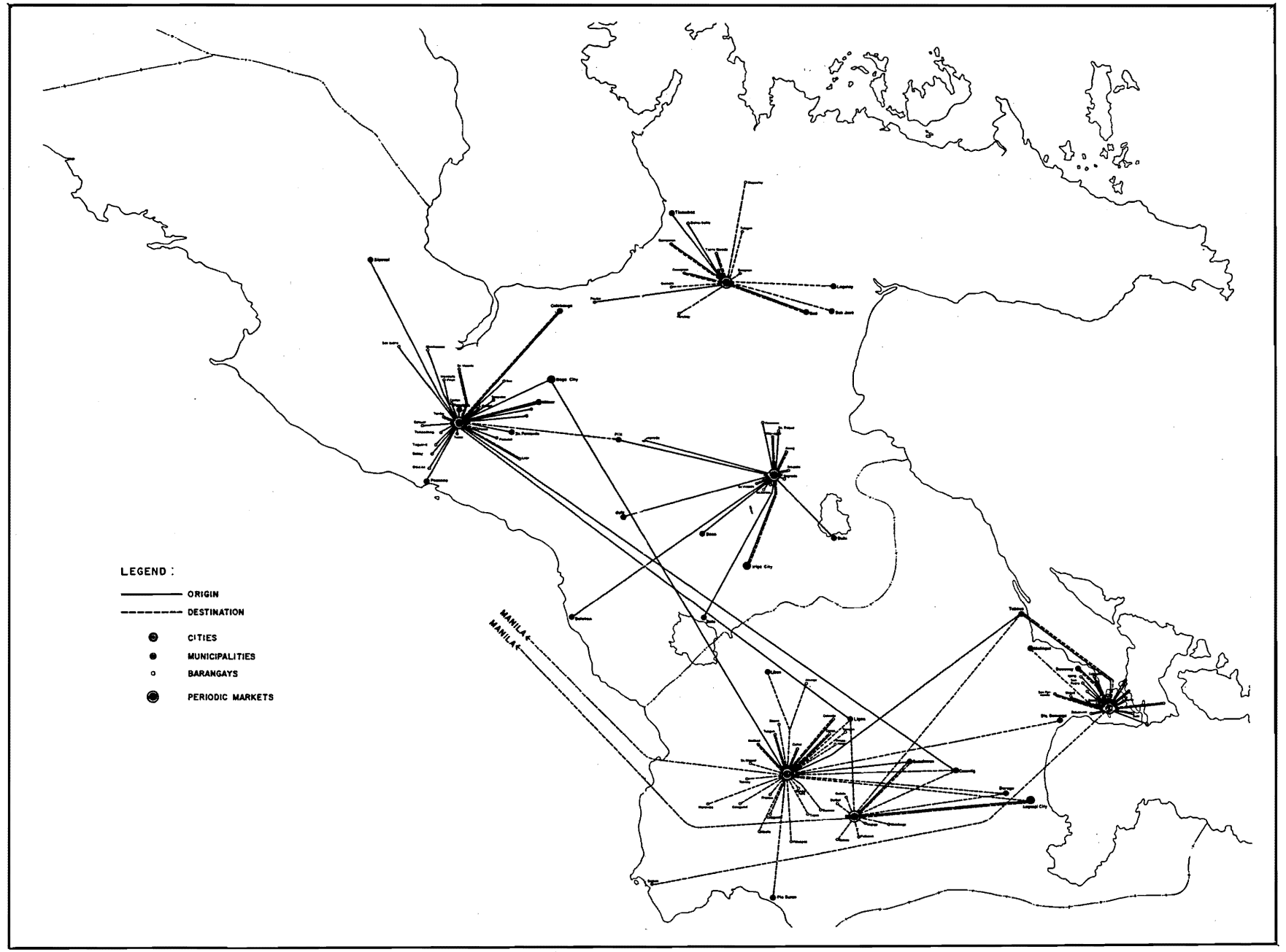



**Figure 13. Origin and destination of six periodic markets.**

Table 4.5. Extent and nature of trading in major markets.

| Market Center | Total Commodities | | Total Agric. Commodities[a] | | Total Manufactured Goods[b] | |
|---|---|---|---|---|---|---|
| | Number | Percent | Number | Percent of total produce | Number | Percent of total manufactured goods |
| Naga City | 347 | 100.0 | 191 | 55.0 | 156 | 45.0 |
| Legaspi City | 376 | 100.0 | 220 | 58.7 | 156 | 41.3 |
| Iriga City | 762 | 100.0 | 108 | 14.2 | 654 | 85.8 |
| Tabaco | 371 | 100.0 | 225 | 60.6 | 146 | 39.4 |
| Ligao | 296 | 100.0 | 231 | 78.0 | 65 | 22.0 |
| Goa | 398 | 100.0 | 311 | 78.1 | 87 | 21.9 |

[a]Includes palay-rice, copra/coconut, abaca, vegetables and fruits, fresh/dried fish, poultry and livestock.
[b]Includes agricultural and veterinary products, groceries and processed items, appliances and household items, personal wear, medical products, cottage industry items.
Source: UFRD Market Research, 1977

Table 4.6. Degree of extra-regional and intra-municipal trade, Bicol River Basin, 1976.

| Item | Naga City | Legaspi City | Iriga City | Tabaco | Ligao | Goa |
|---|---|---|---|---|---|---|
| Total agricultural goods | 191 | 220 | 108 | 222 | 231 | 311 |
| Total manufactured goods | 156 | 156 | 654 | 146 | 65 | 87 |
| Total commodities | 347 | 376 | 762 | 368 | 296 | 398 |
| Percent of exports in each market | 20.7 | 26.4 | 18.4 | 25.3 | 4.6 | 4.6 |
| Percent of import in each market to total imports | 19.8 | 24.4 | 32.5 | 15.7 | 6.1 | 1.5 |
| Rate of intra-municipal linkages | 83.6 | 80.7 | 89.5 | 82.5 | 94.6 | 97.7 |

Source: UFRD Market Research, 1977.

town. While male farmers staked their bets at the cockpit, enterprising merchants, mostly women, sold food and household goods. After the markets had been established, bigger merchandisers or wholesalers put up portable or permanent stalls for buying farm produce or selling manufactured goods. The market place is usually no more than half a hectare.

The clientele of periodic markets number only about a thousand per market day, which is once a week most of the time. On the average, there are only 30 market stalls, most of which are portable, and many are run by small traders selling vegetables, fruits and small amounts of merchandise such as clothes and utensils. The goods are laid on mats or baskets right on the ground.

A *barangay* is about 10 kilometers from the *poblacion* or the nearest town center. Considering the inaccessibility of most *barangays* to their *poblacion* because of bad roads and absence of transport or road links, periodic markets perform critical market functions for far-flung *barangays*. In most hinterland areas, these periodic markets are visited more often than the *poblacions*. Visits to towns and cities, because of difficult transport and relatively expensive fares, are limited to very critical needs or very important social or political occasions a few times a year.

## Physical Linkages

### Transport

The transport network of the Bicol River Basin consists almost entirely of roads. Roads account for 95 percent of total passenger trips and 83 percent of total agricultural commodity movements in the Basin. The excellent concrete Manila South Road, stretching 140 kilometers from Sipocot in Camarines Sur to Legaspi in Albay, is the main link to Metro Manila, 454 kilometers from Naga City. From this main trunkline, asphalted and gravel-surfaced provincial roads branch out to the interior settlements (see figure 14).

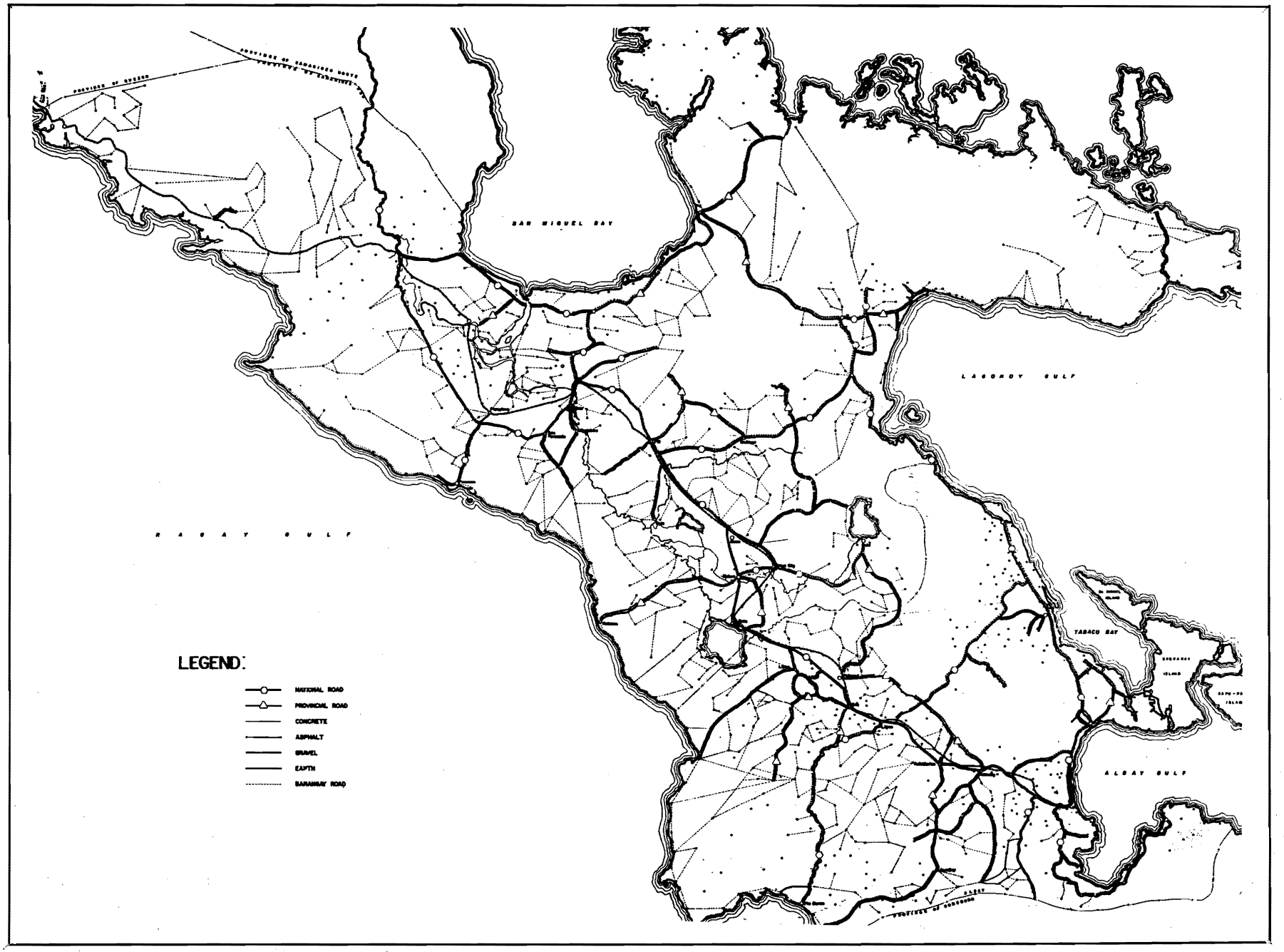



Figure 14. Road condition map.

Of more than 3,600 kilometers of roadways in the Basin, 80 percent are officially classified by the Philippine Government as bad to very bad (table 4.7). Only one out of every 5 kilometers of roads in the Basin can be considered passable all year round.

Roads in Camarines Sur are generally worse than the roads in Albay, the kilometerage of good roads in the latter being double that in the former.

More than a third of the south line of the Philippine National Railway (PNR) from Manila passes through 15 towns centers of the Basin. It used to be 18 town centers until the deterioration of rail tracks from Camalig to Legaspi in Albay. Three of these ***poblacions*** — Del Gallego, Ragay and Lupi in Camarines Sur are called railroad towns because no roads link them to the rest of the Basin. Scheduled rail service is almost always delayed, and derailment is frequent especially during the rainy season. Tracks are over 50 years old, and equipment is minimally maintained and inefficiently managed. The rail service is so bad that less than one percent of Basin travellers use the rail system.

In Camarines Sur, a unique form of transportation called "skates" has developed. A skate is a wooden platform usually 1.5 x 2.5 meters in size, with four ball bearings aligned to the railroad track. It is either manually operated or powered by a light machine. Skates are capable of carrying 4 to 6 passengers or about 200 kilograms of commodities. In between rail schedules, skates are effective transport linkages between ***barangays*** along the railroad tracks from Del Gallego to Legaspi.

Significant skate travel has been recorded in origin-destination studies particularly in the municipalities of Sipocot, Libmanan, Lupi, Ragay, Del Gallego, Pamplona and even Naga City. A similar study by TECHNICKS Planners Inc. in June, 1977 in Libmanan showed that skates traffic towards Pamplona-Naga averaged 93 per day, carrying 588 passengers and 4,965 kilograms of commodities.

Two airports, one in Pili (called the Naga air station) in Camarines Sur and another in Legaspi, provide limited daily flights (68 passengers seats in Naga, 135 in Legaspi) which are often cancelled or very much delayed. Because of expensive air fare, airlines are used by an insignificant number of Basin travellers.

Four Camarines Sur municipalities, located in a vast underdeveloped hilly peninsula north of Naga City, are accessible only by unscheduled light watercraft. More than 70,000 residents depend on these frail motorized dugouts for vital links to the major settlements of the Basin. The Bicol River's navigable portion, with its central terminal in Naga City, services six Camarines Sur town centers and more than 10 small and large villages. The river transport system provides cheap and easy transport for riverine villages that otherwise would be either inaccessible by road or linked by very bad dirt roads.

The major seaports are in Albay: Tabaco and Legaspi. Both berth international ships through which Bicol merchants export abaca, copra and coconut oil to foreign countries, to Manila and to the Visayas and through which petroleum, construction materials, cattle and other bulk cargoes are delivered from Manila to the Basin. A minor port in Pasacao, Camarines Sur, 15 kilometers from Naga, receives cattle from the nearby island province of Masbate and construction materials like cement, steel, and equipment from Manila. The Pasacao port, dating back to Spanish times, has no protective cover and is used minimally. About 2.5 percent of the Basin's agricultural produce is moved by water.

A number of general observations are derived from the analysis of transport study:

1. A significant part of the Bicol River Basin is isolated.

The isolation of people in inaccessible settlements is a primary constraint to social and economic development because of difficulties in marketing the produce from rural areas and in transporting farm inputs and technology from urban areas. Inaccessibility directly obstructs diffusion of development inputs. The expected spill-over effects from public or private investments in some point in an area are effectively blocked by the absence of access to rural areas. In the Basin, almost four out of 10 people are

Table 4.7. Percentage distribution of roads by province and by type and condition of surfacing (1975).

| Road Type | Albay | | Camarines Sur | | Total | |
|---|---|---|---|---|---|---|
| | Good to Fair | Bad | Good to Fair | Bad | Good to Fair | Bad |
| Concrete | 5 | | 4 | | 5 | |
| Asphalt | 13 | 6 | 10 | 6 | 11 | 5 |
| Gravel/earth | 9 | 67 | | 80 | 4 | 75 |
| Sub-total | 27 | 73 | 14 | 86 | 20 | 80 |
| Total percent | 100 | | 100 | | 100 | |

Source: DPH, PEO, (AI and CS), BRBDP Transport Study, 1977.

completely isolated, their settlements being serve only by trails and footpaths (table 4.8). Less than two out of 10 have very good access. Although four out of 10 have roads, access is uncertain because the bad condition of the roads can isolate them during rainy seasons. Walking is the major means of transport for six out of 10 people, and the human back or the ubiquitous carabao sled is the prime cargo mover for the Basin's interior settlements.

Only nine out of 100 people are directly linked by the Manila South Road, while an additional seven can travel by poorly maintained, pockmarked asphalt roads. While 40 percent have access to dirt and gravel-surfaced roads, these are impassable during bad weather; most are bad even during good weather. Seven percent can only be reached either by unscheduled watercraft or by rail, mostly by skates, which have been declared illegal by the Philippine National Railway. The skates, however, operate more effectively in all railroad towns for intra-basin movement than the "legal" railroad transport.

If good roads are any measure of good accessibility, then only 16 percent of the Basin's 1.7 million population is highly accessible (table 4.8). The isolation is more severe in Camarines Sur than in Albay. Forty-two percent of the population in Camarines Sur is served only by footpaths, against only 30 percent in Albay. As pointed out in Chapter II, road accessibility and development are closely associated. Residents of larger settlements, which are generally found along the MSR belt, have easier access to functions and resources that promote diversified social and economic activities and that are not enjoyed by the majority of the Basin's population scattered in less accessible interior areas.

2. Transporting cargo is difficult and expensive in the Basin.

The BRBDP Transport Study found that the inaccessibility of Basin settlements and rural areas leads to high transport costs and long waiting times. Table 4.9 shows that the cost of transporting commodities in the interior areas of the Basin is six times more than in roadside areas. This is because cargo from the interior must be transported along footpaths and trails on the backs of people or by animal sleds. Even on gravel and dirt roads, the infrequent and unscheduled transport (usually jeepneys or trucks) charges high freight rates due to bad roads and the absence of alternative means. It is not surprising, therefore, that no amount of government incentives nor farm extension work can induce higher productivity in the interior areas. The cost of transport is so prohibitive that any additional harvest far from markets would mean transport costs higher than marginal profits from marketing the goods.

Losses are certain on the part of the farmer, since the farm gate price of palay is inelastic and government subsidy is fixed at ₱55 per cavan (50 kilos of dried unhusked paddy). Due to the inaccessibility of farms to markets, it is normal practice for rice farmers to sell their wet paddy at a price 25 to 30 percent lower than for dried paddy. Even farm inputs such as fertilizers must travel this difficult and expensive route, thus discouraging their intensive use. In 1969, the average fertilizer usage per crop hectare in the Bicol Region was only 2 kilograms, which compares very poorly with 28 kilograms in the more accessible settlements of Central Luzon and 48 kilograms in Southern Tagalog Region. The government national rice production program (Masagana 99), which provides liberal farm credit facilities, specifies the use of high-yielding varieties which require heavy doses of fertilizer.

The Transport Study found that the average waiting time by the roadside in interior areas is seven times that of urban centers in Albay and 53 times that in Camarines Sur. The longest waiting time recorded is 256 minutes, or over four hours, by the roadside in the Partido area along the provincial road (table 4.10). The shortest waiting time of about one minute is recorded in Legaspi and Naga.

The main reason for the inordinate delay in securing transport is the wide disparity in traffic density all over the Basin, dictated by the condition of the road and the concentration of population and services in very few urban settlements. Results of average traffic counts showed the high concentration of vehicles along the MSR and their paucity or absence along the secondary roads. There is a sharp drop of seven times (from 7,000 vehicles per day to less than 10,000) in vehicle count from urban centers, such as between Legaspi and the Sto. Domingo-Malilipot road section, secondary road. This indicates decreasing traffic in areas leading to rural centers. The vehicle density drops to very insignificant numbers on gravel-and dirt-surfaced roads which serve 40 percent of the Basin's population.

3. Most travel in the Basin is localized.

The poor transport system, the general underdevelopment and the localized activities of farmers are factors that reduce most people to very limited travel, thus discouraging linkages between settlements and productive interaction.

Data available from the Intermodal Transport Study (1977)[12] based on the origin and destination survey indicate that about 85 percent of the total trips in the area are within the municipality, and about 99 percent of all trips are within the same province. The total number of daily trips is equivalent to about 20 percent of the total population (table 4.11). Very few people travel between town centers within the Basin.

Walking constitutes the most frequent mode of travel in both provinces: 58.3 percent for Albay and 64.6 percent for Camarines Sur. The second most popular mode of travel is by jeepney for Camarines Sur and by trimobile for Albay (table 4.12). The trimobile is a three-wheeled motorcycle cab whose route would normally be intra-municipal. It is used in a limited way for trips between contiguous urban areas, such as between Legaspi and Daraga and between Naga and Camaligan. Jeepneys can be

[12]Conducted on 1,361 households in Albay and 1,907 households in Camarines Sur.

Table 4.8. Population and settlements served by type of road systems, Albay and Camarines Sur.

| | POPULATION SERVED[a] | | | | SETTLEMENTS SERVED[b] | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Albay % to Albay population | Cam. Sur. % to Cam. Sur population | Total | % to Basin population | Albay % to Albay settlements | Cam. Sur % to Cam. Sur settlements | Total | % to Basin settlements | Ave. population size/settlements |
| Road | | | | | | | | | |
| Concrete (MSR) | 9 | 9 | 155,977 | 9 | 3 | 4 | 52 | 4 | 3,000 |
| Asphalt (provincial road) | 13 | 4 | 124,606 | 7 | 6 | 2 | 49 | 4 | 1,543 |
| Gravel and earth (others) | 46 | 35 | 677,751 | 40 | 48 | 39 | 600 | 42 | 1,141 |
| Sub-total | | | 958,334 | 56 | | | 701 | 49 | |
| Footpath[c] | 30 | 42 | 629,942 | 37 | 39 | 41 | 580 | 41 | 1,086 |
| Other Means | | | | | | | | | |
| Watercraft | – | 7 | 71,827 | 4 | | 11 | 104 | 7 | 690 |
| Railway | 2 | 3 | 39,966 | 3 | 3 | 2 | 34 | 2 | 1,175 |
| Bicol River[d] | – | (2) | (229,372) | (14) | | | | | |
| Total | 100 | 100 | 1,700,069 | 100 | 100 | 100 | 1,419 | 100 | |

[a]Population served by river transport not added since these settlements are also served by road and other means.
[b]BUA's or *barangays* are computed.
[c]Population of BUA's or *barangays,* not municipal population.
[d]The total population and settlements served by footpaths were computed by subtracting the population and settlements served by all types of road and other means from the Basin population and settlements for the two provinces.

Source: UFRD Research, 1977, based on BRBDP Transport Study, 1976, DPH and PEO of Camarines Sur and Albay.

Table 4.9. Average transport cost (₱) per ton/kilometer (1975).

| Commodity | Average Cost | | | | Range of Cost | | | |
|---|---|---|---|---|---|---|---|---|
| | Interior | | Roadside | | Interior | | Roadside | |
| | Albay | Cam. Sur | Albay | Cam. Sur | Albay | Cam. Sur | Albay | Cam. Sur |
| Rice | 21.46 | 18.30 | 2.78 | 3.99 | 11.34-32.61 | 3.62-44.28 | 1.54-6.03 | 1.09-8.97 |
| Copra | 18.81 | 17.55 | 2.85 | 4.04 | 8.33-55.56 | 4.75-47.14 | 1.34-4.92 | 1.05-11.34 |
| Corn | 25.79 | 21.93 | 2.49 | 3.33 | 12.50-55.60 | 6.67-53.99 | 1.44-4.62 | 1.00-5.56 |
| Abaca | 14.54 | 23.60 | 3.17 | 6.79 | 6.25-25.00 | 6.34-62.91 | 1.01-3.33 | 1.17-16.00 |
| Vegetables/fruits | 37.80 | 21.76 | 3.30 | 5.51 | 19.52-55.56 | 6.25-47.61 | 2.04-6.20 | 1.27-13.00 |
| Average (all goods) | 23.68 | 20.63 | 2.92 | 4.73 | 11.59-44.87 | 5.53-51.19 | 1.47-5.02 | 1.12-10.97 |
| Average (Albay & CS) | 22.15 | | 3.82 | | 8.56-48.03 | | 1.30-8.00 | |
| Average difference between interior and roadside | 5.8 times | | | | 6.6 to 6 times | | | |

Source: BRBDP Transport Study (1976-1977).

Table 4.10. Passenger vehicle waiting time in minutes.

| Item | Albay | Cam. Sur |
|---|---|---|
| Range of ave. waiting time | 14 – 94 | 2 – 107 |
| Range of max. waiting time | 24 – 215 | 16 – 256 |
| Range of min. waiting time | 1 – 16 | 1 – 120 |
| No. of roads with observation | 10 | 24 |

Source: BRBDP Transport Study, 1977.

Table 4.11. Percentage distribution of daily trips in Albay and Camarines Sur.

| Item | Albay | Cam. Sur |
|---|---|---|
| Population travelling | 24 | 20 |
| Trips within municipality/city | 88 | 85 |
| Trips within province | 99.3 | 99.6 |

Source: BRBDP Transport Study, 1976.

considered an inter-municipal mode, but they only ply between neighboring towns.

Classification of the purpose of trips by the travelling public in the origin and destination survey further confirms the localized nature of movements within the Basin. Trips to home comprise almost half of all trips made, followed by trips to school which make up a little over one-fourth of all trips (table 4.13). Commuting is confined to the Naga and Legaspi areas. In Naga, commuting is practised in the neighboring satellites of eight municipalities within 5 kilometers, while in Legaspi, it is mostly within Legaspi and Daraga, a distance of 2.8 kilometers.

4. The service areas of major Basin settlements are very limited.

The limited travel by people in the Basin reflects the low level of interaction among settlements. The service areas of the two leading provincial centers do not reach very far: from 15 to 17 kilometers on the average, reinforcing the hypothesis that the Basin is not a homogenous system but consists of disparate, largely unconnected clusters of settlements (table 4.14). Naga City's farthest link of 91.3 kilometers is not even the distance to Legaspi, which is 102 kilometers from Naga.

Thus, the findings of the 1977 BRBDP Transport Study definitely indicate highly localized or intra-municipal travel within the Basin. For instance, Legaspi has the highest average person trips daily (23,832), 74 percent of which are within the city and the rest, outside but within Albay. Tabaco and Oas have the second and third highest average person trips daily, with a significant portion of intra-municipal trips. In Camarines Sur, Naga City ranks first with 31,002 person trips per day, of which 68 percent are made within the city. Eighty-five percent of Iriga's 19,059 person trips are within the city.

### Communication

Postal facilities exist in every municipality, and while mail may take sometime to be delivered, the system is reliable. Telegraph facilities are adequately provided by both private and public sectors although filing of telegrams may be done only in major towns. An additional charge for deliveries to small towns is usual because of the lack of facilities. Most of the isolated *barangays* can be reached by telegraph, but only relatively slowly. From the *poblacions* of the three largest cities, it is easier to place a long distance call to Metro Manila than to other cities in the Basin. It can be said that Bicol settlements are not linked by an efficient telephone system.

Iriga has one television station; most of its programs are canned shows from Metro Manila and from the United States. The most accessible mass medium is radio. There are about 10 radio stations broadcasting in the local dialect, and they are widely listened to on transistor radio receivers which are available even on isolated farms. A handful of weekly newspapers in English and in Bicol are put out regularly, but they circulate among the more affluent, the professionals and government employees. There is no mass circulation of newspapers in the area.

### Social Linkages

While market and transport linkages can provide vital ties between settlements, social interaction is equally important, although not as obvious as the first two types of linkages. Communities within a region can be linked in a number of ways: through kinship patterns, visiting patterns, and systems of social services such as schools and hospitals. Social linkages among settlements in the Basin were estimated through three types of studies:

1. Inventory of origin of students, patients, brides and grooms to approximate interaction between settlements through schools, hospitals and inter-marriages;
2. Analysis of previous research on travel patterns within Camarines Sur; and
3. Analysis of historico-cultural materials.

### Linkage through Schools[13]

Schools providing education beyond the six years of elementary and four years of secondary schooling

[13]From a primary survey of students from schools offering higher education such as colleges, universities, and technical, agricultural and trade schools. The list did not include vocational schools. A 10 percent sampling of students was done randomly for each school.

Table 4.12. Mode of travel in percentage, Albay and Camarines Sur, 1975.

| MODE | Albay | Camarines Sur |
|---|---|---|
| Walking | 53.3 | 64.4 |
| Jeepney | 12.8 | 13.7 |
| Trimobile | 16.8 | 9.4 |
| Bus | 4.5 | 4.4 |
| Mini-bus | 4.0 | 3.1 |
| Car | 0.9 | 0.2 |
| Truck | 0.5 | 0.2 |
| Two-wheeler | 1.5 | 0.5 |
| Train | 0.1 | 0.8 |
| Boat | 1.0 | 1.6 |
| Skates | – | 0.9 |
| Animal-drawn | 0.1 | 0.5 |
| Others (taxi) | 0.2 | – |

Source: BRBDP Transport Study (1977).

Table 4.13. Percentage distribution of trip purposes.

| Trip Purpose | Albay | Camarines Sur |
|---|---|---|
| To home | 49.46 | 49.32 |
| To school | 26.06 | 28.23 |
| Commuting to work | 10.63 | 7.69 |
| Shopping | 5.60 | 4.76 |
| To work | 4.35 | 4.43 |
| Social | 1.77 | 1.90 |
| Others | 2.77 | 5.67 |
| Total | 100.00 | 100.00 |

Source: BRBDP Transport Study (1977).

Table 4.14. Average reach of selected major settlements based on passenger count starting at 500 persons per day and above.

| Settlement | Ave. Wtd. Distance (km.) | Nearest (km.) | Farthest (km.) |
|---|---|---|---|
| Legaspi City | 17.0 | 2.8 | 36.9 |
| Naga City | 14.8 | 2.0 | 91.3 |
| Iriga City | 12.5 | 5.7 | 38.0 |
| Tabaco | 13.0 | 4.5 | 29.4 |
| Ligao | 19.0 | 9.5 | 27.8 |
| Polangui | 13.1 | 4.6 | 36.9 |

Source: BRBDP Transport Study, (data from passenger count at a cut-off of 500 person trips per day and above).

are generally found in the town centers or *poblacions*. For a student from a farm to attend one of these schools, he must lodge in the town either with relatives, in a school dormitory or in a boarding house. The expense of board and lodging, in addition to school fees, generally discourages a substantial number of poor but deserving students from seeking further education. Thus, the urban location of schools is often a deterrent to access by farm children. While there are government-run schools which charge very nominal fees, most schools, especially colleges, universities and technical schools, are privately owned and charge fees designed to fully recover costs and provide the school owners with returns on investments comparable to alternative business undertakings. Only one out of three institutions of higher education in the Basin is government-owned.

Two-thirds of all institutions of higher education are located in Naga and Legaspi. Ninety percent of the largest schools[14] are in these two provincial capitals.

[14]The size of the school is based on the size of its student population.

*Service areas of schools.* Schools of higher learning have the potential for forging linkages between settlements. In the Bicol River Basin, about 60 percent of sampled students in 32 schools originated from places outside the school's location (table 4.15), indicating a high degree of centrality.[15] However, the effective service area of schools, on the average, extends only to about 37 kilometers outward from their location. In Naga, this radius would about reach Iriga or Sipocot, the two lower level centers in Camarines Sur. In Legaspi, this would reach Tabaco and Polangui, the second ranking centers in Albay. While some schools have service areas extending to over 50 kilometers, students originating from these places average less than one percent of all students sampled.

Centrality of schools, as the data show, is dependent on school population size. The larger schools in Naga and Legaspi have the highest percentage of students from places outside these cities, reinforcing their primacy over the smaller settlements in the Basin. In effect, the places where these schools are located are destination points of students and their families and relatives who come to see them regularly during the schoolyear. The travels of students to and from these centers become linkages in themselves and increase the degree of association between the students' places of origin and the school locations.

While the three types of schools (general, technical, and agricultural-trade) indicate a consistent proportion of students from outside the school locations (table 4.16), highly specialized schools such as seminaries, nursing and midwifery schools exhibit a distinctly higher centrality of 85 percent from places outside the school locations.

[15]A school has centrality when at least 50 percent of its sample students originate from areas outside the school location. This definition is used throughout the social linkages section.

Table 4.15. Number of schools, size of sample, number and percentage of students originating outside school location and weighted average distance, classified by size of schools.

| Size | No. of Schools | Size of Sample | Students Originating Outside School Location | | Weighted Ave. Distance (km.) |
|---|---|---|---|---|---|
| | | | Number | Percent | |
| Large schools | 10 | 2,490 | 1,478 | 59.4 | 38 |
| Middle-sized schools | 12 | 561 | 317 | 56.6 | 35 |
| Small schools | 10 | 169 | 94 | 55.6 | 42 |

Source: UFRD Primary Research, 1977.

Table 4.16. Number of college students classified by place of origin and average distance by type of school (UFRD, 1977).

| Type | Total Sample | Origin of Students | | Weighted Ave. Distance[a] (km.) |
|---|---|---|---|---|
| | | From within school location | From outside school location | |
| General | 2,472 (100.0) | 1,059[b] (42.8)[c] | 1,415 (57.2) | 39 |
| Technical | 252 (100.0) | 107 (42.5) | 145 (57.5) | 35 |
| Agr'l.-trade | 334 (100.0) | 141 (42.2) | 193 (57.8) | 42 |
| Other specialized schools[d] | 160 (100.0) | 24 (15.0) | 136 (85.0) | 39 |
| All types | 3,220 (100.0) | 1,331 (41.3) | 1,889 (58.7) | 37 |

[a]Average distance from location of school to area of influence within BRB.
[b]Figures are frequency counts.
[c]Figures in parentheses are percentages.
[d]Schools which do not belong to the types mentioned, e.g., schools of nursing, midwifery and engineering.

*Extent and degree of association between settlements owing to school linkages.* A summation of linkages between settlements formed by the movement of students and locations of schools of higher learning reconfirms the primacy of Naga and Legaspi. In total number of places associated with each center, Naga schools service 2.5 times more places than Legaspi schools (table 4.17). On the average, however, while Naga's linkages in this aspect are numerous, they are very much dispersed and, taken as individual links, are weaker in intensity than Legaspi's linkages.

There seems to be a close positive relationship between size of settlement and its centrality as far as schools are concerned. In the order of population size, the leading settlements have more centrality in educational functions than smaller settlements. Naga and Legaspi have their own respective heavy sources of students. Naga, for instance, draws many students from Iriga, Goa, Pili, and Calabanga. Legaspi has Daraga, Tabaco, Ligao and Sorsogon as significant service areas. Iriga is limited to its nearby areas of Baao and Nabua (figure 15).

These observations apparently show that no significant linkage between Camarines Sur and Albay is generated by schools, but major centers do service places outside their own provinces. Although less than 10 percent of sampled students originate from Samar, the next largest island of the Visayas at the tip of the Bicol Peninsula, both Naga and Legaspi are somehow linked to this province.

*School location classified by size and type of school.* When the large, middle-sized, and least populated schools are isolated, an equally interesting trend appears. Large schools tend to locate only in highly populated centers, which have educational institutions of all sizes. On the other hand, some less populated areas contain only middle-and small-sized schools, reflecting the population threshold principle in facility location.

More than half of the large schools are concentrated in larger centers, namely: Naga, Legaspi, Daraga and Iriga. All types of schools are present in

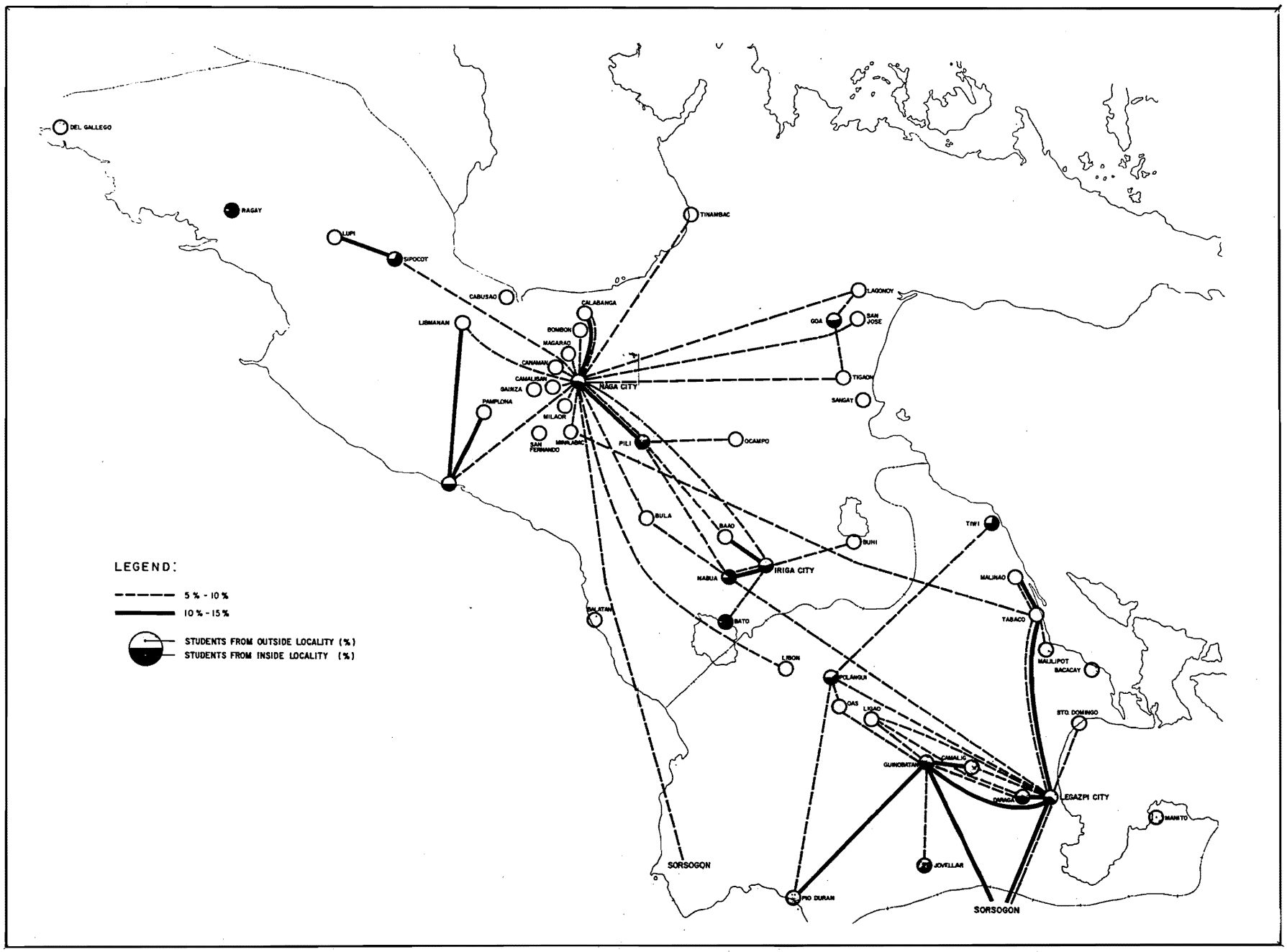



Figure 15. Schools (Origin of Students).

Table 4.17. Distribution of linkages due to origin of students.

| School Location | No. of Schools[a] | % of Students from Outside | Distribution of Origins | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 0 – 5% | | 5 – 10% | | 10% and above | |
| | | | No. of places | Ave. % per place | No. of places | Ave. % per place | No. of places | Ave. % per place |
| Naga | 9 | 58 | 205 | 1.9 | 30 | 6.2 | 7 | 17.9 |
| Legaspi | 7 | 69 | 82 | 2.1 | 13 | 6.7 | 6 | 14.6 |
| Daraga | 3 | 55 | 13 | 2.3 | 3 | 7.2 | 1 | 29.3 |
| Guinobatan | 2 | 53 | 16 | 2.5 | 7 | 7.3 | 3 | 16.2 |
| Iriga | 2 | 48 | 40 | 2.1 | 3 | 8.6 | 2 | 13.7 |
| Tabaco | 1 | 56 | 16 | 2.6 | 3 | 6.9 | 2 | 18.6 |
| Pili | 1 | 44 | 24 | 4.0 | 3 | 6.5 | 2 | 13.5 |
| Sipocot | 1 | 28 | 2 | 5.2 | – | – | 2 | 14.7 |
| Polangui | 1 | 42 | – | – | 3 | 8.3 | 1 | 16.7 |
| Bato[b] | 1 | 6 | 3 | 1.7 | – | – | – | – |
| Goa | 1 | 46 | 6 | 2.2 | 2 | 6.3 | 1 | 21.9 |
| Nabua | 1 | 11 | 1 | 3.4 | 1 | 6.8 | – | – |
| Pasacao | 1 | 51 | 9 | 2.8 | – | – | 1 | 13.9 |
| Ragay[b] | 1 | 4 | 1 | 3.4 | – | – | – | – |
| Tiwi | 1 | 25 | – | – | – | – | 1 | 25.0 |

[a]Only schools of higher education but not secondary schools, are included here. They include those that offer general, agricultural and trade, technical, and other higher specialized education.

[b]Ragay is a railroad town and is inaccessible to the rest of the Basin towns; the school in Bato with very low centrality is a small local college whose capacity is not even enough to fill local demand.

Source: UFRD Primary Research, 1977.

Naga, and since this city is the site of nine of the 32 schools, it is indeed the educational center of the Basin. Naga specializes in the type of school that offers general education.

Legaspi, another primary educational center, has fewer schools than Naga. Its seven institutions are almost equally distributed among the following types: general, technical, and other specialized schools. It has no agricultural or trade school.

Daraga and Iriga can be considered as the next largest educational centers. Daraga has one general, one technical and one specialized school (nursing). It has a wider influence area than Iriga. The latter has only two large general universities which have more localized service areas, primarily the neighboring towns of Baao and Nabua. Guinobatan, like Iriga, has two schools – general and agricultural. All the nine other municipalities have only one school each.

Schools offering general education are most common in the Basin; almost half of them are located in Naga. The technical schools, the second most common, are relatively more dispersed among the other centers. The four specialized technical schools are found only within the most urbanized areas – Naga, Legaspi and Daraga.

Secondary schools [16] are highly localized. Hardly any centrality is detected whether the high school is large or small; its services extend up to 25 kilometers away only.

Not one secondary school has half of its students originating from outside the school location, and only Camarines Sur National High School (CHNHS) in Naga approaches 50 percent outside enrollment. The municipalities from which this school draws its students are so numerous that not one municipality contributes at least 10 percent of the students to the enrollment. CSNHS has the highest centrality among secondary schools, but its service area reaches only about 24 kilometers away.

The least centrality is exhibited by St. Catherine Laboure in Pili, Camarines Sur. It services mainly its own town, with 94 percent of its students drawn from within. Like CSNHS in Naga, no one municipality contributes significantly to its enrollment. The school is physically accessible to many other municipalities because the Manila South Road passes through the heart of the town and in front of the school. The only possible explanation for the school's small external enrollment is that local demand exceeds the school's capacity.

That secondary education is easily available even at the barrio level can explain the localized operations of secondary schools. While high schools may not be as universally supported by the government as elementary schools, at least one high school is found in

[16]The most populous secondary school in each of the eight growth centers of the Basin was surveyed to determine its degree of centrality and reach. See separate volume on methodologies for details of the survey.

each municipality, which cannot be said of schools for higher education or for specialized technical schools. Only the most depressed municipalities rely heavily on the school of a nearby municipality.

One other reason for the highly localized character of secondary schools is that the education they offer does not differ from one school to another. A more specialized high school such as one offering a particular type of vocational training might draw students from places other than the school's location.

### Linkage through Hospitals[17]

All 43 sampled hospitals (table 4.18) are located in only 18, or one-third, of the Basin's 54 municipalities. These hospitals have a total of 2,011 beds; slightly over one-half are in 11 Albay municipalities, and the remaining are in seven Camarines Sur municipalities.

The hospitals in general tend to service their immediate localities more than they do places outside. Except for the provincial hospitals, they do not vary significantly in size, type or location. An average service area of 36 kilometers includes less than one percent of the patients coming from the peripheries of that boundary. Table 4.19 gives a more discriminating classification of reach.

Legaspi has the most number of hospitals but services only 45 places, while Naga with only four hospitals (against Legaspi's seven) reaches out to 66 places (table 4.19). However, most of the linkages of the three major places with the most hospitals — Legaspi, Tabaco and Naga — are weak linkages, that is, less than 10 percent of their patients originate from outside of their areas. Of the three major places, only Naga shows no strong linkages with any particular area, that is, an area where at least 10 percent of the

[17]All hospitals in the Basin with at least 10 hospital beds were surveyed. Ten percent of the patients were sampled for every hospital. For details of process, see separate volume on methodology.

Table 4.18. Number of hospitals, average number and range of hospital beds, total sample size and weighted average distance, classified by size of hospitals (UFRD, 1977).

| Size | No. of Hospitals | Average No. of Hospital Beds | Range of Hospital Beds | Total Size of Sample | Wtd. Average Distance |
|---|---|---|---|---|---|
| Large | 14 | 63 | 10-200 | 14,413 | 40 |
| Medium | 15 | 59 | 14-450 | 4,276 | 34 |
| Small | 14 | 18 | 10-75 | 1,296 | 31 |
| All hospitals | 43 | 47 | 10-450 | 19,985 | 36 |

Table 4.19. Distribution of hospital service linkages among selected hospital centers, number of places and degree of linkages.

| Hospital Location | No. of Hospitals | Ave. % of patients from Outside | Service Area: 1 – 5% No. of places | 1 – 5% Ave. % per place | 5 – 10% No. of places | 5 – 10% Ave. % per place | 10% and above No. of places | 10% and above Ave. % per place |
|---|---|---|---|---|---|---|---|---|
| Legaspi | 7 | 43 | 37 | 1.0 | 5 | 7 | 3 | 14 |
| Tabaco | 5 | 36 | 20 | 0.9 | 6 | 7 | 3 | 17 |
| Naga | 4 | 45 | 64 | 1.0 | 2 | 7 | — | — |
| Polangui | 4 | 33 | 18 | 1.0 | 2 | 6 | 4 | 19 |
| Ligao | 4 | 23 | 13 | 1.0 | 1 | 8 | 2 | 18 |
| Daraga | 3 | 40 | 35 | 0.5 | 2 | 6 | 2 | 37 |
| Iriga | 3 | 36 | 25 | 0.8 | 4 | 7 | 2 | 13 |
| Libon | 3 | 6 | 4 | 0.7 | — | — | 1 | 15 |
| Pio Duran | 2 | 26 | 9 | 0.6 | 2 | 6 | 2 | 11 |
| Camalig | 1 | 0 | 0 | .0 | 0 | 0 | 0 | 0 |
| Guinobatan | 1 | 9 | 4 | 2.0 | 0 | 0 | 0 | 0 |
| Malilipot | 1 | 77 | 13 | 0.5 | 1 | 9 | 3 | 20 |
| Oas | 1 | 20 | 12 | 0.8 | 0 | 0 | 1 | 10 |
| Baao | 1 | 23 | 7 | 0.6 | 0 | 0 | 1 | 17 |
| Cabusao | 1 | 49 | 29 | 0.7 | 1 | 5 | 1 | 17 |
| Libmanan | 1 | 14 | 12 | 0.4 | 1 | 9 | 0 | 0 |
| San Jose | 1 | 21 | 3 | 1.0 | 0 | 0 | 1 | 16 |
| Tinambac | 1 | 2 | 1 | 1.0 | 0 | 0 | 0 | 0 |

Source: UFRD Primary Research, 1977.

sample patients have been serviced by Naga hospitals. Legaspi and Tabaco, on the other hand, have separate service areas where linkages are strong. At least 10 percent of the sampled patients from Daraga 2.8 kilometers away, Polangui 27 kilometers away, and Sorsogon towns are serviced by Legaspi hospitals. Tabaco serves the neighboring municipalities of Tiwi, Malinao and Bacacay, all within a 15-kilometer radius. Even Malilipot, with 85 percent of its patients coming from outside, serves only its neighboring towns. It can be said, however, that the Legaspi hospitals have the farthest reach in the Basin.

Hospitals are generally localized. Centrality of hospital services is low in that more than half of the total sampled patients are residents of the places where the hospitals are located. Despite their localized services, large hospitals[18] have wider and farther service areas than the medium-sized and small ones. They reach an average of 40 kilometers, with about four out of every ten of their patients originating from outside of the hospital location (table 4.20). Only four of the large hospitals display significant centrality or have more than 50 percent non-local patients. These are the Albay Provincial Hospital, Ago General Hospital, and Sta. Teresita Hospital, all in Legaspi, and the Camarines Sur Provincial Hospital in Naga. Their service areas range from 27 to 57 kilometers.

Six out of every ten patients of the Albay Provincial Hospital are from outside the city, but the hospitals' main service area is Daraga, a part of the Legaspi urban area. Two other Legaspi hospitals with high centrality draw patients from neighboring Daraga and the next province of Sorsogon more than 20 kilometers away. The Sta. Teresita Hospital has only 25 hospital beds, yet services patients not only from Daraga but also from Polangui and Sorsogon.

When the provincial hospitals, which are the two largest government-run hospitals in the Basin, are isolated from the rest, they exhibit centrality (table 4.21). Their service area is also farther (48 km. on the average) than the rest as a group (34 km.). The drawing power of government hospitals can be attributed to their free services, which in a poor region like Bicol are critically needed.

Table 4.20. Place of origin of patients and average distance, by size of hospital.

| Size of Hospital | Total samples | Origin of Patients | | |
|---|---|---|---|---|
| | | From within | From outside | Wtd. ave. distance (km.)[a] |
| Large | 1,443 (100.0) | 7,834[b] (54.4)[c] | 6,579 (45.6) | 40 |
| Medium | 4,276 (100.0) | 2,854 (66.7) | 1,422 (33.3) | 34 |
| Small | 1,296 (100.90) | 957 (73.8) | 339 (26.2) | 31 |
| All sizes | 19,185 (100.0) | 11,645 (58.3) | 8,340 (41.7) | 36 |

[a]Average distance in km. refers only to distance of hospitals within Bicol River Basin area. It is derived from the following formula:

$$\text{Ave. distance} = \frac{\text{Total distances (km.) from location of hospital to areas of influence (municipalities)}}{\text{Total number of areas of influence (municipalities)}}$$

[b]Figures are frequency counts.
[c]Those in parentheses are percentages.

Source: UFRD Primary Research 1977.

**Degree of Association between BRB Settlements due to Intermarriages[19]**

The research on origins of brides and grooms sought to establish whether there are social linkages between Basin settlements due to intermarriage. The average percentage of brides or grooms coming from outside one partner's municipality is very low – 19 percent for all 54 municipalities. Inversely, this would mean that 81 percent of marriages in the Basin are contracted by couples who come from the same hometown. This would indicate very little interaction between settlements through intermarriage.

Where intermarriages occur, i.e., the bride or groom comes from another place, the number is not significant; in most cases, less than 4 percent are inter-village marriages. In table 4.22, only six municipalities have comparatively significant numbers of intermarriages of 31 percent and over, and these municipalities are all within the immediate vicinity of Naga in Camarines Sur. But even among these six municipalities, only Cabusao exhibits a higher degree of interaction with two other settlements: Sipocot and Calabanga. Sipocot is 15 kilometers by road north of Cabusao while Calabanga is less than a kilometer across the Bicol River Estuary from Cabusao. The other five municipalities average only 4 percent.

On the whole, marriages contracted in the Basin are intra-municipal, that is, marriage partners are selected from within the same municipality. The few "outside marriages" where the partner comes from another place more often than not involve a nearby municipality. Most outside marriages in Polangui, for instance, involve partners from Oas 4.6 kilometers away and Ligao 4.5 kilometers away.

[18]Size of hospitals is based on the number of patients.

[19]A 10 percent sampling of all brides and grooms was drawn from each of the 50 municipalities that participated. The inquiry centered mainly on the samples' place of origin.

Table 4.21. Patients originating outside of hospital location classified by either provincial or non-provincial hospital.

| Hospital | No. of Hospitals | Size of Sample | Origin of Patients | | | |
|---|---|---|---|---|---|---|
| | | | Outside location | | | |
| | | | Number | Percent | Wtd. ave. distance[a] (km.) | Ave. bed |
| Provincial | 2 | 5,590 | 3,117 | 55.7 | 48 | 150 |
| Other hospitals | 41 | 14,395 | 5,223 | 36.3 | 34 | 49 |
| Both | 43 | 19,985 | 8,340 | 41.7 | 36 | 47 |

[a]Distance refers to average distance from location of hospital to area of influence within BRB.

Source: UFRD Primary Research, 1977.

**Travel Patterns in Camarines Sur**

In 1974, the Social Survey Research Unit (SSRU)[20] of BRBDP included among its survey of 3,240 households in 33 municipalities of Camarines Sur questions regarding the origin, destination and purpose of travel within the Basin.[21] The study counted about 50,000 trips made by 1,079 selected households heads. The study observed that "among the cities and municipalities of Camarines Norte, Camarines Sur and Albay (as probable destinations) residents of Camarines Sur visited Naga City far more often than any other place. Iriga City is a distant second, followed by Pili and Legaspi City. Urban centers (anywhere) most commonly visited by respondents are, in order of frequency, Naga, Iriga, Metro Manila and Legaspi."[22]

The study conclusions reinforce the concept that the two largest centers in the Basin are predominantly provincial service centers and that little significant linkage exists between them to integrate the Bicol River Basin economy. While the SSRU study finds that a "functional effective network of transportation centers, with Naga City at its center, gives unity (sic) to the River Basin," this statement certainly refers only to one of the sub-basin spatial systems within Bicol.[23]

The study found that the most frequently cited reasons (60.2 percent) for travelling were economic: buying (32 percent), selling (20 percent) and work-related (8.5 percent), while social reasons such as visiting kin, seeking recreation, religious and medical reasons ranked next at 30 percent.

The places most visited by Camarines Sur residents, ranked in the order of number of visits, are listed in table 4.23.

The rankings in Table 4.24 establish the degree of interaction between settlements of origin and destination. They show Naga as the top destination of 25 Camarines Sur municipalities, from a high of 88 percent for Cabusao travellers to a low of 36 percent for Sipocot travellers.

Table 4.24 also shows that whether a municipality is located far from or near another municipality, especially a progressive market center, the primary travel destination is Naga City. For instance, although the railroad towns of Del Gallego, Ragay and Lupi are nearer to the Sipocot market center, respondents from these three municipalities still list Naga City as their primary destination. Most travel in Partido (Lagonoy, Sangay, and Tigaon) likewise has Naga as destination point instead of Goa, which is the sub-center of the Partido cluster.

While Naga City's primacy is undisputed as a travel destination, there are ten places in Camarines Sur which are not destination points of any municipality: Del Gallego, Lupi, Ocampo, Canaman, Camaligan, Gainza, Minalabac, Sangay, Tinambac and Buhi. Four are virtually spatial suburbs of Naga City, averaging less than 5 kilometers from the Naga public market and functioning more as residentiary catchment areas of Naga. The rest, except Cabusao, can be considered dead-end towns, being either at the end of provincial roads or having no road link to the rest of the Basin. Ocampo lies on the Naga-Goa road but may not be drawing visitors because of two alternate destinations less than 20 kilometers north and south of it: Goa and Pili.

The association of Camarines Sur towns with each other is indicated by table 4.24 and figure 16 and portrays travel patterns shaped by the current alignment and conditions of roads and the level of functional complexity of the major centers. A strong relationship exists between accessibility and interaction. Inaccessible places are hardly visited, while those

[20]Independent social research contractors of the Basin Program formed especially for this purpose by the Institute of Philippine Culture, Ateneo de Manila University.

[21]Before Presidential Decree 926, the Bicol River Basin covered only 33 municipalities of Camarines Sur.

[22]SSRU Research Report Series, No. 9, August 1974.

[23]PD 926 in April, 1976 expanded the planning area of BRB to include all Camarines Sur municipalities (37) and 17 municipalities of Albay. Previous to PD 926, BRB covered only 33 Camarines Sur municipalities.

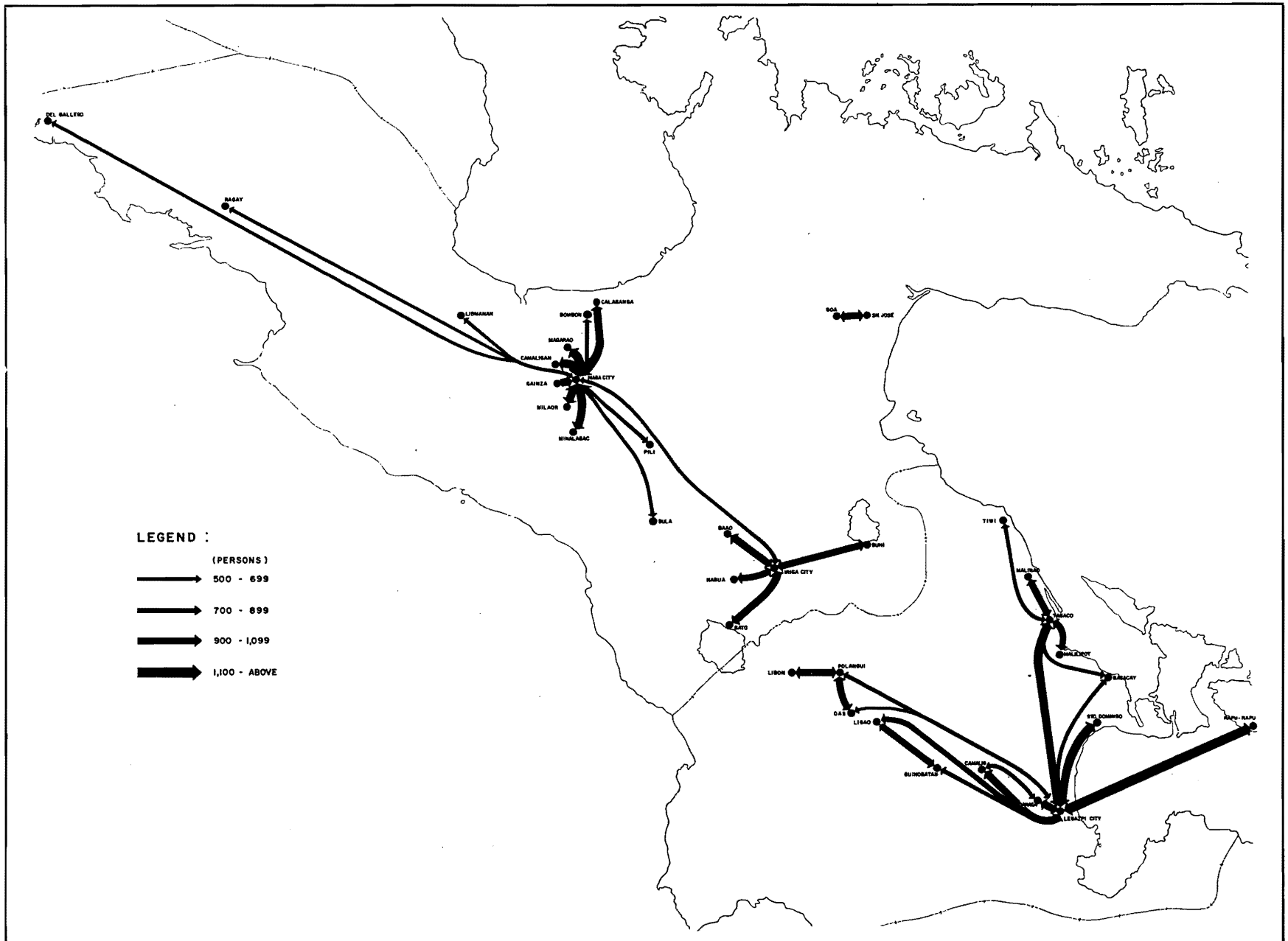



Figure 16. Travel Patterns (Number of persons making trips).

Table 4.22. Degree of linkages between municipalities as to percentage origin of brides and grooms.

| Percentage of Outside Origin | Municipalities Linked | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2 – 4% | | 5 – 7% | | 8 – 10% | | 11 – 13% | | 14 – 16% | |
| | No of places | % | No. of places | % | No. of places | % | No. of places | % | No. of places | % |
| *31% and over* | | | | | | | | | | |
| Naga-Camaligan | 5 | 3 | | | | | | | | |
| Milaor | 1 | 4 | 2 | 6 | | | | | | |
| Pasacao | 1 | 4 | 2 | 5 | | | | | | |
| Cabusao | | | 1 | 6 | 1 | 10 | | | | |
| Bombon | | | 1 | 7 | | | | | 1 | 14 |
| Canaman | 2 | 4 | 1 | 7 | | | | | | |
| *21 – 30%* | | | | | | | | | | |
| Legaspi-Daraga | 3 | 2 | 1 | 6 | | | | | | |
| Iriga City | 2 | 3 | | | | | | | | |
| Goa | 2 | 3 | 1 | 5 | | | | | | |
| Ligao | 1 | 3 | | | 1 | 8 | | | | |
| Camalig | 2 | 3 | | | | | | | | |
| Oas | 2 | 3 | 1 | 5 | | | | | | |
| Lagonoy | | | 2 | 6 | | | | | | |
| Malilipot | 1 | 3 | 1 | 5 | | | | | | |
| Lupi | | | 1 | 6 | 1 | 10 | | | | |
| San Fernando | 2 | 4 | | | | | | | | |
| Del Gallego | 1 | 3 | 1 | 6 | | | | | | |
| Magarao | 2 | 4 | 1 | 6 | | | | | | |
| Gainza | | | 1 | 6 | | | 1 | 11 | | |
| *11 – 20%* | | | | | | | | | | |
| Tabaco | 2 | 3 | | | | | | | | |
| Polangui | 1 | 2 | | | 1 | 8 | | | | |
| Guinobatan | 3 | 3 | | | | | | | | |
| Nabua | 2 | 3 | | | | | | | | |
| Pili | 3 | 2 | | | | | | | | |
| Libmanan | 2 | 3 | | | | | | | | |
| Tigaon | 2 | 3 | | | | | | | | |
| Sipocot | 1 | 2 | 1 | 6 | | | | | | |
| Libon | 3 | 2 | | | | | | | | |
| Calabanga | 3 | 3 | | | | | | | | |

Table 4.22 (cont'd.)

| Percentage of Outside Origin | Municipalities Linked | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2 – 4% | | 5 – 7% | | 8 – 10% | | 11 – 13% | | 14 – 16% | |
| | No. of places | % | No. of places | % | No. of places | % | No. of places | % | No. of places | % |
| Bula | 3 | 4 | | | | | | | | |
| Baao | 1 | 4 | | | | | | | | |
| Bato | 2 | 2 | | | | | | | | |
| Minalabac | 2 | 4 | | | | | | | | |
| Malinao | 1 | 3 | 1 | 5 | | | | | | |
| Tiwi | 2 | 3 | 1 | 5 | | | | | | |
| Ocampo | 1 | 4 | 1 | 5 | | | | | | |
| Sangay | | | 2 | 5 | | | | | | |
| Sto. Domingo | 1 | 3 | 1 | 6 | | | | | | |
| *10% and below* | | | | | | | | | | |
| Pamplona | 1 | 4 | | | 1 | 10 | | | | |
| Manito | | | 1 | 6 | | | | | | |

places where transport outlets converge, such as Naga City, Iriga, Pili and Goa, are centers of attraction for people in other municipalities. Distance is of course a factor, but only in smaller centers, because in the case of Naga City as a prime destination point, distance does not seem to matter. More than distance, the range of urban functions that Naga offers, compared to smaller centers, makes it a prime destination for all Camarines Sur towns.

Table 4.23. Percentage of respondents who visited selected places in the BRB.

| Place Visited | Province | Visitors From Cam. Sur |
|---|---|---|
| Naga City | Cam. Sur | 55.0 |
| Iriga City | Cam. Sur | 19.3 |
| Pili | Cam. Sur | 13.5 |
| Legaspi City | Albay | 11.5 |
| Goa | Cam. Sur | 9.1 |
| Calabanga | Cam. Sur | 8.7 |
| Tabaco | Albay | 8.5 |
| Nabua | Cam. Sur | 7.6 |
| Sipocot | Cam. Sur | 7.6 |
| Polangui | Albay | 7.0 |
| Daet | Cam. Sur | 6.9 |
| Pasacao | Cam. Sur | 6.4 |

Source: SSRU, August, 1974.

### Historico-Cultural Linkages[24]

History can provide some insights into the present associations among settlements and the potential for increasing interaction among sub-areas within the Basin in order to stimulate development. Excellent historical accounts are available to establish the pattern of sub-ethnic groupings.

The Bicolanos have a legend entirely their own, the Ibalon or "people of the south," an epic of Grecian proportions enacted in short plays on many occasions to remind Bicolanos that Bicol is "an ancient land of an ancient people." Of the three migrating waves of Hindu-Malays that settled in the Philippines in the 6th century, it was the alphabet-using Malays of the second wave that made Bicol their home. Of the groups led by ten disgruntled tribal chieftains or datus who fled the injustices of Sultan Makatunaw in North Borneo, now Sabah, the group led by Datu Dumagsil and Balkalusa finally settled in the floodplains of Bicol after short stays in Kumintang (Batangas) and Kaliraya (Tayabas).

The early Bicolanos were not Mohammedans but practiced a religion akin to animism or spirit worship. They believed in a Supreme Being called Gugurang (ancient father), practiced ancestor worship, and made stone, wood and gold images called *ladawan, lagdong* or *tagno.* They had faith in an afterlife to be spent either in *kamurayawan* (heaven) or *gagamba* (hell).

The Spaniards, bringing Christianity with them, found a people with a religion of parallel beliefs and values, albeit with different names. Conversion to Christianity was therefore rapid and obedience to Christian dogma easily became a way of life. Today, many of the Bicolanos' cultural and political values are religion-oriented. It was the Spaniards who finally shaped the spatial system of Bicol settlements by gathering the dispersed natives into *pueblos* and using the parish church as the focal point for a township.

In 1571, Capitan Juan de Salcedo, coming overland across the Sierra Madre from Manila, reached the Bicol River Basin from San Miguel Bay and travelled upstream on the Bicol River tc Lake Bato. A year later, he established Libon in Albay, the first Spanish-founded town in the Bicol River Basin. Within nine years, the Camarines Sur parishes of Naga, Bula, Nabua and Kipayo (Magarao) were founded. Next came Albay parishes in Sawangan (now Legaspi), Kabasi (now Ligao), and Busaingan (now Magdalena, a *barangay* of Oas).

The mother settlement of the Rinconada towns was Nabua. Today, Iriga is the undisputed economic center of the area. For a long time the town, established in 1571, was called Naboboa (from *boa,* a young embryo of the coconut). In 1715-1716, during the term of Don Manuel Acasio, the *barangay* of Bato was created. In 1839, or 23 years later, the road of Bato was constructed under Alcalde Jose Arcadio. The following year, the road to Y-ragga, another *barangay* of Nabua, was constructed. Siramag (now the town of Balatan) was also a barrio of Nabua. Buhi, deep in the mountains of Rinconada, became a settlement after the eruptions of Mt. Mayon in 1628 when people from Daraga, Malinao, Tiwi, Polangui, Oas and Ligao fled across the mountains to escape. The word *buhi* is from *nakabuhi,* or able to escape.

Iriga was a barrio of Nabua before it became a barrio of Baao. Y-ragga, the original name, means a place of arable land. Because Nabua was always underwater during rainy seasons, Fr. Felix Huertas, the parish priest, encouraged the people to migrate to another location where there was better land to cultivate. Soon Y-ragga became a progressive barrio. In 1578 the church was built. Eventually roads from Iriga were constructed linking Nabua, Baao, Buhi and Polangui. To go to Caceres (Naga), people from Iriga sailed down the Barit River which connects to the Bicol River, there being no road connection as yet.

The seat of the Partido towns is Goa, whose name could have been derived from the grass (*gajo*) that abounds in the area or from the hometown (Pueblo de Goa) in Spain of the Spanish friar, Fray Juan Abalay, who founded the town. Through the centuries of Spanish rule, Mt. Isarog, on whose northern and eastern foothills the Partido towns lie, had always been a place of refuge for those who refused to live in obedience to the Spanish laws. In

[24]Materials in this section come from a compilation of annotated notes by Mr. Juan Ragragio, a Communication Arts Professor of Ateneo de Naga.

1881, an expedition was sent by the Spaniards to finally gather the "tax evaders" into Spanish *pueblos*. The *alzadas remontados o cimarones del Isarog* were suppressed, their camps destroyed, their houses burned, their work animals killed. The *remontados* were finally pacified. Still, travel along the Partido roads did not become safe until as late as two decades ago. It is said that Lupi, now a barrio of Goa, was once a prosperous and well-populated settlement but declined in importance due to the devastations wrought by the *remontados* of Mt. Isarog.

Before Juan de Salcedo left Libong (Libon) to explore Albay and Catanduanes, he commissioned Capitan Pedro de Chavez to go north and follow the banks of the Bicol River downstream. He was impressed by the well-built dwellings of a village, where people called themselves *cana* or builders (now the town of Canaman), and by the thick forest of narra trees (Naga in Bicol) in the present *barangay* of Tinago in Naga City. In this area, he established the settlement of Nueva Caceres to honor the new Spanish Governor General (Sande) who came from Caceres, Spain.

The diocese of Nueva Caceres was a major religious subdivision during Spanish times and received papal bulls directly from Rome. It became the seat of the Cathedral, and its annual feast of Peñafrancia on the third week of September still draws Bicolano devotees from all over the region. During this religious feast day, the population of Naga (almost 100,000 in 1977) easily doubles in number and brings vehicular traffic inside Naga City to a standstill. In 1596, the Cathedral was built on the site of the present public market, the Naga Supermarket, but was destroyed by fire in 1788. After being rebuilt the same year, it was destroyed by earthquake. In 1816, Bishop Bernabe de la Concepcion moved the Cathedral to its present site.

During those times, the Bishopric of Caceres covered not only the six provinces of Bicol Region but also Batangas, Tayabas, Marinduque, Samar and Mindoro. Thus, the seminary founded by Bishop Domingo Collantes in 1797 in Naga became the focal point for Filipinos training for the priesthood from provinces within the vast bishopric. In 1872, Bishop Gainza obtained a royal decree signed by Amadeo I of Saboya (Savoy) which established the Colegio de Santa Isabel in Naga. Not only was Naga the seat of a vast bishopric; it was also the provincial capital of Ambos Camarines (Sur and Norte). In 1948, when Naga became a chartered city, the provincial capital of Camarines Sur became Pili, but the provincial capitol has remained in Naga up to this time of writing. Indeed, Naga's primacy started early in history.

Libon in Albay antedated the founding of Sawangan (Legaspi City) by about two years, and it was the old town of Albay (now a district of Legaspi City) which was the *cabesera* of Albaybay (meaning sandy) province. Returning to Libon from the island of Catanduanes, the Spaniards founded Cagsawa and Budiao, both of which were obliterated by the eruption of Mayon Volcano in February, 1814. The Villa Santiago de Libong obtained special grants from the King of Spain at the same time as the old settlements of Vigan (Ilocos Sur), Lipa, Batangas and Arevalo (Iloilo). The nearby seacoast barrios of Pantao, with its deep harbour, became a terminal and repair yard for the Spanish galleons plying the Acapulco-Manila link. Until the early 1920's, before the railroad was completed, the Bicol River was the main artery into and through Camarines Sur up to Libon in Albay. It took one day and one night to reach Naga from Libon, a road distance today of 52.5 kilometers. As the terminal of the navigable part of the Bicol River, Libon flourished as a commercial center for Albay. It fell into obscurity as Lake Bato became silted, as the railroad began operations, and as the roads bypassed Libon.

Guinobatan, established by the Spaniards in 1672, was a barrio of Camalig until 1731. Un 1847, together with Camalig, Kipia (Jovellar) and Donsol, a *barangay* of Guinobatan, it belonged to Ambos Camarines (Camarines Norte and Sur) with its capital in Naga. Guinobatan's founding is the subject of an old legend. It was the place where Masarawag (Mt. Masara), the father of Magayon (Mt. Mayon), uprooted (*ginabotan*) a tree which he used to pacify the two quarreling giant suitors of Magayon: Isarog and Asog (Mt. Isarog and Mt. Asog). The two suitors fell on two spots which became lakes: Ranuw Libong (Lake Bato) and Ranuw Baao (Lake Baao). The third suitor, a shy (*bulusan*) and introverted giant, retreated quietly and became the placid lake Bulusan in Sorsogon. In 1895, the first school of higher learning in the Bicol Region, the College of San Buenaventura, was established in Guinobatan. In 1912, the first farm school in the region, the Roxas Memorial Agricultural School, was established.

The recorded history of Tabaco started in 1587 when Franciscan missionaries began converting the natives to Christianity. The missionaries operated from their base in Cagsawa. Tabaco was the target of frequent Moro raids and the settlement had to move many times. The Tabaco port served as the embarkation point for Catanduanes and the islands opposite Tabaco Bay. The Spaniards, however, used the Legaspi port more than Tabaco. It was the British and Americans who finally made Tabaco a permanent port for abaca exports.

From these historical notes, it is evident that the spatial system of the Bicol River Basin was shaped over centuries, and the present location of services, facilities and settlements is in large part the result of historical forces. The dominance of Naga in Camarines Sur, which was the seat of a large bishopric covering 11 provinces, is particularly due to a number of non-economic factors. Some older settlements like Libon and Nabua, established much earlier than Legaspi and Iriga, lost their importance because of a combination of physical development and natural factors, such as the silting of the riverway, railroad and road realignments in the case of Libon, and flooding in the case of Nabua.

Table 4.24. Percentage distribution of visitors from Camarines Sur as to their destinations.

| Municipality Visited | Municipalities from which Respondents Came | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 20-30 percent | | 40-59 percent | | 60-79 percent | | 80 percent and above | |
| Naga City | Sipocot | (36)[a] | Del Gallego | (54) | Libmanan | (67) | Cabusao | (88) |
| | Ocampo | (28) | Ragay | (45) | Pili | (62) | Bombon | (89) |
| | Bato | (31) | Lupi | (42) | Magarao | (74) | Canaman | (80) |
| | Balatan | (33) | Baao | (53) | Calabanga | (71) | Milaor | (89) |
| | | | Bula | (55) | Camaligan | (67) | Gainza | (83) |
| | | | Pasacao | (50) | San Fernando | (63) | Minalabac | (80) |
| | | | Goa | (54) | Lagonoy | (61) | | |
| | | | Sangay | (47) | San Jose | (63) | | |
| | | | Iriga | (42) | Tigaon | (60) | | |
| | | | Buhi | (40) | Tinambac | (60) | | |
| | | | Nabua | (50) | | | | |
| Iriga City | Naga | (23) | Bula | (42) | Bato | (62) | Baao | (80) |
| | Cabusao | (25) | Balatan | (58) | Nabua | (68) | Buhi | (88) |
| | Ocampo | (22) | | | | | | |
| | Pili | (38) | | | | | | |
| Pili | Iriga | (21) | Baao | (43) | | | | |
| | Naga | (28) | Bula | (42) | | | | |
| | Milaor | (26) | Ocampo | (50) | | | | |
| | Camaligan | (25) | | | | | | |
| | Tigaon | (23) | | | | | | |
| | Balatan | (33) | | | | | | |
| Calabanga | Naga | (21) | Cabusao | (50) | | | | |
| | Tinambac | (20) | Magarao | (45) | | | | |
| | | | Bombon | (44) | | | | |
| Goa | Ocampo | (33) | Lagonoy | (53) | | | San Jose | (85) |
| | Sangay | (29) | Tigaon | (42) | | | | |
| Nabua | Bula | (23) | Bato | (45) | | | | |
| | Baao | (30) | Balatan | (42) | | | | |
| | Pili | (21) | | | | | | |

[a]Percentage of respondents from other municipalities.

Table 4.24 (cont'd.)

| Municipality Visited | Municipalities from which Respondents Came | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 20-30 percent | | 40-59 percent | | 60-79 percent | | 80 percent and above | |
| Pasacao | Milaor | (21) | | | | | | |
| | Minalabac | (20) | | | | | | |
| | Pamplona | (33) | | | | | | |
| | San Fernando | (26) | | | | | | |
| Sipocot | Ragay | (30) | Lupi | (42) | | | | |
| | Cabusao | (38) | | | | | | |
| | Libmanan | (34) | | | | | | |
| Libmanan | Sipocot | (32) | Cabusao | (50) | | | | |
| | Canaman | (24) | | | | | | |
| Baao | Naga | (21) | | | | | | |
| | Pili | (24) | | | | | | |
| | Iriga | (27) | | | | | | |
| Pamplona | Libmanan | (31) | Gainza | (58) | | | | |
| | Pasacao | (34) | | | | | | |
| Lagonoy | Goa | (38) | | | | | | |
| | Sangay | (24) | | | | | | |
| | San Jose | (37) | | | | | | |
| Milaor | Naga | (20) | | | | | | |
| | Minalabac | (22) | | | | | | |
| Tigaon | Sangay | (35) | | | Ocampo | (72) | | |
| Bato | Balatan | (35) | | | | | | |
| | Nabua | (26) | | | | | | |
| Balatan | Bato | (28) | | | | | | |
| | Nabua | (26) | | | | | | |
| San Fernando | Milaor | (21) | Pamplona | (41) | | | | |

Table 4.24 (cont'd.)

| Municipality Visited | Municipalities from which Respondents Came | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 20-30 percent | | 40-59 percent | | 60-79 percent | | 80 percent and above | |
| Ragay | Lupi | (32) | | | | | | |
| Cabusao | Libmanan | (24) | | | | | | |
| Bula | Nabua | (21) | | | | | | |
| Magarao | Bombon | | | | | | | |
| Bombon | Cabusao | (33) | | | | | | |
| San Jose | Goa | (25) | | | | | | |
| Del Gallego | — | (21) | | | | | | |
| Lupi | — | | | | | | | |
| Ocampo | — | | | | | | | |
| Canaman | — | | | | | | | |
| Camaligan | — | | | | | | | |
| Gainza | — | | | | | | | |
| Minalabac | — | | | | | | | |
| Sangay | — | | | | | | | |
| Tinambac | — | | | | | | | |
| Buhi | — | | | | | | | |

## SUMMARY

The poor state of communications — roads, telephone, telegraph — in the Bicol River Basin presages the lack of linkages between its settlements. It is not surprising, therefore, that production areas are not linked to markets or that markets, large or small, are not effectively linked to each other.

The absence of a real specialization, which could have fostered a more intensive degree of interaction between settlements, is evidence that each micro-region must be almost self-sufficient, since linkages to other micro-regions are difficult. Thus, mutual dependence among micro-regions which could have led to better regional integration is virtually non-existent. The dependence of the river basin is on Metro Manila; it is an external dependence, a phenomenon that hardly contributes to a strong internal development of a regional economy within the river basin.

The dependence on Metro Manila, the Philippines' primate city over 400 kilometers to the west, contributes to the underdevelopment of the river basin settlements because it encourages the area to remain a supplier of agricultural products, like rice and coconut, and to be an importer of expensive manufactured goods. Even in this lopsided relationship, the linkage to Metro Manila is fragile: typhoons can block the Manila South Road, the south line of the Philippine National Railway, and cancel flights of the Philippine Airlines, isolating the river basin settlements from its prime market — Manila.

The analysis of spatial linkages in the preceding pages points to the fact that unless settlements in the Bicol River Basin are linked together, the efforts to mount development would be very difficult, if not impossible.

# CHAPTER V

# POLITICO-ADMINISTRATIVE LINKAGES

### Overview of the Government System

It would be useful to briefly describe and characterize the governmental system in general, as it has evolved in recent years, as a theoretical preview of the relevant tendencies to expect in the Bicol region.

The Philippine governmental system is a unitary and centralist one. Formally, it consists of a national government and subordinate layers of local governments. The national government, centered in a powerful Presidency, today includes 23 departments, 34 government corporations, and 36 other national offices.

Basically, there are only two levels of government in the Philippines before and after martial law: the national and the local. In essence their relationship may be described thus:

> "The Philippines remains a unitary state; as such there is no intervening level between the national and the local government. It also remains highly centralized; the national government therefore continues to exercise full control over all local governments which remains as mere agents of the national government and owe their very existence to it. The national government creates, merges, and abolishes local government units, appoints many local officials, and disciplines all of them. It supervises the country's 68 provinces, five sub-provinces, 61 cities, 1,540 municipalities, 20 municipal districts, and 33,720 barrios."[1]

[1]Proserpina Domingo-Tapales, Report No. 6-A-1, "The Administrative Machinery in Bicol." Preliminary Report: The Legal Framework National Development Research Center, University of the Philippines.

At the sub-national level, the provincial, city, and municipal governments have been the traditional tiers. To these has been added the *barangay* at the village or urban neighborhood level. Meanwhile, an intervening regional level has emerged with the creation in the 1960's of individual regional authorities and, since the declaration of martial law in 1972, the establishment of regional development planning councils (RDC's) and regional offices of the national departments. In addition to the regionalization of national planning, administration, and – more recently – budgeting, the idea of creating regional governments has been seriously considered.[2]

These tiers roughly reflect the basic hierarchical structure of the governmental system. It is actually far from a neat and simple arrangement, however; it is more like a "marble cake" than a "layer cake," as has been said of the American system, and it is more complex than even a set of multi-dimensional boxes is likely to suggest. This complexity is due in part to the variations and additions superimposed on the basic structure and to the vertical and horizontal penetrations that they create between institutional levels. For example, in addition to the RDC's, there are the Metropolitan Manila and Regional Commission variants, and sub-regional or supra-regional area development agencies like the BRBDP have been created. Then there are the youth organizations and cooperatives (*samahang nayon*) at the *barangay* and higher levels, and for almost every new national program and agency, a network of program councils and operating delivery systems is likely to be created down the line. In any local government, therefore, one is likely to find an array of interlocking structures for family planning, food production, nutrition, "Green Revolution," etc. as well as for general development planning.

[2]See the Five-Year Philippine Development Plan, 1978-1982, Manila, September 1977, Ch. 20, pp. 411-413.

### Planning in the Bicol Region

For national planning, there is a National Economic and Development Authority (NEDA) which is headed by a Secretary-General and whose governing board is headed by the President of the Philippines. The NEDA integrates sectoral plans through its "moving 5-year plans."

For regional planning and development in Bicol and elsewhere, bodies were created to overcome the institutional and area fragmentation resulting from the inability of national line agencies, local governments, and other institutions operating within a region to transcend their sectoral or geographic limitations to promote areawide development.

Before the Regional Development Council (RDC) and the Bicol River Basin Development Program (BRBDP) were organized in 1973, other regional and sub-regional bodies – the Bicol Development Council, Bicol Development Authority, Bicol Development Planning Board, and Bicol Development Company (BIDECO) – had been set up in the 1960s. These agencies were able to formulate general plans but could not pursue more than a few projects due to lack of financial, technical, and other resources. Thus, they were transformed or were subsequently replaced. But they had been the product of initiative and leadership from within the region and paved the way for their successors.[3]

The RDC and the BRBDP represent more recent developments at the national as well as regional levels.

[3]Joint Bicol Evaluation Team, "An Evaluation of the Bicol River Basin Development Program (BRBDP)," Manila, August 12, p. 3.

The RDC was set up according to a common organizational format for the twelve areas into which the country has been divided to regionalize development planning and the field administration of national line departments. Charged primarily with planning and coordinating the activities of other regional agencies and local governments, the RDC's governing council consists of 20 sectoral line agency or regional directors, the BRBDP Program Director, a BIDECO representative, and the governors of the six provinces and mayors of the three cities in Region 5.

The Council Chairman was drawn from local officials until 1977 through election, but since then through appointment by the President.[4] The ex-officio Vice-Chairman is the Regional Executive Director of the NEDA (the "NEDA RED"), whose Regional Office serves as the technical staff and secretariat of the RDC. The NEDA RED is also the ex-officio chairman of the RDC Executive Committee, which consists of selected sectoral regional directors, the Governor of Camarines Sur, and the Mayor of Legaspi City.

The BRBDP was organized for the smaller river basin area (comprising most of Camarines Sur and Albay at the time of the study) in Region 5. It had been originally created under a BRB Council for an even smaller area in Camarines. The Council was composed of the Secretaries of Public Works (Chairman), NEDA, Local Government, Agrarian Reform, and Agriculture, the Governor of Camarines Sur, and the Executive Director of the Program. In 1976, the Program was placed under a Cabinet Coordinating Committee on Integrated Rural Development (CCC/IRD), with the Secretary of Public Works as Cabinet Coordinator.[5]

The BRBDP operates through a Program Office (BRBDP-PO) based near Naga City and headed by a Program Director. Since 1974, the Regional Director of the Department of Agrarian Reform has been serving in an acting capacity. The Program Office is advised by a Coordinating Committee composed of 17 sectoral-agency directors, the governors of Albay and Camarines Sur, the BRBDP Director (chairman) and the NEDA RED (vice chairman). In addition, it is assisted by a multi-sectoral Private Advisory Committee in its public relations and feedback efforts.

Like the RDC, the BRBDP organized sectoral inter-agency task forces to assist it in its planning and implementation activities. While some of these bodies have remained on an *ad hoc* basis, sectoral agencies have been more actively involved, together with city and municipal governments, in the sub-area mechanisms sponsored by the BRBDP for project planning and implementation. Known as Area Development Units under the old BRB Council, they have been transformed into Area Development Councils and Teams (ADCs and ADTs) for the 12 Integrated Area Development units (IADs) delineated in the Basin for inter-governmental and inter-agency cooperation on water resources, irrigation, drainage, land consolidation, roads, and other projects sponsored by the BRBDP.

There are common features and important differences between the RDC and the BRBDP that should be pointed out. Both perform the dual role of serving as agent of the national government in the region and as promoter of its development and representative of its interests at the national level. The RDC, especially, is responsible for translating national plans and objectives into regional terms and eliciting objectives, programs, and projects from the region. Both are subject to national directives and guidelines and depend on the national government for most of their financial, technical, manpower, and organizational resources.

Aside from the size of their area jurisdictions, one major difference is that the RDC is formally superior to the BRBDP but is confined for the most part to planning, whereas the BRBDP functions extend to actual implementation of development projects. Moreover, the BRBDP has a wider scope in both administrative and substantive matters. The Program Office can appoint personnel (except contractual employees) without prior national approval, as its own line-item budget, and can secure substantial capital through national appropriations, budget contributions from other national agencies, and foreign loans and grants. The RDC has limited administrative authority and hardly any capital to speak of.[6]

Formally speaking, both the RDC and the BRBDP are not empowered to do more than "coordinate" the activities of other sectoral agencies and local governments. This implies equal status between the former and the latter groups, against the superior-subordinate relations that the word "integrate" might imply. Under its earlier charter, the BRBDP had been armed with "a vague 'supervising' role which created jurisdictional problems." P.D. 926 replaced this with one stressing coordination.[7]

In the case of the RDC, its coordinative authority has been extended from planning alone to the implementation activities of other agencies, but still the key word is "coordination." Indeed, one point raised at the Malacañang meeting held to clarify these matters is that RDCs should not build up extra capabilities because implementing activities will be

[4] In this case, the governor of the island province of Catanduanes who had been elected before and was re-appointed in 1977.

[5] P. D. 926, April 28, 1976. The CCC/IRD, which is chaired by the Secretary of Agriculture, supervises other Integrated Area Development (IAD) programs like the BRBDP in Mindoro, Leyte and a few other places in the country.

[6] Aside from its ₱5 million budget under P. D. 926, the BRBDP, by late 1976, had obtained or secured commitments of about $5 million in U.S. AID grant funds alone, $10 million in U.S. AID loans and $14 million in RP counterpart funds for secondary and feeder roads. The RDC depends on NEDA (by way of its Regional Office) and member contributions for its operating funds. It hoped to get a share of about ₱2 million from a nationally generated Regional Development Fund (₱30 million) and additional member contributions.

[7] Joint Bicol Evaluation Team, *op.cit.*

undertaken by appropriate line agencies or capable local government units.[8]

Along with the absence of hierarchical relations, coordination has meant something short of the authority to make or bring about real choices from among alternatives, to merge as well as select from proposals, and to enforce decisions. But making choices is implied generally by the planning function, and the BRBDP clearly has the function of integrating, both under the pervasive theme of "integrated" development and under the explicit charge to the Program Office to "integrate programs of agencies operating within the Basin area."[9]

The comparatively weaker position taken by the RDC in this regard is reflected by frequent references, even by its exponents, to the "collation" that characterizes its planning process. The NEDA RED acknowledges this by saying that the RDC only "reconciles" plans initiated by line agencies and local governments.[10] This seems to suggest a process of loose aggregation rather than integration of projects and programs proposed by other in "bottom-up" planning.

Such formal considerations need not deter integrative actions, and during 1977, there were moves towards "horizontal and vertical integration."[11] For example, at one point, the RDC prevailed upon the BRBDP to scale down certain of its plan targets to within those prescribed for RDC by the NEDA which the BRBDP would have exceeded. Moreover, under Presidential edicts issued in mid-1977, the RDC (or more precisely, its Chairman) was given somewhat greater authority, e.g., to review and make recommendations on line agency budget priorities in accordance with the RDC plan and national guidelines.[12]

For its part, the BRBDP apparently has made extensive use of the resources at its disposal to exercise leverage on the decisions of other agencies and local governments. This ranges from its planning function to its monitoring and evaluation function. And it has consciously organized both its internal structure and the ADCs and ADTs precisely to integrate sectoral and local efforts and generally to keep on top of activities.

Nonetheless, both the RDC and the BRBDP have avoided appearing as a threat to other agencies. The NEDA RED himself questioned the increase in the powers of the Chairman rather than the Council as a body when L.O.I. 542 was issued.[13] The BRBDP Director prefers to have the Program Office keep a "low profile," and doubts the idea of a strong, superior "area manager." As a line agency director himself, he even doubts the wisdom of appointing a permanent or full-time BRBDP director because he would lose identity with the other directors.[14] The BRBDP-PO has received similar advice to "stay lean and agile" and to avoid competing with other agencies by assuming a new administrative role.[15]

Thus, BRBDP may be likened to the Venezuela Corporation for the Guayana (CVG) and the Brazilian SUDENG whose longevity and effectiveness are attributed to their "administrative style" of anonymity, political neutrality, and non-controversiality,[16] and to the National Planning Commission of the French technocrats who also saw as an asset staying lean, non-coercive, and non-threatening.[17]

Like these foreign planning institutions, the BRBDP and the RDC have good reason to be a little wary about the sectoral regional offices. The latter represent their respective national departments and agencies, along with the resources and line authority that they wield. And there are many of them. They have their own problems of limited discretion on substantive and administrative matters,[18] but this does not necessarily make it easier for the two regional planning and development bodies. Nor does further regionalization of authority to these field offices necessarily strengthen the hand of the RDC and the BRBDP.

This might have been one reason the BRB Council, even before, had decided against an autonomous Program Office and for continuity of implementation through the line agencies.[19] The latter had the line authority, and a new body could duplicate their line functions only at the risk of opposition. According to the Program evaluators, it is possible in any case to have "simultaneous" or independent programs as well as "integrated" ones.[20]

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[8] See P.D. 797, Sept. 5, 1977, and "Special Regional Consultative Meeting Highlights," May 20, 1977.

[9] See P.D. 926 and "Implementing Guidelines of Presidential Decree No. 926," mimeo. copy, no date, Sec. 1.

[10] Quoted by Proserpina Domingo-Tapales, "Administering Regional Development: The RDC in Bicol," 1974, p. 27.

[11] L.O.I. 541, May 20, 1977.

[12] L.O.I. 542. See also Francis Balitaan, "Regional Development Planning: The Bicol Experience," Draft report for the CPA Bicol Studies, November 7, 1977 (typescript), pp. 29-30.

[13] Alberto B. Olaguer, Memorandum to the Deputy Director General of NEDA, September 1, 1977.

[14] Interview with Salvador Pejo, BRBDP Acting Director, Canaman, Camarines Sur, September 9, 1977; and conference between CPA research staff and regional directors, Legaspi City, September 7, 1977.

[15] Joint Bicol Evaluation Team, *op. cit.*, pp. 5 & 6.

[16] Gilbert, *op. cit.* See more particularly about the CVG, J.R. Dinkelspiel. "Administrative Style," in La Rodwin et. al. (ed.), *Planning Urban Growth and Regional Development* (Cambridge, Mass.: MIT Press, 1969), pp. 301-314.

[17] Stephen S. Cohen, *Modern Capitalist Planning: The French Model* (Cambridge, Mass.: Harvard Univ. Press, 1969), p. 1x.

[18] Conference with regional directors, Legaspi City, September 7, 1977.

[19] Wilfredo Olaño, "The BRBDP Experience in the Institutionalization of Coordination among Government Agencies," no date, (typescript), p. 7.

[20] Joint Bicol Evaluation Team Report, July 1976 USAID-NEDA-Agriculture

The same thought had occured to the RDC in relation to the BRBDP. Initially, it had intended to avoid what the BRBDP was already doing, but in 1974, the latter was placed by L.O.I. No. 198 under the former's supervision, an awkward situation where a planning body with a very small staff was to oversee an agency already well into implementation activities.[21] This was corrected in 1976 by P.D. 926 which, however, also dissuaded the Program Office from its own vague supervisory role vis-a-vis other agencies and left it only the painstaking strategy of "integrated development."[22]

The RDC's wider geographic jurisdiction suggests even greater circumspection for a body primarily charged with planning. The fact that its chairman is a local political leader, to start with, entails at least an equal risk of stepping on sensitive toes.[23] The RDC has served as a useful forum for generating information and compiling proposals for development. But its planning exercises, resulting initially in admittedly "first approximations," has seemed futile to some participants because the RDC can not really follow through on them for lack of capital funds, among other things.[24] On the other hand, with the NEDA Regional Office and the weight lent by its parent agency, the RDC has gained some reputation for technical expertise in planning, and with prudent use and increased resources, its new-found powers may give it great clout in the region.

The BRBDP shares the asset of technical competence to probably a greater degree. By April, 1977, it had built up its Program Office staff to 307 employees (100 regular, of which 40% are professional and technical people), compared to the NEDA Regional Office's complement of 31 (16 technical).[25] Although it is ordinarily difficult to attract technical manpower to the regions, the BRBDP can provide the financial incentives and professional challenge to recruit personnel on secondment and consultancy as well as direct-hire bases.[26] Some local officials interviewed in the course of this study regard the BRBDP's technical expertise as "OK," though other regional offices view it as expertise in planning rather than in substantive development efforts. The fact that BRBDP-sponsored projects are being financed and getting implemented also creates a favorable impression about its performance. Another major factor behind the Program is the financial and technical assistance of the U.S. AID, which has closely monitored its performance.[27]

The BRBDP regarded its first few years of existence as the "institutionalization phase" and devoted much of this period to its sub-area or IAD schemes. Through these units, it has sought to directly address the problems of integrating sectoral and local perspectives on a spatial basis, transcending jurisdictions but not too drastically altering existing roles — and without the Program Office's losing effective influence, either. Each IAD consists of two to eight towns and cities; in five of the ten IADs, adjoining *barangays* of neighboring towns are included. Moreover, a town or portions of it may be included in several IADs.[28]

The ADC (Area Development Council) for each IAD is composed of the mayors concerned and local civic, religious, and business leaders. The ADCs are responsible for "formulating policies, determining priorities, articulating . . . development needs, and providing critical feedback."[29] The members elect the chairman from among themselves. The ADT (AD Team), on the other hand, consisting of line agency personnel assigned to the IAD, "are involved in action planning and implementation."[30] (No strict distinction is apparent between the two; the discussion below will refer only to the ADTs).[31] In addition, each ADT has a Coordinator, who is usually a Municipal or City Development Officer recommended by the DLGCD regional office and appointed by the BRBDP, and a Deputy Coordinator, appointed by the BRBDP from the supervisor-level line representative.[32]

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[21] At least according to Rene S. Santiago of the Planning and Project Development Office, DPWTC in his paper cited below. Santiago also points out that the Cabinet-level BRB Council was thus placed under a regional body, the RDC. "Improving the Method of Regional Planning and Implementation in the Philippine Experience," Country report to the UN Center for Regional Development, Colloquium, 25 October to 1 November 1976, Nagoya, Japan. Page references below are to an edited version to be published in the *Philippine Journal of Public Administration* (PJPA). (See p. 32 of the typescript).

[22] *Ibid.*, p. 31.

[23] Mr. Pejo, in the interview previously cited, warned that this danger might become greater if the Chairman assumed more executive functions and more actively intervened in localities outside his own province.

[24] "We (in the RDC) keep meeting, but nothing happens . . . how can you plan without funding?" Albay Governor Felix Imperial, Jr., quoted by Balitaan, *op. cit.*, p. 28 (interview, April 12, 1977).

[25] See Balitaan, *op. cit.*, pp. 25 and 13.

[26] Among the IAD Programs in the country, Bicol is privileged in having "brainpower located in the region," whereas elsewhere national technical supporting personnel has to be recruited from outside the region. (Santiago, *op. cit*, p. 31).

[27] According to the BRBDP deputy director for program planning, there would be no viable projects without the U.S. AID's extensive assistance. Some officials in the region, however, express reservations about the intervention of foreign aid agencies which often has important "strings attached". They also observe that USAID seems to require too much data — more than those required for BRBDP planning activities — implying that USAID is using BRBDP for information gathering purposes for other U.S. agencies.

[28] See Olaño, "The BRBDP Experience," pp. 37-38.

[29] Salvador P. Pejo and Benjamin B. Baon, "Management at the Program/Project Level, Requirements and Problems." Paper presented at the Workshop on Agricultural Development Administration, University of the Philippines at Los Baños (UPLB), January 25-26, 1977 (mimeo), p. 3.

[30] *Ibid.*

[31] Olaño's extensive account, which will be used here frequently, refers only to the ADTs, but does distinguish between their planning and implementation roles (*op. cit.*, p. 19).

[32] *Ibid.*

Since the mayors usually head the ADTs, local governments are given some prominence in this set-up, particularly during the project planning phase. The nature of their participation is more for data survey than substantive issues of setting priorities or development targets. On the other hand, during the implementation phase, the sectoral agencies take the lead under the "lead line agency" scheme of the IAD; i.e., the line regional agency with ongoing or proposed projects considered the priority in an IAD heads the implementing inter-agency group. The BRBDP, aside from general planning, conducting feasibility studies, generally stimulating and assisting these groups, as well as appointing the Coordinator, ensures effective control of implementation. Once a project is funded and actually gets going, it might appoint a new Coordinator from a line agency other than the local agency. Each IAD reaching this stage, sets up a Project Management Office.[33] From experience, BRBDP exercises very nominal authority in the PMO – in fact, none at all, as it merely monitors project operations.

The BRBDP has addressed this system specifically to the task of linking urban and rural areas, a problem also reflected in its general plans. Thus, in addition to the ten IADs, five localities, including Naga City,[34] have served as pilot "Urban Rural Linkage" project areas. Naga City is considered the center of this area, and its mayor heads the ADT. The project was intended primarily to develop socio-economic and physical profiles and framework plans for the adjoining towns. (Only Naga City had a framework plan when the project was started in February, 1976).[35] A number of line agencies, however, are represented in its ADC/ADT and are expected to contribute funding as well as manpower to the project.

Evaluators from the national agencies concerned have found the IAD scheme adequate, along with other elements of the Program.[36] However, the BRBDP has not been a total success. It has not been able to push through certain expectation-generating plans on incentives for inter-agency participation.[37] On the part of sectoral agencies, commitments to joint projects might weaken at crucial points, such as the actual detail of personnel.[38] Furthermore, local feelings seem to remain strong about IAD delineations. For example, Naga City, along with Minalabac and one other town, seceded from an earlier IAD in which another town was considered the center. In turn, the Urban-Rural Linkage IAD has raised suspicions among adjoining towns of a "Metro-Naga" plan afoot.[39]

Generally, weaknesses in planning have also been acknowledged. While impressive amounts of data have been generated in the region by the BRBDP, RDC, and others, they are not necessarily suited to spatial analysis, particularly the kind that would validate the criteria of homogeneity and centrality[40] used for delineating the IADs. The IAD experience itself has also revealed the inadequacy of suitable data and local general development plans. While this lack is being attended to, it also reflects the limited technical capacity and role of the local governments in performing this function. Interviews with municipal officials give the impression that they are frequently cast in the role of data-gatherers or cooperators in data-gathering for area planning purposes. The provision of information, however, is not an unimportant function and it is surely not the only role played by the "locals."[41] Furthermore, limitations in technical capacities for area planning are shared by other agencies, so much so that the BRBDP was advised by its evaluators against hoping to establish a planning office for each IAD.[42]

These shortcomings have also cast serious doubt on the efficacy of sophisticated techniques for spatial analysis and planning in the region. A variety of such techniques have been tried in Bicol, including computer simulation. But in the absence of basic information about such elementary aspects as settlement patterns, more pragmatic methods[43] "closer to the ground" and data-requirements would recommend themselves. Crucial to the development and use of techniques, however, are the institutional arrangements for their application.

To conclude, the basic question of institutional centralization and its relation to spatial pattern of development may be briefly addressed. First, it would appear from the discussion of integration and coordination that centralization of authority within the region has occurred only by gradual degrees, – i.e., in the case of the RDC. Moreover, while this process is being pressed, serious questions have been raised about its wisdom. On the other hand, the BRBDP experience suggests that weakness in formal authority would have to be overcome by appropriate institutional arrangements and use of resources to sustain a regional body's influence on development. This is especially so if it wants to impose a definite spatial direction on development efforts at different

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[33] S. Pejo, interview, September 9, 1977.

[34] The other towns are Gainza, Milaor, Camaligan and Canaman.

[35] Olaño, *op. cit.*, pp 38-39; "Project Design, Framework Plans for Area Development," no date, and Memorandum-Agreement between BRBDP and the IAD local governments, June 30, 1976.

[36] Joint Bicol Evaluation Team. *op. cit.*, p. 6.

[37] Some of them are incentive pay for all ADT members, construction of Marcos-type buildings for ADTs, third-country training for ADT members. (Olaño, *op. cit.*, pp.26-27).

[38] George H. Honalde, "Implementing Integrated Area Development in the Bicol," A Report to the U.S. AID, October 25, 1977 (mimeo), p. A-8 to A-10.

[39] Olaño, *op. cit.*, pp. 15 and 39. See also p. 41-42 about ADT coordination problems, particularly in the agro-industrial ADT.

[40] See Olaño, *op. cit., passim.*

[41] See the next section of this chapter for more detailed discussion of local government planning and decision-making.

[42] Joint Bicol Evaluation Team, *op. cit.*, p. 12.

[43] See Santiago, *op. cit.*, pp. 36 ff. for a discussion of experience with planning techniques in the Philippines.

levels. This direction, however, may be independent from the aggregation or integration of authority required by such a body.

Delineating relevant levels of planning, however, has a lot to do with delineating relevant levels of decision-making. Several studies undertaken by the College of Public Administration of the University of the Philippines point to the very strong influence of the national government in planning and implementing activities whose effect, at best, would be confined to the region or province concerned.

In a paper entitled "The Transfer of the Provincial Capitol from Naga City to Pili in Camarines Sur: Implementig a 22-Year-Old Decision," Albano gives proofs of this all too centralist tendency:[44]

1. Structurally, the flow of decision-making is vertical. Not only did the provincial government "apply" to Congress to legally transfer the Capitol, it also had to rely on national government leaders and, ultimately, the President to make the decision on specific sites in 1963 and thereafter. Although of late there has been an attempt by provincial and municipal leaders to reassert their power over local issues, the technical leadership of the selection committee remains with the national government as it is provided by the Department of Local Government and Community Development.
2. Substantially, the decision to locate the Capitol outside of Naga City became long and tedious. The difficulty seems to have stemmed from the fact that no set of criteria for the selection was drawn before the various site donations were solicited and discussed. Although the reasons cited by the members for/against a site indicated a bias for efficiency, this goal was not explicitly defined through more specific guidelines.
3. The implementation of the decision became as protracted as the process of site selection. Due to lack of local funds, local officials had to apply for appropriation from the national government. In addition to the expected bureaucratic difficulties, the ₱10 to ₱15 million promised by the President could not be readily available because the government's resources had to be directed to its massive operations in Mindanao.

### The Bicol River Basin Development Program

The creation of BRBDP heralds a new approach to regional development planning in the Philippines. Whereas planning before BRBDP was undertaken within the limits of conventional political boundaries — towns, cities, province, region — the approach initiated through the BRBDP transcends these boundaries and focuses on areas with the highest potential for developing the Basin areas.

The idea itself of identifying Basin areas within the country is a recognition that development activities, to be viable, must be based on realistic resource and planning frameworks. An earlier examination of potential areas for development indicated that the Basin areas, because of their suitability to agriculture, are more likely to yield greater benefits for every unit of investment than other areas. The recognition of the Basin areas as focuses for development activities indicates their vast potential and the need to make full use of them to generate economic opportunities within the Basin as well as outside where such potential is limited.

A second important aspect of this new approach is the concept of integration in area development. In essence, integrated area development means that the basic components of the planning area are so planned that each component contributes to the others to achieve certain goals. Conceptually, this calls for a special way of looking at the planning environment, a way that is comprehensive yet capable of delineating the relationship of each part to another part, of a part to the whole. This is what is often called the systems approach. It means being able to see and relate the various parts of the planning area — the material and the non-material; the social, economic, physical, and instructional sectors; the urban and the rural; and whatever other configurations that can be formed out of the nature of a region. Operationally, it means being able to create a relationship among various institutions, public and private, where each institution's effort complements the other, and where the total efforts contribute to the attainment of certain planning goals. This means making the Departments of Agriculture, Trade, Industry, Tourism, the National Economic and Development Authority, and other ministries of the government work together. It also means making the public and private sectors work together towards certain development goals.

In a great attempt, BRBDP tries to be both integrated in its approach and comprehensive in its goals. A study of the more important policies enunciated in its charter reveals its focus on rural development, its intent to integrate horizontally (agriculture, natural resources, infrastructure, social services) and vertically (national, regional, local), and its desire to decentralize planning and management.

To operationalize the policy of comprehensive and decentralized planning, implementation and management, the entire Basin and its peripheral areas have been subdivided into ten development areas (termed IADs), each characterized by distinct and homogenous hydrology and physiography. Delineated by the extent of major physical undertaking critical to their transformation, the IADs utilize space as a venue for the integration of sectoral programs. As boundaries for planning, they serve as the basis for the identification of sub-basin institutions designed to harness local participation in the development process.

Ten such areas have been identified — eight in Camarines Sur (Libmanan-Cabusao, Rinconada, Baliwag-San Vicente, Naga-Calabanga, Pili-Bula, Sipocot-Del Gallego, Parubcan and Partido) and two in Albay (Quinali Valley and Legaspi-Tiwi). These areas will be

44"Obstacles to Philippine Economic Planning" in the *Philippine Economic Journal*, No. 8, second semester, 1975.

the location of investments whose nature will be determined in more specific and detailed studies.

An IAD, in effect, is a microcosm of the Bicol River Basin Development Program. Encompassing several contiguous municipalities, each is managed by an Area Development Team (ADT) (see figure 17) and an Area Development Council (ADC). The ADT is headed by a project manager (coming from the BRBDP) and composed of the various line agency personnel operating in the area. It plans and implements the different programs and projects of line agencies and municipalities involved. The ADC, on the other hand, is supposed to be a policy-making body, headed by the political leader of one of the municipalities or cities in the area and composed of the local political, civic, religious and business leaders. In addition to formulating policies, it is designed to determine priorities, articulate the development needs of the area and provide a critical feedback within the area. These expectations have not been met due to two strong factors: the strong prerogatives of national ministries on the programming of their regional activities, and the default of local governments to assert their own priorities.

Given the setup of BRBDP and its sub-basin strategy, two questions need to be fully answered. First, within the existing regional planning setup, how effective is BRBDP in performing its planning and coordinative functions? In a way, BRBDP's success as a planning body depends on how well it can coordinate with the line agencies located in the region, the RDC, the local leaders, and the private sector. Second, how viable are the IADs as planning and administrative units?

In its first three years of existence,[45] the BRBDP focused its attention on generating sufficient data base and creating institutional arrangements to be able to carry out its tasks in the Basin and, ultimately, the Bicol Region. Since the publication of the "Blue Book," its first comprehensive plan, it has been greatly expanded by way of personnel and projects and has been re-structured to meet the demands of its increased activities. PD 926 (April 1976) laid down many of its recent directions. BRBDP has spelled out a new coordination setup through the Bicol River Basin Coordinating Committee (BRBCC) and has stressed anew its role in integrating efforts of the private sector with its own.

The BRBCC is composed of the Regional Directors of the participating line agencies, the Governors of Albay and Camarines Sur, and the BRBDPO Director who is concurrently the Regional Director of the Department of Agrarian Reform. Among its many functions, it is to provide planning and management guidelines for the day-to-day operations of the Program Office, insure that plans and programs for the Bicol River Basin area conform with the overall development plan for the region, serve as a forum to resolve problems in inter-agency coordination at the Basin level and propose and/or institute such other duties as may be assigned to it by the Cabinet Coordinating Committee/Integrated Rural Development Program (CCC/IRDP).

In addition to the Council proper, the BRBDP has created sub-committees to tackle specific projects. Inter-agency study/planning groups and the Program Management Office have been formed for planning and project management activities for the implementation of multi-disciplinary projects.

Prior to PD 926, the BRBDP task of integrating and coordinating the different activities for development had become a problem for the Council because of its vague and undefined role vis-a-vis other government line agencies. In most cases, the relationship was personal rather than formal, thus depriving the council of total and continued participation. The PD, however, is not a total guarantee that all will work well with the BRBCC. In spite of the seemingly ideal coordinative structure and the fact that the BRBDP Director is a member of the RDC and that the NEDA RED is in fact the Chairman of the BRBCC, the coordinative process appears not to be working as well as desired. This particular weakness surfaced when the BRBDP came out with its Comprehensive Plan for the year 1975-2000 (Complan). As it turned out, the target of the Complan for the program area was larger than the target of the RDC for the Bicol Region. The BRBDP, of course, had to give way – it adjusted its plan.

It may be noted that the BRBCC does not include any representative from the private sector. Despite the creation of the Private Advisory Committee (PAC), the participation of the private sector is very much wanting, if only to have a truly representative council. The regular absence of some members in PAC meetings and the very infrequency of meetings indicate the lack of interest of the private sector. This may largely be due not to the absence of real interest in development but to the advisory nature of its function which leads to a relatively detached involvement.

There are other factors that at present make the going a little rough, as in the case of disbursements. Projects which are to terminate beyond fiscal year cut-offs are often delayed due to budgeting rules requiring excess funds at the end of each fiscal year to revert to the national treasury. Before the projects can be continued, reallocation has to be approved first. This has caused much delays in the implementation of projects.

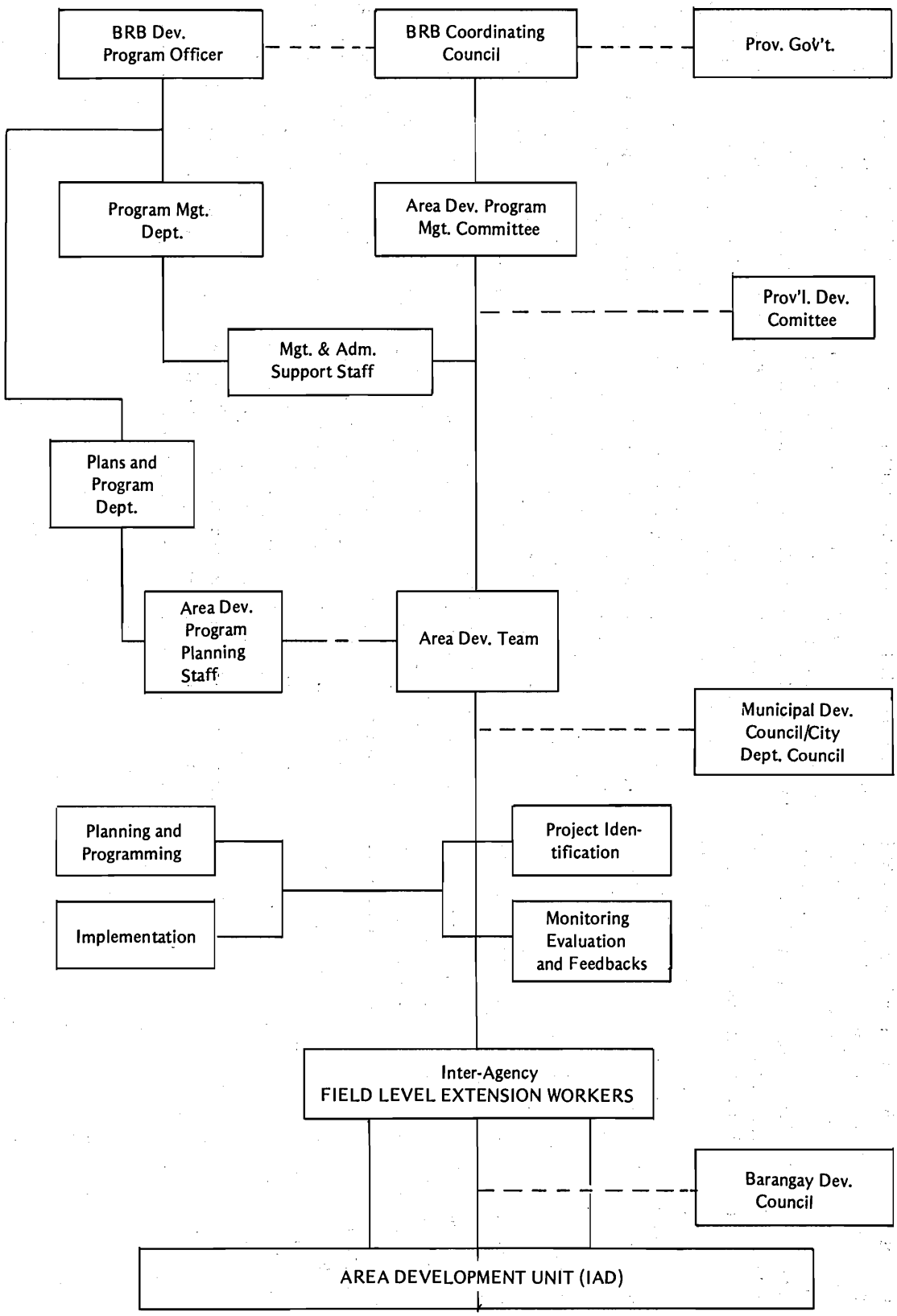
The existing auditing system also presents problems in the disbursement of funds. As no disbursement can pass audit without the authority of the COA Chairman, the volume of auditing work continues to pile up as program operation expands. Since its creation, the auditor has never been full time to BRBDP; hence, he has never appreciated the efforts of this agency, especially those related to planning. In many ways, the auditor has successfully obstructed the development efforts of BRBDP.

WAPCO and CSC policies also put some constraints on BRBCC activities. Due to low wage ceilings set by both WAPCO and CSC, the Basin can

[45] An executive order issued by the President of the Philippines created a River Basin Council in 1973.

Figure 17.

ADT ORGANIZATIONAL CHART
SHOWING ITS RELATIONSHIP WITH
OTHER ORGANIZATIONS
AND THE BRBDP



hardly recruit enough technically competent personnel. It thus continues to rely on a system of consultation, detail of personnel and contracting of services of outside private and public agencies. While this system may work in the short-run, already there are glaring instances when contracting projects to different agencies works against a truly integrated approach to planning development in Bicol. For instance, the Comprehensive Water Resources Study assumes in its final report that there will be enough water for all the IADs. Studies done by the Naga-Calabanga and Baliwag-San Vicente Project Teams both point to the fact that the water supply will not be enough unless the capacity of the Bicol River is augmented by reservoirs and that, in fact, it is just enough to meet total demand for water only in the irrigable areas of either IAD.

In the absence of a competent technical staff to evaluate the findings of the studies made for the Basin by the various consultants, the Basin adopts their recommendations until they are proven faulty by later studies. Only a careful review of data will tell how much more useful data are wasted and how much effort has gone into research that should not have been conducted at all.

In spite of all these, the BRBDP is forging ahead and is on its way to planning for three of its ten IADs – the Naga-Calabanga, Baliwag-San Vicente and Rinconada IADs.

### Evaluation

In the Philippines, there are two levels of coordination below the national government: the region through the RDC and the local government through the city and municipal governments. The RDC links the provinces, cities, and municipalities within the region's spatial definition through the membership of their leaders and the representatives of the regional agencies in the council. The city and local governments link the *barangays* and neighborhood units within their spatial definition and exercise direct governance and supervision over such units. The latter have contributed to the local government's greater ability to coordinate development despite national efforts to focus on the region's integrative role.

To a large extent, the framework of RDC itself is its main source of weakness. Its Executive Committee, which reviews and recommends to the Council the adoption of regional plans, programs, policies and guidelines, is composed of heads of regional offices and thus does not have power over the political units represented by the Council. On the other hand, the RDC Chairman or the Council does not have power over the representatives of the regional agencies. Apparently, this basic flaw in the setup of RDC has greatly undermined its ability to coordinate local governments and line agencies and assume a significant role in regional planning and development.

LOI No. 542 issued on May 20, 1977 somewhat strengthened the RDC role by giving additional powers to the Chairman, such as the authority over budget allocation for programs and projects of national offices and over the administration of the proposed Regional Development Fund. While this could considerably strengthened the role of the RDC – through its Chairman – there remains a conspicuous absence of organizational machinery, except the NEDA Regional Office's limited staff, to back up the Chairman's powers and functions. The power, it would seem, is a paper tiger, issued to appease the RDC Chairman and give him some aura of authority which cannot be exercised.

The weakness of the framework of RDC has led to several studies towards the formulation of an alternative strategy to strengthen its role in the region, in the planning and development of local units – provinces, cities, towns. A basic issue underlying the search for an appropriate regional strategy is how much political power should be devolved to the region for it to effectively perform its developmental tasks. Are regions to remain administrative units, mere extensions of national ministries and line agencies? Or, are they viable as government units, a true extension of the national government? As mere extensions of national ministries and line agencies, they have not exerted a significant impact on regional development. As government units, they will possess the power and authority over local units and can thus exert influence to direct planning and development within areas under their jurisdiction.

Iglesias, in a paper quoted earlier, outlines a regional government model and discusses its political, administrative, and spatial implications. In his scheme, he proposes the creation of a regional government with adequate political and administrative authority to plan, implement, and manage regional development. Within this arrangement, the regional government will perform governmental and developmental functions currently performed by the national departments, agencies, instrumentalities, and political subdivisions.

The Iglesias model of regional government will have a policy-making branch (the Regional Assembly or Batasang Pampook), an executive body (Regional Executive of the Regional Chief Minister) to administer and implement policies, and a judiciary to attend to or deal with judicial matters under regional or local jurisdiction. This assumes, of course, that the national government will have defined functions that are either of a regional or local character or that can be performed at the regional level. Once the division of functions has been set and the nature of power-sharing delineated between national and regional levels, the transfer of functions to the regional government can either occur immediately by placing all the national agencies defined as "regional" under the jurisdiction and authority of the regional government or by the gradual assumption of such functions by the regional government as soon as it attains the capability to perform them. In both instances, the regional government retains complete power and authority over provinces, cities and municipalities within its jurisdiction.

Underlying this model is a basic policy issue surrounding regionalization: the issue of whether regionalization is primarily a political or a development strategy. The model suggests that it should be both. In defense of his approach, Iglesias writes:

> "A major issue that is raised in any approach where only administrative powers and functions are devolved from a national level (in this case the region) but not the political authority over major and substantive functions is that it does not develop fully the capability of the regional and local governments to perform functions crucial to the development of the geographic space under their jurisdiction. This is classically illustrated by the plight of local governments in the country. It also exacerbates problems of reconciling sectoral priorities with area (regional, local) consideration and interests since power over substantive governmental functions is the responsibility of agents of sectoral departments at the regional and local levels."

## SUMMARY

While a highly centralized government organizational structure would seem to facilitate the integration of development efforts, the situation as described in the chapter indicates otherwise. Firstly, much of the decision-making for development is done at the national level ministries, leaving very little opportunity for initiative at local levels. The effort to regionalize which began at the onset of martial law in 1972 is still in its early stages, and present strategies to "deconcentrate" instead indicates more concentration. For instance, major infrastructure projects such as roads, irrigation and flood control are planned, funded, supervised and operated by national ministries. Decisions to deliver government services to rural areas at local levels come from national offices. Local taxes are remitted to the national government and reallocated back. Health services are designed and operated at national levels. Primary education is run by the national ministry of education. Farm extension work is a national ministry effort.

The government structure, which is a rigid hierarchy, actually permits integration only at the remote national levels (the NEDA Board, for instance), but at local levels there is no regional government yet to integrate provinces, and provincial governments have neither the money, power nor authority to effect integration of municipal programs within the provinces. The governor, at best, is an agent of the national president, but the latter often goes direct to municipal or *barangay* levels, and even municipal officials need not use the office of the governor to reach the national government. The national government ministries reach down to local levels sectorally, i.e., each has its own program capabilities, relying very little, or not at all, on local government.

The RDC is not yeat a regional planning agency due to limited capability and, therefore, is not yet competent to draw up an integrated regional plan. While almost all national agencies are represented at RDC meetings, their respective national programs move on irrespective of RDC planning.

The BRBDP has come closest to integrating sectoral efforts: first, by having national agencies sit at BRBCC; second, by involving other agencies in its inter-agency study groups; and third, by delegating to line agencies a good number of its project operations. However, by not exercising its authority to pass over regional agency budgets, nor exercising compulsion on other agencies but attempting merely to enhance communication between itself and other agencies, BRBDP has not yet attained a position where it can truly integrate sectoral efforts. Even if BRBDP, in its project planning, tries very hard to produce a mix of project components that would draw a multi-agency *modus vivendi* still, in actual project implementation, the lead implementing agency (LIA) tasked with responsibility for output builds up its own internal capability to meet project requirements and minimizes (if not eliminates) participation from other agencies. The best examples of this metamorphosis are the Libmanan and Roads Projects, with NIA and DPH, respectively, as LIAs.

Thus, politico-administrative linkages are vertical, at best. Horizontally, there is little integration, if not outright geographic fragmentation. The binding linkage at local levels, especially in rural areas, is mostly social (family-relationships which dictate political linkages), cultural, or economic (linkages between markets or between hinterlands and markets, if they exist).

The Philippine Government system, it would seem, sees geographical integration as a task of national ministries, not of local governments.

# CHAPTER VI

# CONCLUSIONS AND POLICY RECOMMENDATIONS

### Intention of the Study

In the past, development planning was concerned mainly with economic growth, that is, the identification of potentials for and constraints to economic development and the emplacement of social and physical infrastructure supports for economic activities. The strategies for rural development, however, must reckon with spatial constraints, i.e., the pattern of human settlements and the linkages along these settlements. Basic to this concern is the anxiety that the benefits of development will not reach the rural poor. The issue of social equity, then, is as great as the issue of economic growth. If a large portion of the rural population is physically, politically and socially isolated from the mainstream of development, then only a minority really participates and benefits from development. With this in mind, the Urban Functions in Rural Development Project set out to examine the spatial system in the Bicol River Basin in order to develop a spatial planning process applicable at the regional, sub-regional and local levels.

### Conclusions and Implications

The spatial pattern of development in the Bicol River Basin is not only obstructive to economic growth; ample evidence shows that the spatial pattern of public and private investments has retarded equitable economic and widespread social development. Current spatial structures, however, may be rectified to effect the desired spatial pattern conducive to development. This observation is borne out by the conclusions of the study which, in the main, are as follows:

#### Functions

Functions, facilities and services are heavily concentrated in Naga and Legaspi without the benefit of a supportive hierarchy of centers that can offer intermediate and lower level functions accessible to the dispersed and isolated rural population. People in the Basin, therefore, have little choice but to go directly to these two primate cities even for the more basic services that should have been available in nearer places. Naga and Legaspi have acted as "continuing magnets" that increase concentration of investments in their own areas to the detriment of others.

The dominance of existing urban centers has stunted the growth of other sub-regions of the Basin and has slowed down the growth of intermediate-and smaller-sized cities. A comparison of urban centers of BRB and the numerous smaller settlements reveals a dual economy characterized by large disparities in income, wealth and living standards between urban and rural populations. This skewed settlement pattern evidently reinforces the disparities in the pace and equality of development of sub-areas in the Bicol Basin. While the center-to-barrio ratio is 1:25, which by existing standards suggests that there is no lack of feasible central places, the problem lies in the absence or inadequacy of sets of appropriate functions in rural centers to serve the economic and social needs of the rural population and in the dispersed pattern of small settlements without links to centers. Indeed, even the most primitive economic facilities are found in only half of the settlements. The functions found in most of the *poblacions* and central barrios are either very localized services or economic institutions with no productive capacity to employ displaced farm labor.

Most of the rural population is scattered in small *barangays* with average population sizes of less than 300 households – too small to support services or facilities of any development significance. Against this pattern of scattered small communities is the absence of enough central places, sufficiently dispersed to provide farmers with access needed farm inputs and to markets where their produce can be sold at fair prices. It has been ascertained that the absence of access to markets is a major cause of low farm productivity.

#### Linkages

The linkages among settlements in the rural areas are extremely weak because of these reasons: 1. Transport connections are poor between rural areas and periodic markets; between periodic markets and regular markets; and between market towns and the two provincial capitals of Naga and Legaspi. 2. There is a lack of specialization and division of labor among settlements along with dependence upon Metro Manila for manufactured commodities. 3. Public service delivery linkages from town centers to rural *barangays* are intermittent, weak, unorganized and discouraged by poor access. 4. Decisions are made by central offices of the national government even for isolated rural areas because administrative linkages are not hierarchical nor continuous but are fragmented by political loyalties and circumscribed arrangements.

Analyses of the market linkages, travel patterns, social interaction and social service profiles of the economic subsystems apparently operating in the province – the Naga-Camaligan/Iriga urban cluster, the Legaspi-Daraga/Tabaco urban cluster and the isolated, scattered rural settlements – all point to the absence of significant interaction between the two provinces of Camarines Sur and Albay. Likewise, very little interaction occurs between the urban clusters and the rural areas within each province.

The functions that are located within the town centers primarily serve the town's residents and do not serve their rural hinterlands. Even when some functions are present in these towns, the access of rural people is severely limited because of the lack of or poor conditions of roads and transport.

### Development Gaps

There are large disparities between the relatively urbanized areas in the Basin and the rest of the municipalities. Inequality in the distribution of economic resources, physical facilities and social services is such that a dual economy exists. Greater income, increasing wealth and progressively better standards of living in a few urbanized places are found side by side with poverty, isolation and a severe lack of basic economic and social services in the Basin's vast rural hinterlands. Moreover, even with the developed areas, there are large gaps between the two provincial cities – Naga and Legaspi – and the rest of the municipalities. Most of the other relatively developed municipalities are only a third or fourth of these two cities in terms of over-all economic development.

The development planners and decision makers in the Basin have not lost sight of the need to insure the equitable distribution of the benefits of growth. In fact, the nearly exclusive attention of the Bicol River Basin Development Program to rural development and its focus on the farmer as the program beneficiary attests to this. Neither has the BRBDP been remiss in attempting to translate the goal of social equity into spatial terms. Foremost proofs of this are the sub-basin IAD Program and the "Urban Development Program" which identified seven "growth points" for urban investments. The BRBDP rural roads program is, among other things, designed to improve the accessibility of the rural areas to the Basin's market economy. Appraisal of these activities, however, has exposed major flaws.

### IADs

The present delineation of the planning sub-regions or IADs (excluding Sorsogon province), whose boundaries were drawn primarily on the basis of water resources, was found to be defective in so far as spatial aspects are concerned (see IAD map figure 18, page 101 compared to the cluster map figure 10, page 56).

The spatial analysis showed that six of these IADs – the Sipocot-Del Gallego, Libmanan-Cabusao, Naga-Calabanga, Baliwag-San Vicente, Pili-Bula and Rinconada IADs – cut across the spatial and economic subsystem centered in Naga. Two other IADs divide the Legaspi subsystem. These delineations, especially those of the Calabanga-Naga, Baliwag-San Vicente and Pili-Bula IADs, brush aside the fact that Naga is the central node of ten towns within those sub-areas. The IAD scheme geographically dismembers what appears to be an integrated settlements subsystem. In other words, existing IAD delineations fail to consider the advantages of present spatial system or subsystems for development planning and programming of critical investment.

Some IADs deal only with rural areas and do little to connect urban settlements with rural hinterlands. The Partido and Caramoan IADs, for instance, do not appear to promote economic and social linkages between their areas and the more developed urban areas such as Naga, although physical or road access has been planned.

For that matter, the whole thrust of urban development is vague and apparently relies entirely on the spillover effects of planned growth centers like Naga City, Iriga City, Legaspi City, Sipocot, Goa, Ligao and Tabaco. It seems that not much thought has been given to how sub-area planning can more effectively link rural areas with a hierarchy of centers.

### Transport Systems

The Bicol River Basin road program expects to extend road networks throughout the area. However, the first secondary and feeder roads package leaves large spaces unserved by transport access in the Basin's interior, particularly in the northern and north-western portions. Basin transport planners have announced that a forthcoming second package of secondary and feeder roads will make the rural hinterlands completely accessible by road and link them to centers. Since this forthcoming package has not yet been finalized, there is an opportunity to bring spatial analysis to bear on decisions regarding specific road locations.

### Investment Priorities

Little consideration has been given to how projects or investments will affect existing or potential subsystems within the Basin. The areas receiving the greatest priority and heaviest investments are those located within the MSR corridor and which are relatively developed. The question of whether further concentration of resources in these centers may worsen the skewed distribution of functions has not yet been given due attention. A far basic defect pertains to assumptions regarding the entire planning area itself.

There has been an impression that the Bicol River Basin is a unified spatial system and an integrated economic area for development planning. While the Basin's economy has been characterized as of the subsistence type, no significant attempts have been made to explore the spatial characteristics of such an economy in terms of a settlement system or the linkages between rural and agricultural areas and the Basin's major market centers. More important, the implications inherent in the relation of a subsistence economy and a unified and integrated economic and spatial system has not deserved significant attention among Basin planners. At least three spatial and economic subsystems apparently operate in the Basin: the Naga-Camaligan/Iriga urban cluster; the Legaspi-Daraga/Tabaco urban cluster; and isolated and scattered rural settlements mainly characterized by subsistence economies. Analyses of market linkages, travel patterns, social interaction, and social service profiles all point to the absence of significant interaction or linkages between Camarines Sur and Albay.

The implication of such findings is clear enough: planning for the Bicol Basin should take into account the existence of the subsystems, using them as the starting point of expanding markets and integrating peripheral areas into the more urbanized centers.

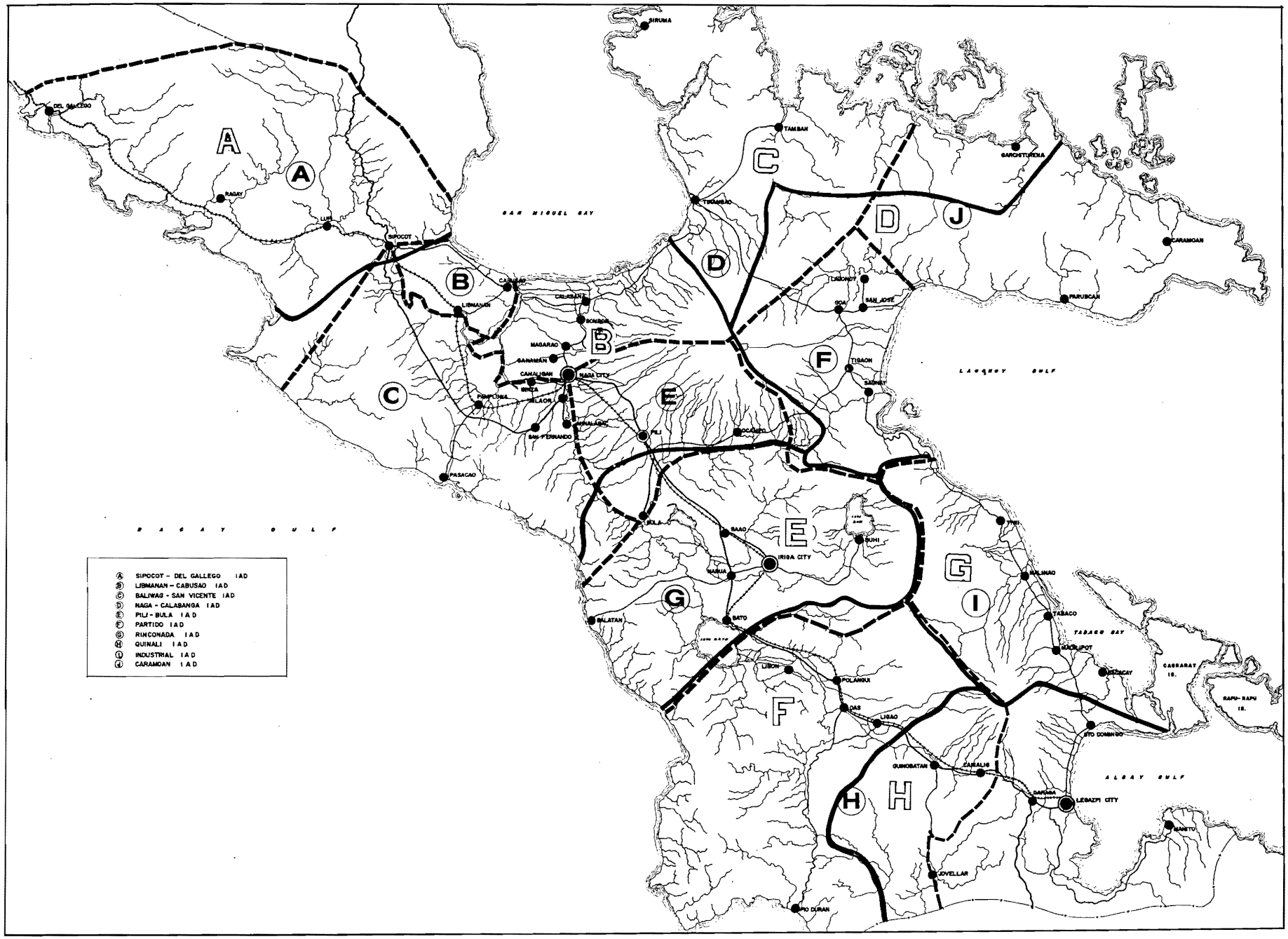



Figure 18. Integrated Area Development Map.

Investments should be programmed simultaneously for all three subsystems in such a manner as to properly articulate the spatial system, integrate various economic sub-areas and distribute urban functions more equitably to rural areas.

### Potential Central Places

The Bicol Basin's current settlement system does not provide the rural population with access to services and facilities outside of the Manila South Road strip. In general, however, there are a number of settlements in the Basin and outside the MSR strip which are centrally located enough to be within reach of their rural hinterlands. Given better transport access to connect centers and hinterlands, what is lacking is appropriate sets of services and facilities for serving rural development needs. Packages of complementary investments are needed to transform these central places into local or area-wide service clusters. For market towns, the obvious emphasis should be providing services and facilities needed to commercialize agriculture such as markets and market-related facilities. Around such functions should be clustered other facilities for serving basic needs of the rural population.

Besides market towns, centers with a higher level role as well as centers with more "field" capabilities should be established. There is a need for centers of enough scale to serve as nodes for integrating the smaller central places in the Basin with larger centers of the nation, the regional economy with the national economy. At the same time, smaller rural service centers are necessary to provide directly the needed farm inputs. Basic services can also be located in these centers to put functions serving frequent needs closer to the rural population.

Those various centers already endowed with different levels of services and facilities and different functional roles can be integrated horizontally by the allocation of specialized functions. At present, there is little basis for creating an internal exchange economy in the Bicol River Basin. Little or no socio-economic differentiation exists even between the two major centers of Naga and Legaspi. Throughout the settlement structure, there is generally little specialization that will promote internal trade. This is not surprising considering that the majority of the people are so poor that there is virtually no significant market for processed goods, except perhaps in the two relatively developed urban centers of the Basin. It is difficult to see how the Basin Program will induce the growth of agro-industrial development unless the market services, facilities and infrastructure are established in selected places with related production potentials.

### Market Development

Agricultural development has been the main thrust of BRBDP planning. The strategy, however, has mainly been to increase inputs for agricultural development (road networks, irrigation works, land reform, flood control measures, social services), while output factors such as market systems have been given less attention. It has been found that marketing facilities are inadequate and the geographic reach of market centers is limited.

The development of market centers to capture increased production and enable farmers to increase their income is crucial to the BRBDP plan. Moreover, if agricultural diversification within IADs is to result in internal trade, market centers have to be well dispersed throughout the region. Agri-business and agro-industries can only operate profitably within an integrated network of urban and rural market centers.

The importance of market centers for realizing BRBDP objectives cannot be overemphasized. To assume that markets will simply appear once production is increased, or that production will in fact increase without them, weakens the BRBDP plan. Direct intervention by way of packages of investments to stimulate marketing functions is necessary. Such packages should establish preconditions — services and facilities — needed for private investment. In addition, resources must be allocated to investments that will promote the growth of centers in areas not accessible to services and facilities, i.e., services and facilities should be installed in strategically chosen, centrally located *poblacions* or large *barangays* within rural areas. In areas where incipient market centers have already been identified, upgrading can proceed through the improvement of road networks, storage facilities, small-scale processing, milling and transfer facilities including complementary services.

A spatial planning framework in the BRBDP will allow better project identification and feasibility analyses, location of investments in relation to the need to diversify and strengthen the spatial structure in the Basin, and linking of settlements in a unified, internal Basin economy.

## A Spatial Dimension to the Bicol River Basin Planning Effort

As discussed earlier, the program areas as officially defined (and especially with the inclusion of Sorsogon) do not constitute a homogenous system. This implies that the Bicol River Basin cannot be treated as a unified planning region, and it cannot be assumed that the location of investments anywhere in the Basin will automatically stimulate development anywhere. Inputs into the Naga system, for example, may not generate multiplier effects in the Goa area since their subsystems do not significantly interact.

In undertaking a policy of sub-Basin area planning, the BRBDP has taken a step in the right direction. The design of that policy, however, did not consider the existing spatial system and because of this, IAD boundaries cut across existing subsystems and fragment some established settlement clusters. Thus, some IADs as they stand now are unable to harness advantages and resources these subsystems may already contain to accelerate economic development.

The task of spatial planning is to create functional economic areas. This is pursued through spatial as well as sectoral integration of development inputs,

which means the determination of sets of multi-sectoral functions and activities located in well dispersed but linked central places hierarchically arranged on the basis of the economic and social roles they play in the Basin's settlement system. Development must start from existing conditions, and these conditions can be utilized as springboards or staging areas for growth even as the goal of equity is pursued by allocating other investments in areas where development efforts must start from scratch. Experience in other countries[1] shows that such a dual approach is not only possible but also practical. Application of such a transformational strategy in the Bicol Basin would mean realizing several IAD areas and re-programming planned inputs.

### The Spatial Goal: The Bicol Basin Functional Area

In a functional economic area, economic activities are closely linked to each other. The area's natural resources generate a number of primary production activities like farming, mining, fishing, logging, etc. Agricultural activities will provide the foundation for the stimulation and development of other economic activities. Processing industries will grow and markets can be created and transport facilities extended so that manufactured agricultural, mineral, marine or forest products can be exported to other areas.

The same market linkages and transport accessibility will determine the growth of other industries which cater to the needs of local consumers. If there are few outlets for primary goods, there will be little income to spend on either consumer or producer goods, whereas if the processing industries flourish, an expanding range of local industries can develop. Once the basic operations of farming, mining and fishing become more commercialized, a widening variety of local services will be purchased, leading to the expansion of other sectors of the regional economy.

[1] D. Rondinelli and K. Ruddle, "Urban Functions in Rural Development," USAID TA/UD, 1976, p.283.

As manpower is lured to an emergent urban center from the rural hinterlands – and once this work force acquires skill and enough external economies have emerged – certain "footloose" industries may be attracted, providing still further employment opportunities and more area exports. In addition, growth will attract more specialized merchants, traders, brokers, and other persons engaged in transactional activities, thus further diversifying employment opportunities.

Obviously, one can associate a functional economic area with a unified interactive, Basinwide, market system.

### Spatial Framework for Bicol Basin Planning: A Three-tiered Spatial Structure

The Basin's current spatial structure is not only unarticulated – i.e., disorganized – but also skewed in terms of the distribution of facilities, services and organizations that can complement rural development efforts. As such it obstructs rapid rural development. Without market centers accessible to farming areas, the benefits of agricultural productivity cannot be fully exploited to accelerate growth throughout the Basin and, more important, increase the income and quality of life of rural people. Unless farmers can efficiently market their products, middlemen will continue to monopolize trade activities and reduce the profits of cultivators.

Without rural central places in the hinterlands near the farms where extension technology, basic health and education services, transport facilities and markets are located, the farmers cannot easily avail of modern agricultural technology or quickly assess price fluctuations. The effects will be negative on agricultural productivity and on the farmers' margin of profit. In addition, without relatively large centers of sufficient scale, the enterprises and functions envisioned by the BRBDP for developing industrial activities based on regional resources cannot be quickly established or induced into the Basin. Settlements with larger threshold populations are needed not only to support industry but also the wide range of related services and facilities needed to link the Bicol with the national economic systems.

The creation of an integrated hierarchical and well-dispersed system of settlements, therefore, must be encouraged in the Bicol Basin to provide the spatial framework appropriate for accelerating rural development. The structure outlined here envisions a functional economic area as its goal and approaches the development of the spatial structure on the basis of using existing systems to construct a viable system of central places.

A three-tiered spatial structure is proposed: (1) rural service centers located near the farms in the Basin's hinterlands, (2) market centers strategically placed to encompass constituent rural service centers within an assigned market area; and (3) larger urban centers serving as region-wide market centers and higher level service centers.

*Rural service centers.* As the spatial system now exists, there is a lack of functional central places close enough to the farmers to provide services critical for agricultural productivity as well as social, political and administrative inputs complementary to BRBDP agricultural programs. In some cases, such inputs are present but are too widely dispersed to offer advantages of concentration (the range of goods and services) that will allow farmers to make multipurpose trips – to consult with the extension officers *and* to find out prevailing market prices for their crops *and* to consult rural doctors *and* to buy some fertilizer or chemical *and* to arrange for transport facility for the coming harvest and others – and thereby lessen travel costs.

Such central places are proposed as the lowest level of centers in the desired central place hierarchy. They have been called "village centers," "agropolitan district towns" or "sub-district towns," and may be designated as rural service centers in the Bicol Basin. These rural service centers should focus on providing needs of small farmsteads and subsistence farmers. They should be (1) the spatial base through which the

Bicol River Basin Program will ensure that all planned inputs for the farm are securely in place; (2) the "listening post" where accurate feedback from the grassroots can be gathered; (3) the beachhead of the market system in the hinterlands, i.e., the settlement to which farmers can go to get information about market developments pertaining to farm produce and other farm-related commodities; (4) the location of basic services – health and secondary education or home industry skills training and others – for farm households; and (5) the locus of periodic markets at least that can serve as small exchange points for farmers and craftsmen who can sell for local consumption.

*Market centers.* Market centers are the most important points in the spatial network for efficiently exchanging agricultural and manufactured products and distributing inputs that will accelerate rural development. As described by E.A.J. Johnson, market centers in agricultural regions act as "growth poles" performing a wide range of functions and offering a wide variety of goods and services. Rondinelli and Ruddle have observed:

> "Historically, in most of the developed world, rural investments have clustered around markets. . . (Indeed) a diversified set of enterprises must be encouraged so that the benefits from association and proximity can provide economies of scale that allow them to thrive and to attract related investments. As the number of trading, manufacturing and service industries grow in one center *there is a strong probability that both total demand for all services and products will grow and that the markets' service-area will expand."*[2]

The prevalence of relative agricultural development within the Naga and Legaspi subsystems is not an accident. The establishment of Naga as the premiere city in Spanish times and, later on, Legaspi during the American regime, presented opportunities for surrounding farmers to trade farm produce for urban services and goods. As farmers realized that more farm output could be exchanged for more town goods or a greater variety of services and commodities, output far in excess of family or clan needs was produced. With this incentive to produce more came the willingness to try new farming methods that would result in bigger harvests. Unfortunately, this commercializing process occurred in few areas outside of the Naga and Legaspi clusters, and these few areas are almost all located along the MSR. Indeed, in contrast to the relatively commercialized state of agricultural activities in areas with full-fledged market centers, interior rural areas lacking market centers are characterized by subsistence type of agriculture.

If the BRBDP's aim of commercializing agriculture in the Bicol Basin is to be achieved, then the creation of market centers in the rural areas of the Basin should be an indispensable component of BRB programs.

*Bicol Basin urban centers.* It is not difficult to anticipate the need for appropriate locations for industries, especially manufacturing, considering BRBDP plans. Basin planners will attempt to increase industrial output by 8 per cent by 1987. Industrialization becomes more of a necessity since about 15 per cent of the present labor force is anticipated to shift away from the farm over a decade.

No clearcut policy, however, exists today in the BRBDP regarding the location of planned or anticipated industries. Apparently, many of them will be dispersed throughout the IADs. A few IADs, like the Agro-Industrial IAD delineated along the Tiwi-Legaspi corridor, are to be the location of many major industries. As designated growth points, Naga, Goa, Iriga, Ligao and Sipocot are envisioned as primary locations of some industries. The picture that emerges is a de facto policy of industrial dispersal.

While a policy of dispersal is undoubtedly best for local and rural industries, especially those which are resource-based and labor-intensive, larger manufacturing establishments and capital-intensive industries need the advantage of scale and agglomeration economies as well as physical infrastructure that is not sufficiently available in existing centers. This implies relatively large initial investments in urban infrastructure,investments that will have to be drawn from scarce resources. To disperse industrialization, therefore, implies the dispersal of scarce resources to many places in order to install transport facilities, electricity, water supply, drainage and sewerage systems that are pre-conditions for industrialization. The costs of such an endeavor may prove prohibitive.

Yet such a dispersal is not necessary. The expansion of the industrial sector can be a cumulative effort over time that can be accomplished by spontaneous market forces once functional economic areas have emerged. The system of rural service centers and market centers would contribute to the emergence of such functional areas. This is not enough, however. Larger urban centers must also be improved so that they can integrate the market system by providing diversified commercial and industrial activities, raw materials processing or agricultural produce exchange and perform a wide range of financial, service, commercial, educational and administrative functions that can integrate services appearing in market centers and rural service center. Urban centers are the most viable locations for concentrating industries initially needed to stimulate industrial expansion in the Bicol Basin. Since only a few urban centers are proposed, investment requirements by way of urban infrastructure will mean less demands on the scarce resources of the BRBDP.

Specifically, urban centers are envisioned to function as (1) "growth poles" for stimulating and developing a modern industrial sector in the Bicol Basin; (2) loci of the regional transport system; (3) absorption points for displaced farm labor (assuming the existence of a developing industrial sector); (4) integrating nodes for urban-rural activities in terms of industrial processing of rural produce, policy coordination of credit, extension, communication,

[2] *Ibid.* p. 276.

health, education and other functions that are performed at various levels of operation in market centers and rural service centers; and (5) communication and transhipment centers for the export of the region's products to other locations in the country as well as the import of products from other regions for distribution within the Basin.

**General Functions for Spatial Articulation**

The three-tiered hierarchy of centers can be considered both a means of achieving development and an objective of development. It is a framework for location decisions and a way of determining whether a proposed project will support or complement the designated roles of the centers. As an objective, clusters of investments providing transport, market, administrative, industrial, finance, health, education and recreational functions can be programmed to improve the functions of rural service centers, market centers and urban centers in the Basin. The combination of investments needed to make the proposed central place system functional are discussed below. Many of them already exist and only need upgrading; the plans for others should be adjusted or modified.

*Central services and facilities for rural service centers.* In order to create these "listening posts," there is a need to provide agricultural inputs, basic services to farm household, and collection points for agricultural produce. The BRBDP must allocate substantial investments to rural service centers. These centers must be accessible by road from anywhere in their rural hinterlands. To insure that the roads are kept reasonably efficient, sufficient funds for their maintenance should be allocated.

Although existing telegraph and postal services seem sufficient, some of them may need upgrading in the future. Since it is likely that the volume of communications will increase, full-time and adequately trained personnel and new equipment will be needed.

As collection points for agricultural goods, rural service centers should contain marketing cooperatives equipped with facilities to regulate supply of agricultural products, maximize profits and insure better returns for farm produce. Storage, credit, trucking services and livestock auctions should also be located in rural service centers. Extension agents, cooperative farm supply and agro-chemical stores, credit cooperatives, and shops for minor repairs of farm machines should also be found there.

Complementary to the collection function, a periodic market with scheduled market days ought to be established, primarily for retail trading. It would provide the facility for the exchange of agricultural products and finished goods meant for domestic consumption. General stores would probably be attracted to such a facility.

It is obvious that the BRBDP will also have to strengthen the institutional structure of market towns and municipal authorities, cooperatives agencies and the private sector in particular.

Higher level education, health and recreation functions will not usually be needed in rural service centers, although they should contain primary and secondary schools, clinics and a rural health station, a drugstore, basketball courts, and a multi-purpose social hall or open plaza. More specialized facilities would be located in market or urban centers. What deserves emphasis, however, is the need to concentrate the main *rural* offices of these basic services in the rural service centers. Thus, the rural outreach program of the Health Department, the coordinating office and all administrative functions for the area or municipality should be located in rural service centers.

*Investments for market centers.* Considering the present weakness of market functions outside of Naga and Legaspi and the need to improve market functions in the Bicol Basin, development of market centers should receive high priority. A heavy portion of these investments needed in market centers must come from the private sector.

Public capital investments should be made in all-weather asphalt roads that connect market centers to rural service centers, telephone lines linking market centers with urban centers, permanent market structures with grading facilities, large warehousing and cold storage facilities, utilities, government emergency hospitals, vocational education programs, and other structures for administrative activities. Inducements must be established, however, to generate private investment in other transport, marketing and shopping, agro-industrial, finance, recreational and some health facilities.

Incentives for private investment should be extended on the basis of these criteria. Investments should (1) reinforce the central trading function of the market center, (2) contribute to its agro-processing capability, (3) strengthen its transport access from within its market areas, (4) widen its non-agricultural service capabilities especially in finance, distribution and social services, and (5) contribute to its function as a central administrative headquarters for its constituent towns and rural centers. Some of the inducement schemes for private investments can be arranged through fiscal incentive measures; initial public investment especially in market structures, utilities and roads; and an investment information program bv BRBDP.

*Urban growth centers.* The undesirability of dispersing industrial activities in the Basin has been mentioned. Private investments, however, will not be easily attracted if urban infrastructure is not present or is unreliable in urban centers. That is, if utilities like an efficient and extensive water supply system, drainage and sewerage, access to a port, airport or railroad, as well as all-weather highways to the market centers and metropolitan areas, particularly Manila, are not available.

In addition, social services such as higher level education (colleges, universities, large technical schools), higher level health functions such as general and specialized hospitals, and a wide range of recreational and cultural establishments usually contribute to the desirability of the location. A wide

range of financial, transport and service establishments may be necessary to attract industrial or commercial investments. Generally, large industrial and commercial establishments need to be near administrative services.

In any case, the BRBDP must allocate resources to provide the urban infrastructure needed to make industrial investment viable. Existing facilities should be upgraded; power stations, piped water supply systems, drainage systems, telephone exchanges, port, airport railroad terminals and roads must be improved or expanded. Sewerage systems have been perennially neglected not only in Bicol but also throughout the country. To preclude serious flooding in the future as development occurs, sewerage and drainage systems should be constructed now while expropriation and construction costs are not yet prohibitive.

**Suggested Centers for the Three-tiered Hierarchy**

*The urban centers: Naga and Legaspi.* Starting from present conditions, Naga and Legaspi constitute the most likely places for development as urban centers. They already have advantages of scale and nodality. Both cities are centers of provincial transport and communications and are the most socially and economically heterogenous settlements in the Basin. The range of functions found in these centers, including rural banks, industrial financing firms, and rural industries, gives them the economic heterogeneity than can be used to create "a mixed urban-rural economy that can promote higher levels of rural production . . . diversify commercial and industrial activities."[3]

Moreover, both cities have infrastructure and utilities which only need upgrading. Although gaps undoubtedly are present, total investment requirements will be substantially less than if new towns, have to be built. In addition, economies of agglomeration are already evident and can be increased with further investment. The two cities already perform higher level of administrative, education, health technological and recreational functions.

*Eight market centers.* The spatial analysis also indicates 13 central places that can be developed into market centers. Distance analysis, however, reduces the number to seven and adds one other center — Tinambac.

Eight places, then, can be considered as potential market centers: (1) Sipocot in the west; (2) Naga City in the center of Camarines Sur; (3) Tinambac north of Naga; (4) Iriga City midway between Camarines Sur and Albay; (5) Goa proximate to the eastern portion of the Caramoan peninsula; (6) Ligao covering the major part of the upper basin; (7) Legaspi serving areas north, south and west of Albay Gulf; and (8) Tabaco serving the area extending from Bacacay to Tiwi.

Naga and Legaspi can easily assume dual roles as market centers and urban centers. As major markets, they have established service areas and provide a firm base for diversified industrial activities.

The eight proposed centers are envisioned to be the central nodes of eight sub-areas in the Basin. These sub-areas generally conform with BRBDP Integrated Area Development (IAD) districts, but the boundaries of the IADs will have to be modified.

Present IADs cut across municipalities creating difficulties in planning and programming at the municipal level. Data planning and analyses are done by government units at standard, officially prescribed area levels: *barangay,* municipality, *poblacion,* city, province and region. Data generation and analyses cutting across these standard areas require more cost and effort.

Moreover, many a municipal official whose municipality is part of two or more IADs has had to sit in the administrative and planning body of each of those IADs. The result is the dispersion of the official's time and effort on the administrative and planning activities of these various IADs. Afterwards he finds his participation useless since he is unable to follow every activity of each IAD to which he belongs.

The difficulties encountered in the management of the present IAD stem from the purely water resource criterion used by the BRBDP to define their boundaries. For water resources development, perhaps present IAD definitions are suitable. Hence for water resource management a mechanism with a special character may have to be established apart from the IADs. In any case, the management and planning institutions for sub-basin area integrated development must work within present municipal definitions to facilitate administration, planning, implementation and evaluation.

Following are the proposed IAD modifications corresponding to the eight recommended market centers:

Table 6.1. Eight market centers and their constituent hinterland municipalities.

| Market Center | Constituent Municipalities | Code |
|---|---|---|
| Sipocot | 1. Del Gallego | A |
| | 2. Ragay | |
| | 3. Lupi | |
| | 4. Sipocot | |
| Naga | 1. Libmanan | B |
| | 2. Cabusao | |
| | 3. Calabanga | |
| | 4. Bombon | |
| | 5. Magarao | |
| | 6. Canaman | |
| | 7. Pasacao | |
| | 8. Pamplona | |
| | 9. San Fernando | |
| | 10. Milaor | |
| | 11. Minalabac | |
| | 12. Camaligan | |

[3] *Ibid.* p. 279.

Table 6.1 (Cont'd.)

| Market Center | Constituent Municipalities | Code |
|---|---|---|
| | 13. Gainza | |
| | 14. Pili | |
| | 15. Ocampo | |
| Tinambac | 1. Siruma | C |
| | 2. Tinambac | |
| | 3. Garchitorena | |
| Goa | 1. Caramoan | D |
| | 2. Presentacion | |
| | 3. Lagonoy | |
| | 4. San Jose | |
| | 5. Goa | |
| | 6. Tigaon | |
| | 7. Sangay | |
| Iriga | 1. Balatan | E |
| | 2. Nabua | |
| | 3. Bato | |
| | 4. Baao | |
| | 5. Bula | |
| | 6. Buhi | |
| | 7. Iriga | |
| Ligao | 1. Libon | F |
| | 2. Polangui | |
| | 3. Oas | |
| | 4. Ligao | |
| | 5. Pio Duran | |
| Tabaco | 1. Tiwi | G |
| | 2. Malinao | |
| | 3. Tabaco | |
| | 4. Malilipot | |
| | 5. Bacacay | |
| Legaspi | 1. Jovellar | H |
| | 2. Guinobatan | |
| | 3. Camalig | |
| | 4. Legaspi | |
| | 5. Sto. Domingo | |
| | 6. Daraga | |

*A rough model for rural service centers.* The level of analysis of this study precluded the identification of feasible settlements for the proposed third level of central places – rural service centers. Such an exercise would require detailed analysis that calls for inter- and intra-municipal distance analyses and a systems study of linkages at the municipal level, tasks that should be undertaken by concerned units of the BRBDP, preferably the IADs or the provincial governments.

For an idea of the potential rural service centers, a large barrio – Sto. Domingo in the Rinconada district is described below.

The barrio of Sto. Domingo is about 5 kilometers from the town of Nabua. It has almost the entire complement of functions usually found in municipal *poblacions:* a permanent market place (scheduled market days: Tuesday and Sunday), stone church, retail store, bus top, barrio hall, plaza, rural health clinic, nutrition center, elementary and high schools.

Its population is not as large as the adjoining barrio, La Purisima, but it is more concentrated. Virtually all the households in Sto. Domingo are found in its *"sentro"* or village center, which separates an area filled with residences, commercial establishments and other urban land uses from an area devoted to farming and other agricultural land uses.

Sto. Domingo is a large and urbanized barrio compared with the average Bicol barrio. People from nearby barrios congregate there during market days to sell their products and procure supplies. Middlemen and small businessmen in turn proceed to Sto. Domingo to buy and collect enough farm produce for trading in the municipal market center – Nabua.

In sum Sto. Domingo, with its more than 4,000 inhabitants, closely approximates the characteristics of the type of small rural central place that can function as the recommended rural service center.

## Process and Organization for Spatial Planning

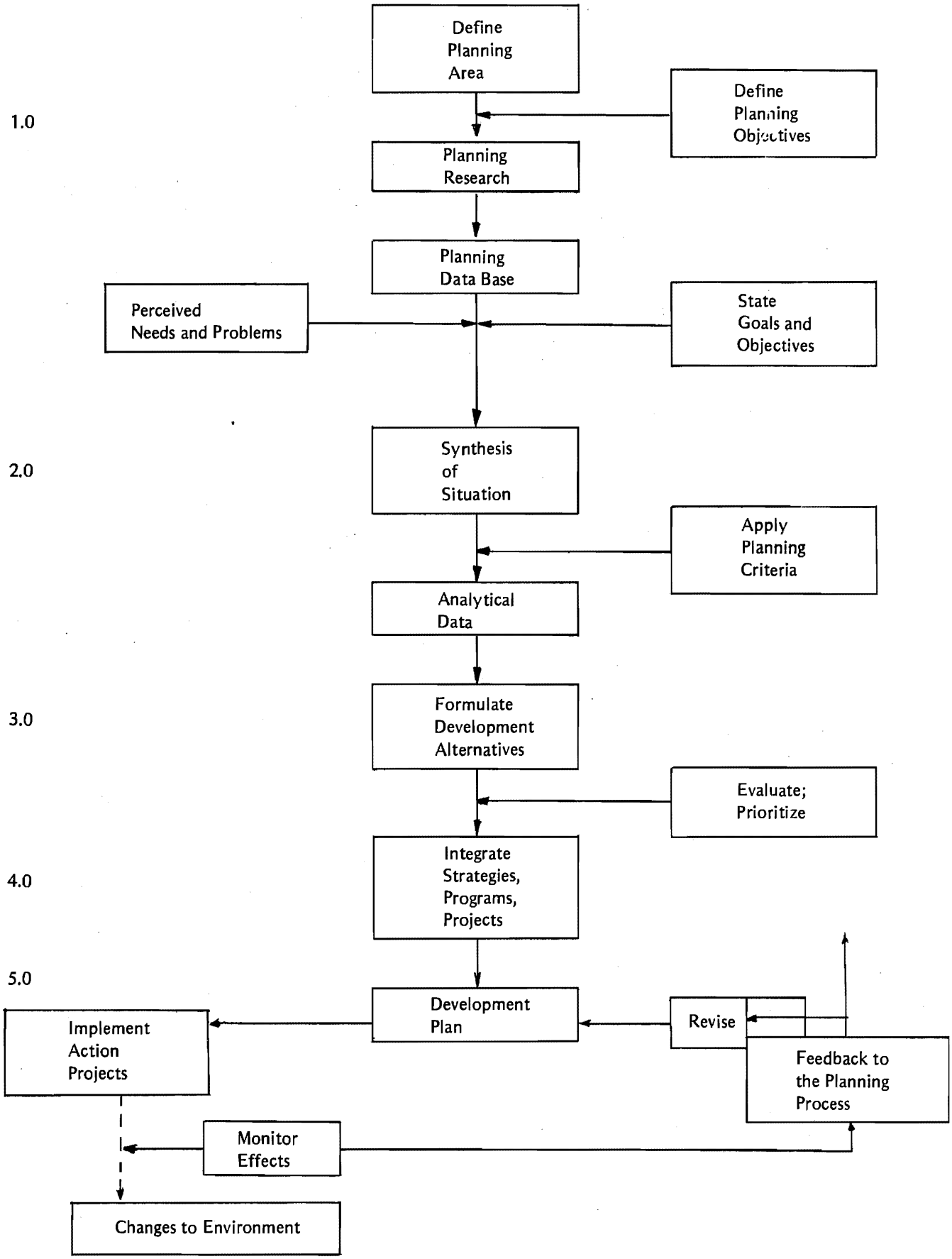
Spatial planning emphasizes the locational aspects of development programming. The location of a project is as important as its nature, especially for those projects serving specific clientele such as markets, health centers, schools and government service facilities for grain storage and processing. Not only are such installations linked to where clients are located, they also interact with each other, producing a "critical mass" that propels development. Their interaction produces an activity node that becomes the *raison d'etre* for central places of differing levels of complexity and development. Central places, in turn, are loci of functions critical to the development of rural hinterlands. Encouraging the strengthening of central places, well dispersed in the rural landscape, is therefore basic to planning the organization of space for rural development.

The experiences of this study point to the importance of locations, linkages, agglomeration of establishments and accessibility of clients to services and facilities. The remaining task is to outline a planning process for organizing space as a significant aspect of development planning especially in rural areas like the Bicol River Basin. To operationalize such a planning process, institutional arrangements recognizing existing organizations in BRB are outlined.

### A Planning Process

General development planning proceeds in a flow that begins with definition of the planning area and identification of planning objectives (figure 19). A planning data base is produced and synthesized to provide a clear picture of existing conditions. The synthesis of planning data is conditioned by preferred goals and objectives expressed by the community within the planning area, as well as by needs and problems perceived as priority.

Figure 19. THE DEVELOPMENT PLANNING PROCESS



Planning criteria are applied to the synthesis of existing conditions to produce an analysis that collapses the analytical data into a few alternatives by which the goals and objectives of the community may be achieved in response to perceived needs and problems. The alternatives are evaluated as to social and economic relevance and prioritized considering resources.

Against the array of alternatives, strategies are outlined and integrated into one unified direction. These strategies consist of programs and projects that are woven into schemes for implementation. They become the development plan. Goals and objectives may also undergo revisions as conditions change. Needs and problems also change over time as the environment matures. The cycle is closed as the planning data base itself undergoes revision.

Following this general flow of a planning process, Bicol River Basin planners have identified development areas. In these IDAs (integrated development areas), the planners seek to mitigate physical constraints to agricultural development and bring land to its most productive use — through rice production, mainly. Sectoral efforts in health, training, industries, farm technology, roadways, etc. are also planned. An effort to achieve coordination among offices of national ministries operating in the area, including local government, is a significant planning component. It is designed to minimize inter-agency conflicts, duplication and waste of resources. The planning for coordination hopes to focus almost all public efforts on the IDAs to hasten the development process.

*Spatial aspects of planning research.* Assuming a planning process is described, spatial analysis comes early in planning research and assists the planner to gain clearer insights for a synthesis of the existing situation. Further spatial analysis contributes to planning the location of critical investments in the development plan.

Present planning practices focus on ascertaining the magnitude of incidence of socio-economic, physical and institutional variables. Thus, population is expressed in absolute numbers of percentages of growth, employment as percent unemployment, income as levels of monetary value, morbidity as cases per thousand, crop production as total yield or productivity per hectare.

Very frequently, the geographic aspect of the planning data is not emphasized, if at all considered. Spatial significance is easily included in planning research by the classification of data by location. Population of places is located and demographic values are scaled on a planning map. Employment by type and by numbers is plotted on the map. Income and its distribution are located.

The other dimension of spatial analysis is the determination of reach or influence area of a facility. The incidence of a rice milling capacity, for instance, gains spatial significance if the rice mill is located, its capacity scaled, its clientele and their location determined and the distance between the rice mill and its client measured and plotted on a planning map. The spatial analysis gains depth as distance is qualified by conditions and costs of travel from client to facility. The mere existence of a rice milling facility, for instance, does not necessarily mean that a post harvest facility of the required capacity is present in the planning area. Accessibility to the facility finally determines its effective presence. Because of poor accessibility, the facility may have little effect on agricultural development efforts.

To take another instance, the presence and size of a market are of great spatial significance. A highly localized market facility drawing clientele from a limited radius means that beyond this point, the market has little, if any, effect on development. Thus, planning research should trace origin and destination of transactions in the marketplace to determine the actual role and significance of a market in the planning area.

As a last example, a rural health unit (RHU) designed and equipped for 20,000 clients may look impressive as a statistic until it is found that the facility is accessible only to the 10,000 people residing in the *poblacion* where it is located and not to the 10,000 people residing in surrounding *barangays* that it is also supposed to serve.

In sum, if planning research succeeds only in quantifying and not "locating" its planning data, very real spatial constraints to development may be overlooked, and development strategies formulated from such data base can fail to achieve planning goals.

*Planning the organization of space.* The synthesis of planning data with locational dimensions considered should provide the planner a matrix of presence and capacity of facilities, the reach or coverage of each, and the degree of accessibility to each. Once mapped, the emerging data on existing conditions indicate gaps in functional coverage all over the landscape. The isolation of certain settlements is clearly portrayed. Since distance is always a barrier that slows down productive interaction, and since transport costs increase in direct proportion to distance (not considering that roadways can be non-existent, or if existent are impassable during rainy season), the next task presents itself: how urban functions, services and facilities may be organized in space to achieve optimum production in all areas and increase communication and interaction between places.

Locational planning criteria can then be applied to the data matrix. In general they are as follows:

1. The hierarchy of needs must be determined, and distance or accessibility to a facility will vary depending on the frequency of needs. Functions that are needed most frequently should be located nearest the clientele, and those least frequently needed can be located farthest.

2. The massing of facilities produces a node that accelerates development of a growth point. The intensive interaction between contiguous facilities creates multi-level effects that provide a community not only with services and facilities but a social focal point that draws its hinterlands toward the center.

Applying these two spatial planning criteria, a hierarchy of central places can be planned, each of differing size and complexity and each performing a hierarchy of functions for its respective hinterlands. The formulation of a network of transport infrastructure which defines the location of a central place is a spatial planning task. The issue of creating lower level central places is a planning imperative that relates directly to alleviating the isolation of settlements whose great distances from major centers discourages higher economic productivity. The first task of spatial planning, therefore, is to identify these central places.

The next task is to define the clustering of settlements around these central places by conducting simple origin-destination surveys or investigating the origin of goods sold and destination of goods bought in public markets. Once clusters are defined, the linkages between settlements within clusters may be examined, especially the viability of physical linkages (transportation and communications). At the same, services and facilities within the central place should be assessed for adequacy, considering the functions to be performed in these central places vis-a-vis its hinterlands. Thus, projects may be developed along two approaches:

a) The strengthening of linkages.
b) The strengthening of services and facilities.

*Levels of spatial planning.* This study identified two major sub-basin systems within BRB: one in Albay with Legaspi as its central node, and another in Camarines Sur with Naga as its center. Within these two major sub-basin systems exist 5 subsystems — three in Camarines Sur: the Naga cluster, the Goa cluster, and the Iriga cluster; and two in Albay: the Legaspi cluster and the Tabaco cluster. Another sub-basin system has been added to BRB as this report was being written: the Sorsogon spatial system.

The attempt to rationalize and integrate development efforts basin-wide has been the responsibility of BRBDP. At the Basin level, therefore, BRBDP would be tasked with initiating spatial planning for the two major sub-basin systems located in Albay and Camarines Sur. Since expertise, finance and the right perspective for spatial planning for the two major sub-basin systems of Albay and Camarines Sur exist only at Basin level, initiatives for spatial development policy planning can start at BRBDP. At this level, policy studies and macro-relationships of sub-basin systems (and their respective subsystems); as well as the respective centers, may take place.

The next level of spatial planning would be the sub-basin system, or the province. The Provincial Development Staff can take the initiative, coordinating closely with and guided by BRBDP. Spatial planning beyond policy studies can be operationalized at this level. For instance, spatial planning may at this level can define projects to strengthen rural service centers. Together with the planning staff of the sub-basin systems' central nodes (Legaspi in Albay, Naga in Camarines Sur), the PDS (and CPDS) can start identification of the hierarchy of central places within a sub-basin system and initiate planning research on accessibility within clusters of settlements.

The third and last level can occur within each of the subsystems. This would be Naga, Goa and Iriga in Camarines Sur, Legaspi and Tabaco in Albay. Operationalization at this level requires planning data from the *barangays*.

The major task is the identification of village centers that also serve a number of other *barangays* within a certain radius. For instance, once-a-week periodic markets draw farmers from surrounding settlements to sell farm produce and buy basic household needs. With more facilities built at this level, the marketing trip of the farmer could be extended to serve his other needs/ such as health, education, farm technology and others. Secondary and vocational schools could also be located in these village centers. And basic services, even as medical care, legal assistance and low-level courts could convene at the village center.

Spatial planning being part of development planning can be undertaken alongside present efforts in BRBDP. What is needed is to reorient planning research and analytical techniques towards planning the organization of space.