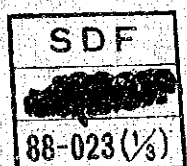


# BARRANQUILLA

THE FEASIBILITY STUDY  
ON THE URBAN DEVELOPMENT  
OF THE CENTRAL DISTRICT  
OF BARRANQUILLA  
THE REPUBLIC OF COLOMBIA

*FINAL REPORT*  
*FEBRUARY 1988*

JAPAN INTERNATIONAL  
COOPERATION AGENCY





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## PREFACE

It is with great pleasure that I present this Feasibility Study on the Urban Development of the Central District of Barranquilla to the Government of the Republic of Colombia.

This report embodies the result of a study which was carried out in Barranquilla from July 1986 to November 1987 by a Japanese study team commissioned by the Japan International Cooperation Agency following the request of the Government of the Republic of Colombia to the Government of Japan.

The study team, headed by Mr. Takeo Sato, and organized by Chodai Co., Ltd. and Yachiyo Engineering Co., Ltd. has a series of close discussions with the officials concerned of the Government of the Republic of Colombia, conducted a wide range of studies, and prepared the report.

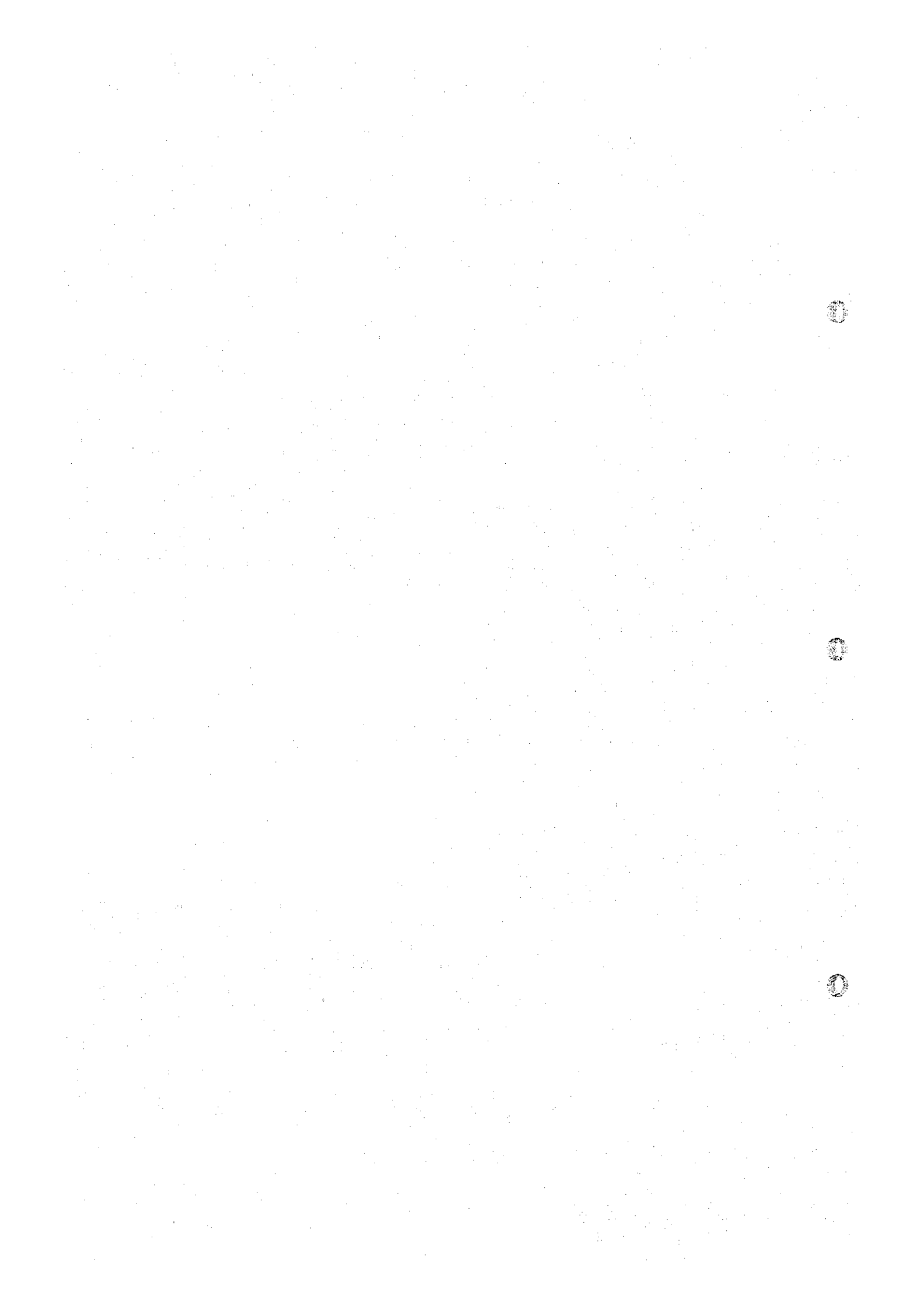
I hope that this report will be useful as a basic reference for development of the region.

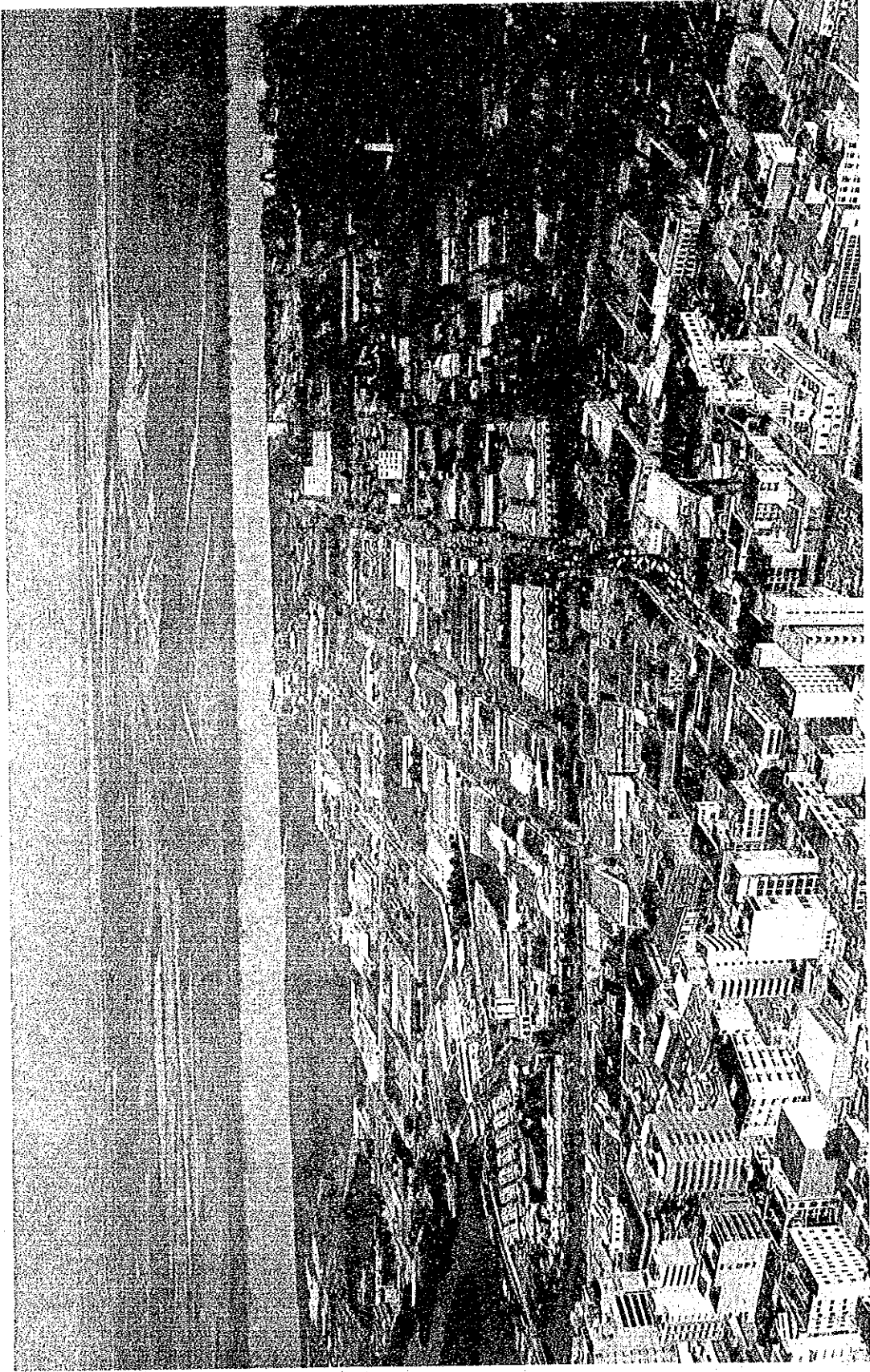
I wish to express my deep appreciation to the officials concerned of the Government of Colombia for their close cooperation extended to the study team.

February, 1988



Kensuke Yanagiya  
President  
Japan International Cooperation Agency





PANORAMA OF PRESENT BARRANQUILLITA(1987)





THE FEASIBILITY STUDY ON THE URBAN DEVELOPMENT  
OF THE CENTRAL DISTRICT OF BARRANQUILLA

FINAL REPORT

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## ABBREVIATION

1. ACIC : Asociación Colombiana de Ingenieros Constructores
- BCH : Banco Central Hipotecario
- CAMACOL : Cámara Colombiana de la Construcción
- CFT : Corporación Financiera de Transporte
- CNT : Corporación Nacional de Turismo
- CORELCA : Corporación Eléctrica de la Costa Atlántica
- DANE : Departamento Administrativo Nacional de Estadística
- DAPM : Departamento Administrativo de Planeación Municipal
- DNP : Departamento Nacional de Planeación
- ELECTRANTA : Electrificadora del Atlántico
- EMAR : Entidad Encargada del Manejo y Administración del Recurso
- EMT : Empresa Municipal de Teléfonos
- EPM : Empresas Públicas Municipales
- ESAP : Escuela Superior de Administración Pública
- FFDU : Fondo Financiero de Desarrollo Urbano
- FONADE : Fondo Nacional de Proyectos de Desarrollo
- GRANBASTOS : Gran Central de Abastos
- IBRD : International Bank for Reconstruction and Development
- ICA : Instituto Colombiano Agropecuario
- IGAC : Instituto Geográfico Agustín Codazzi
- INSFOPAL : Instituto de Fomento Municipal
- JICA : Japan International Cooperation Agency
- MOPT : Ministerio de Obras Públicas y Transporte
- PROMIGAS : Promotora de la Interconexión de los Gasoductos de la Costa Atlántica
- SOPM : Secretaría de Obras Públicas Municipales
- TELECOM : Empresa Nacional de Telecomunicaciones

2. B/C	: Benefit/Cost Ratio
CIF	: Cost, Insurance and Freight
EIRR	: Economic Internal Rate of Return
FIRR	: Financial Internal Rate of Return
GDP	: Gross Domestic Product
GRDP	: Gross Regional Domestic Product
IRR	: Internal Rate of Return
NPV	: Net Present Value
PCU	: Passenger Car Unit
TTC	: Travel Time Cost
VOC	: Vehicle Operation Cost

## **CONCLUSION AND RECOMMENDATIONS**



## CONCLUSION AND RECOMMENDATIONS

### 1. Outline of the Project

This Feasibility Study has an objective to install the fundamental facilities and utilities for the total development of the Study Area. The magnitude of the development including all the buildings in the area might be described as 70,000 million pesos (1987 price) in terms of the total investment.

Of this amount, the total cost of this Study is summarized as follows:

Urban Development	9,300 million pesos
Bus Terminal	600 million pesos
Markets	1,500 million pesos
Calle 30	600 million pesos
Riverside Bypass	3,000 million pesos
Land Acquisition	2,300 million pesos
Building Acquisition	2,100 million pesos
Total	19,400 million pesos

### 2. Result of Evaluation

The urban development project seems to be economically feasible, but there are many difficulties to overcome for implementing it financially.

The bus terminal and market projects also face some difficulties in financial feasibility. The road projects are feasible economically but it fears that the valorization contributions will reach a big amount.

Thus, it is important to find financial measures to implement these projects altogether.

It is considered that the period from 1989 to 1995 is a leading development phase for the succeeding development. It is necessary to make efforts to hold out against the financial difficulties until 1996, when the fruits of development start to be born.

The total investment schedule assumed before evaluation is not to be changed, but some considerations about the share of investment cost should be taken into account.

### 3. Recommendations

The Study depends on various kinds of premises in its planning, design and evaluation phases. It means that the recommendations are to show the way to clear those premises.

#### 1) Consensus Formation for Urban Development Policy

The fundamental target of the development of the study area is to create a new region-wide activity center solving the existing urban problems in the Central District.

However, for the overall urban development of the city there might be so many tasks to be fulfilled in the future: for examples, the formation of stable foundation of industrial development (industrial infrastructures) and socio-economic and physical solutions for the poverty problems in the city.

Thus, what is required urgently is the future urban development policy with the consensus of all the sectors concerned, and the outcomes of this Study has to be duely placed and integrated in that policy.



2) Establishment of Firm Coordination among Administrative and Executive Bodies.

On account of the scale of the Study a number of existing and/or newly established entities will be involved in the implementation to support and facilitate it. Thus, the coordination among those will be a vital factor for fruitful implementation of the Study.

The field of coordination may range wide and it will be indispensable to establish a solid rule to conduct coordination works.

3) Early Establishment of New Urban Development Company

The New Urban Development Company is the leading body of Barranquillita development. This entity is semi-public, but is aimed to get profits from the projects they conducts and to promote the urban development in Barranquilla. The establishment of the body should be proposed as early as possible.

As is planned, this executive body should be functional to organize a task force for developing Barranquillita.

4) Formation of Land Trust Association

The land owners in Barranquillita are recommended to form a land trust association. This association will contract with the New Urban Development Company to sell land at a higher price after development.

There are about 30 large land owners including Nation, Department, Municipality and EPM. These large owners could be leaders to form the association.

#### 5) Necessary Measures for the Bus Terminal and Market Company

Although the bus terminal and market companies are difficult in financial condition, it is clear that the existence of bus terminal and markets is an important factor to develop Barranquillita.

In order to avoid the financial crisis, following measures are proposed.

- a. Participation of New Urban Development Company
- b. Utilization of properties belonging to existing relating organization
- c. Free share of Land Acquisition

#### 6) Compensation Measure to Existing Operating Establishment

The development of Barranquillita is aimed at the total change of the existing physical conditions, so it is necessary to move existing operating establishments. Although their land is kept in hand, they are obliged to stop the business for a considerable period.

Therefore, the compensation measure is the most important act prior to start the development.

#### 7) Construction of Riverside Bypass by Nation

The Riverside Bypass will not only play an important role in economic development of Barranquilla and urban development of Barranquillita, but also improve the accessibility from the industrial zone, Barranquilla Port and Free Zone to the Departamentos in the Atlantic Region. But, the project cost including financial cost will amount to an enormous figure. It will be a heavy burden for Barranquilla to pay this cost.

Considering the characteristics of the Riverside Bypass and its economic feasibility, it is recommended that MOPT will conduct the direct construction of this road.

The collection of valorizacion contribution is to be ceded to the Municipal Valorizacion Office, in the condition that some percentage would be returned to the nation.

#### 8) Total Distribution of Valorizacion Contribution

It is recommended that the projects executed by the valorizacion system should be packaged. That is, Calle 30, Riverside Bypass, streets and pedestrian facilities and Parks planned in Barranquillita are packaged to one network project. The total contribution amount is distributed to all the land owners in the metropolitan area and collected by the Municipal Valorizacion Office.

The MVO transfers the collected contribution corresponding to the Barranquillita projects to the New Urban Development Company.

#### 9) Utilization of Foreign Loan

Under the actual economic situation, Colombia peso is projected to devaluate at about 30% per annum. If a development entity gets foreign loan directly, the real interest rate would be very high. On the other hand, the interest rate of FFDU is a little too high for the urban development. And it is severe for a developer that FFDU does not finance land and building acquisition costs. Considering the above mentioned facts, it is recommended that BCH establish a special urban development fund in which the interest rate is lowered about 3 percent point from FFDU and land and building acquisition costs are included in the project cost which is the object of loan.

#### 10) Importance of Maintenance

The maintenance of public facilities like street and parks is very important. A responsible body for maintenance should be established. This body might be the New Urban Development Company or its subsidiary.

#### 4. Remarks

- 1) The problems relating to project evaluation and execution are different to each other. To execute the development, it is important to establish an acceptable rule of cost sharing among Nation, Department, Municipality, the executive body, other administrative bodies, land owners and builders of various facilities after development.
- 2) Applying a new development system, it is necessary to study institutional and social validity in this country. Proposed system is no more than an example for calculation of distribution of development profit. What is important is to establish a new development system which is accepted broadly in society.

**PART I**

**BACKGROUND OF THE STUDY**

**AND EXISTING CHARACTERISTICS**



## Chapter 1

### INTRODUCTION

#### 1-1. Background

The Feasibility Study on the Urban Development of the Central District of Barranquilla (hereinafter referred to as "the Study") is the outcome of the Comprehensive Urban Transport Study in Barranquilla Metropolitan Region (hereinafter referred to as "the Masterplan Study") carried out by the Japan International Cooperation Agency (JICA) from 1983 through 1985.

Recently, however, the high concentration of urban activities and transportation inefficiencies in the central district have resulted in a variety of problems.

Major urban activities, specifically commerce and business, have fled the district. Major traffic congestion and problems in traffic management are common in the district due primarily to the volume of buses and their routes. Canal water has become contaminated, resulting in overall disorder in the spatial configurations of existing urban functions.

In this context, the Masterplan Study has proposed the following urban development targets for the district:

- a. Renewal and revitalization of primary urban functions in connection with urban restructuring.
- b. Development of safe and functional transportation systems.
- c. Environmental improvement.
- d. Improvement of building codes and requirements.

Along with these targets, the importance of the development of the Barranquillita area was identified, and a land use plan for the district

was proposed with preliminary studies on implementation measures.

Additionally, it has been agreed between both governments that the following are to be put in to the Feasibility Study in connection with the urban development of the central district:

- 1) Construction of the Bus Terminal.
  - . Intermunicipal bus terminal
  - . Urban bus terminal
  - . Urban bus routing to and from Barranquillita
- 2) Reorganization of the Existing Public Market in Barranquilla.
- 3) Provision of an Urban Park to Replace the Mercado Canal.
- 4) Improvement of Calle 30.
  - . Widening from four to six lanes between the intersection with Cra 46 at the north and the intersection with Circunvalar at the south.
- 5) Construction of the Riverside Bypass.
  - . The part from the access road to Pumarejo Bridge up to Via 40 through Barranquillita.
- 6) Arrangement of Infrastructures.
  - . Those necessary for the projects mentioned above in the items 1), 2), and 3).

#### 1-2. Objective

The objective of the Study is to investigate the feasibility of the development of the central district of Barranquilla, focusing on the high priority projects as itemized in the preceding section 1-1. The planned, orderly revitalization of the district, is the object of this focus.



### 1-3. Study Area

The area focused upon in the Study corresponds to the "Strategic Project Areas" selected and demarcated in the Masterplan Study. The Study Area covers an area of approximately 180 Ha.

The principal concern of the Study is the area defined in the Masterplan Study as project areas Nos. 6, 7, 8, 9, and 10. These are the so-called "Barranquillita" and part of "El Boliche" sector. In this area a considerable extent of land is left underdeveloped despite its favorable location next to the existing activity center. Thus, the Barranquillita and Boliche area comprises and is referred to throughout the Study as the "Main Study Area".

Areas not within the Barranquillita and Boliche focus are referred to in the Study as "Sub-study Areas". These areas, surrounding the Barranquillita and Boliche ("Main Study Area"), are taken into consideration in the process of the Study only insofar as their situations, both existing and projected, may affect the Study.

The Main Study Area and the sub-study areas are illustrated in FIG. 1-1 to indicate their logistical relationship to the central district of the Study.

### 1-4. Study Organization

The Study has been carried out by JICA in close cooperation with the government of Colombia. The organization of the Study is summarized and shown in FIG. 1-2, and the members participated in the Study are listed in the APPENDIX of this Report.

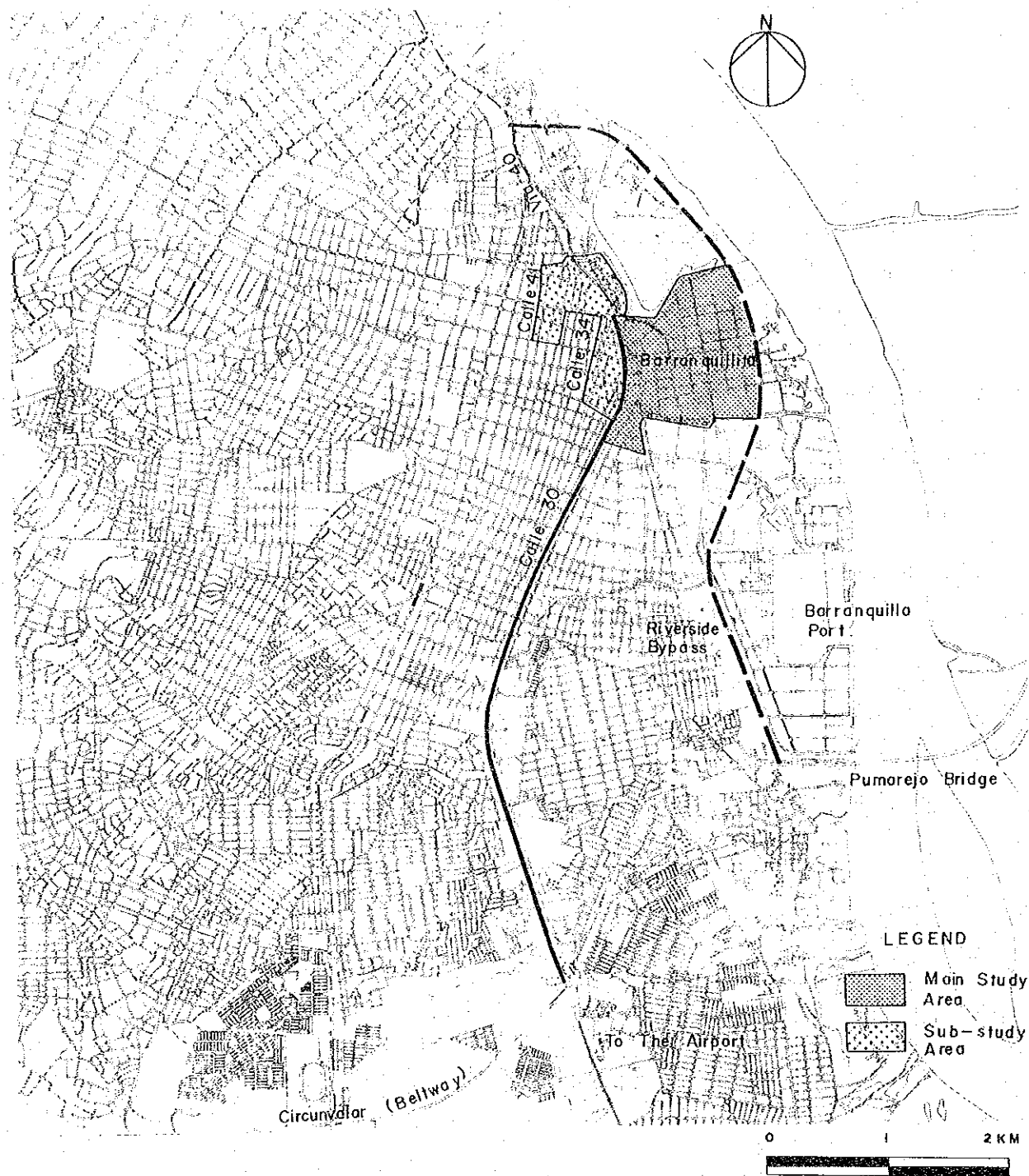


FIG. 1-1 STUDY AREA

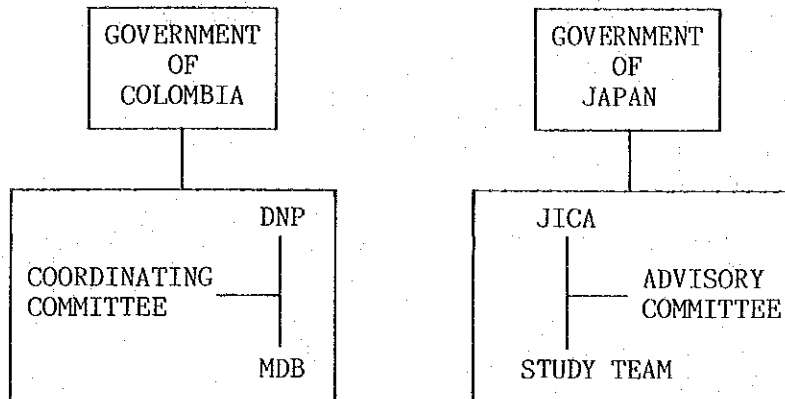


FIG. 1-2 ORGANIZATION OF THE STUDY

#### 1-5. Study Flow

The process of the Study has comprised the following four stages which are illustrated in FIG. 1-3:

##### 1) STAGE 1: Preparation and Coordination of the Study Schedule.

On the basis of the compilation and review of the data and information utilized in the Masterplan Study, the fundamental direction of the Study and a tentative study schedule were worked out by JICA in Tokyo.

In Barranquilla, the study schedule has been coordinated and finalized, after the review of the progress of studies by counterparts on the items provided in the Minutes of Discussions attached to the Scope of Work of the Study.

##### 2) STAGE 2 : Analysis of Planning Conditions

As the Masterplan Study was begun in 1983 and completed in 1985, a review process was initiated to determine what, if any, local changes occurred in the interim years (1983 to the present). Additionally, the

review determined to what extent these changes in the physical and/or socio-economic conditions might affect the Study and the settlement of the framework of the Study.

Supplementary surveys of the existing physical and socio-economic conditions of the central district have been conducted to meet the necessity for specific data and information for this Study.

Since the provision of infrastructures in the main study area is the vital basis for the development, special attention has been paid to formulating and planning the purposes and objectives of infrastructures.

Based on the information compiled through this stage, the development scenario has been worked out to guide the planning process of related projects as well as the development plan of the central district.

### 3) STAGE 3: Plan-making

Under the guidance of the development scenario, the plan-making of each development project has been carried out, generating alternative plans with rough estimations of implementation cost.

Coordinating with and integrating these development projects, the preliminary urban development plan of the central district has been formulated.

Thus, the overall outlook of the Study has been worked out in this stage.

#### 4) STAGE 4: Evaluation and Implementation Program

The focus of this stage has been the evaluation of each development project in the preliminary design stage with refined cost estimation and of the development plan of the central district.

Financial and economic studies, on these projects and the development plan of the district have led to the formulation of the implementation program.

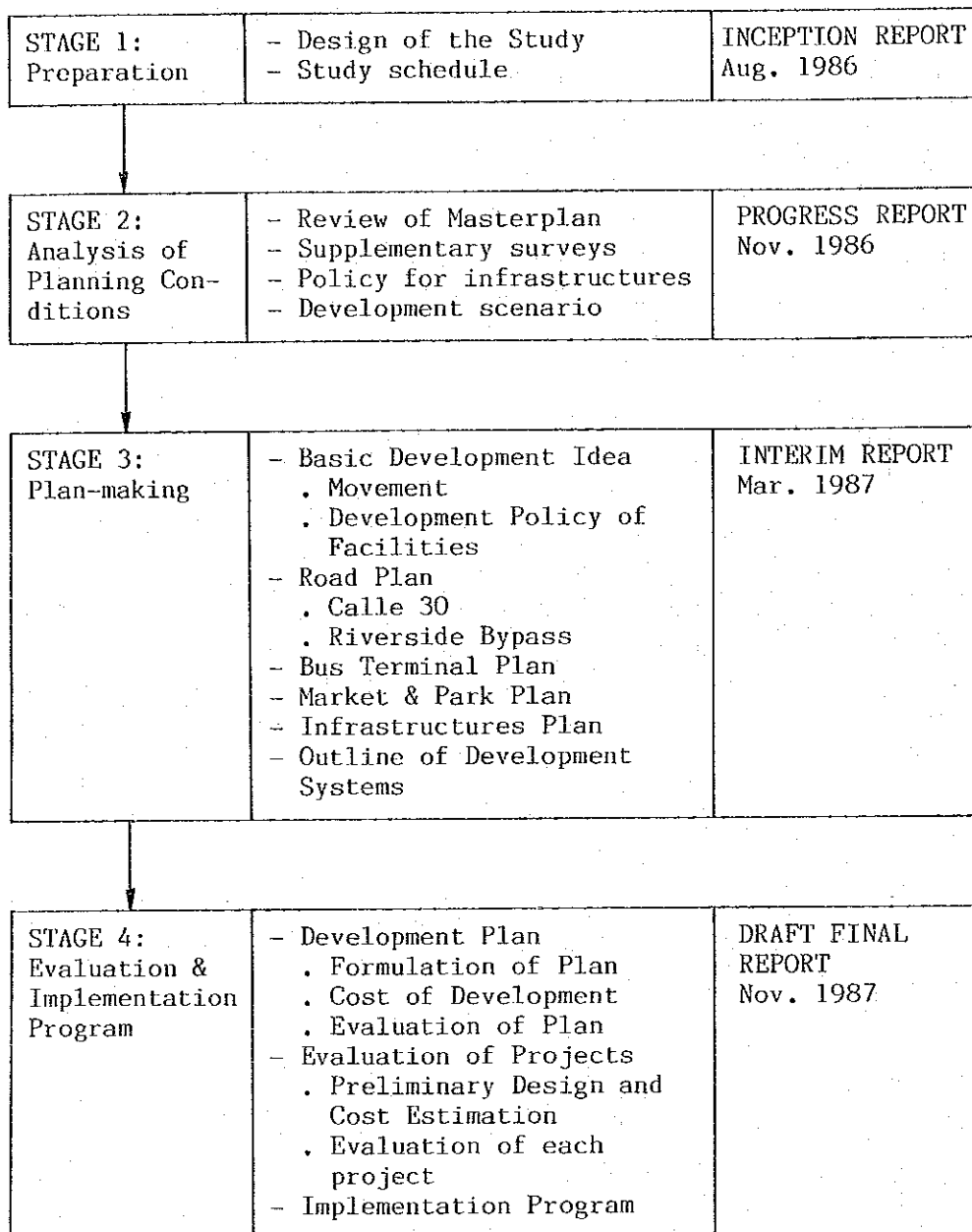


FIG. 1-3 STAGE OF THE STUDY

## Chapter 2

### REVIEW OF THE MASTERPLAN STUDY

The Masterplan Study was conducted from 1983 to 1985, and it projected several trends in population growth, gross domestic products, employment, land use and transportation. Between 1983 and the present time data has been made available to indicate the Masterplan Study should be reviewed for possible revisions. What follows is a summary of the review process.

#### 2-1. Population

The Masterplan Study population estimation was arrived at using National Census figures from 1964 and 1973. Tentative National Census data for 1985 was made available. TABLE 2-1 compares the Masterplan Study projections (column '83) with the tentative numbers from the 1985 Census. The comparison reveals a Masterplan Study over-estimation of population in Barranquilla, its Metropolitan Region, and in the Department of Atlantico.

The discrepancy between the Masterplan projections and the tentative 1985 census information was reviewed to determine if the population projection for the year 2000 should be revised. The Masterplan Study projections for the year 2000 estimated a population of 2.00 million whereas projections based on the 1985 census data result in an estimated population of 1.73 million.

However, the result of the 1985 national census is subject to further revision since DNP and the National Republic Bank are of the opinion that the result is an under-estimation. Thus, the population estimation in 1983 and the projection for 2000 will remain the macro-framework for the Study.

TABLE 2-1 POPULATION BY CENSUS

	1)	2)	3)	4)	Ave. Annual Growth Rate	
	'64	'73	'83	'85	'64-'73	'73-'85
Barranquilla	498.3	703.5	973.2	899.8	3.9%	2.1%
Soledad	38.5	68.6	134.8	165.8	6.6%	7.6%
Malambo	7.6	12.3	58.7	52.6	5.5%	12.9%
Puerto Colombia	10.3	14.6	20.7	19.0	4.0%	2.2%
Galapa	6.2	9.9	12.8	14.0	5.2%	2.9%
Metropolitan Area	560.9	808.9	1,200.2	1,151.2	4.2%	3.0%
Rest of Atlantico	156.5	220.0	270.0	277.4	2.9%	2.0%
Atlantico	717.4	1,028.9	1,470.2	1,428.6	4.1%	2.8%
National	17,484.5	22,915.2	-	27,867.3	3.1%	1.6%

1) Censo Nacional de Poblacion, DANE, 1964

2) Censo Nacional de Poblacion, DANE, 1973 [JICA adjustment]

3) Masterplan Study, JICA, 1985

4) Censo Nacional de Poblacion, DANE, 1985

## 2-2. Gross Domestic Product

The gross domestic product is recovering slightly after the slowdown in the years from 1981 to 1983. In the Department of Atlantico, however, the economic recovery has been detained by various factors.

In the Masterplan Study, the annual growth rate of GDP is assumed to be 4.5%. The projection of GDP in 2000 applying this rate is almost the same as the recent projection by the Chenery Mission (refer to FIG. 2-1). Therefore, it still may be justified to take the assumed growth rate in the Masterplan Study as the basis for projectings of the gross regional domestic production (GRDP) in the Department of Atlantico. The result of the GRDP projection for the year 2000 is shown in TABLE 2-2.



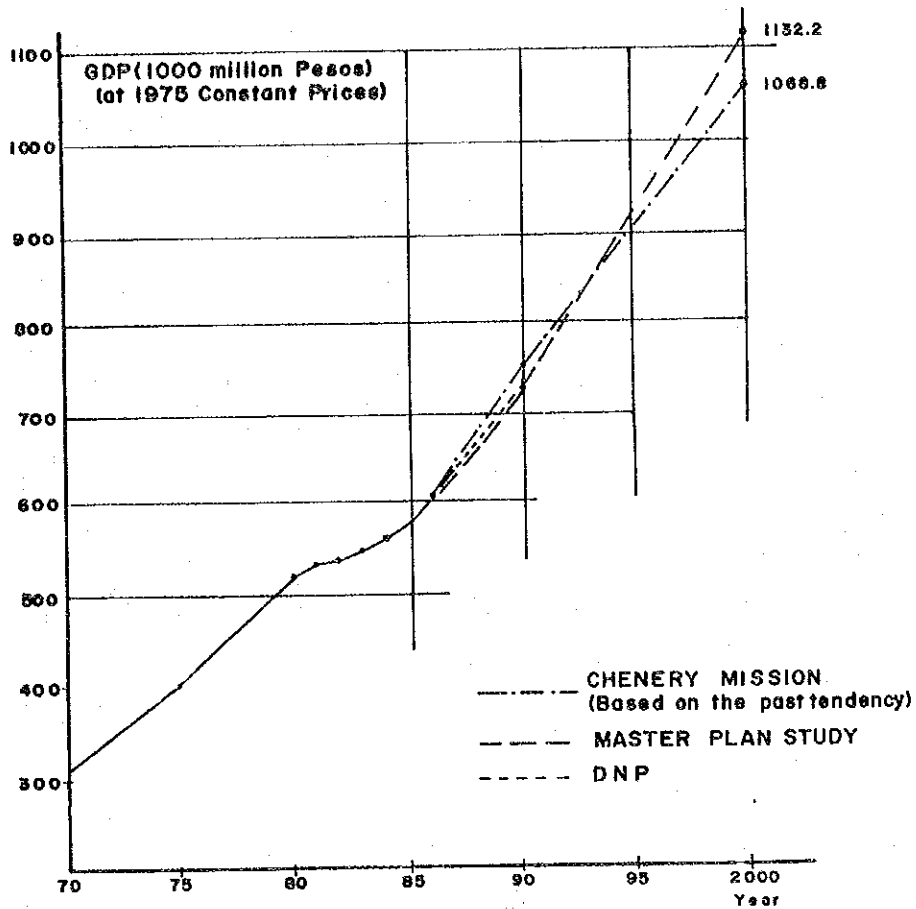


FIG. 2-1 GDP PROJECTION

TABLE 2-2 PROJECTION OF GRDP OF ATLANTICO

Industry	(in '75 prices)			(million pesos)	
	G R D P			Annual Growth	
	'85	'90	2000	'85-'90	'90-'100
Primary	2,210	2,690	3,980	4.0	4.0
Secondary	10,750	13,270	20,810	4.3	4.6
Tertiary	20,140	27,890	49,890	6.1	6.3
Total	33,100	43,040	74,680	5.4	5.7

### 2-3. Employment

According to the National Census in 1985, the working population in the Metropolitan Region is some 15,000 persons (4.6%) less than the Masterplan Study estimated figure in 1983.

The projection of working population based on this census and on the labor productivity assumed in the GRDP of the Masterplan Study results in some 628,000 persons in the year 2000. This figure is some 84,000 persons (11.8%) less than the projected 712,000 persons in the Masterplan Study.

The high rate of unemployment reported in the 1985 National Census was reviewed and it was determined that the discrepancy could be attributed primarily to world economic fluctuations. Therefore, the Study does not consider the differences between projected and actual numbers as extremely meaningful in terms of projecting future employment trends.

### 2-4. Land Use and Transport

Some proposals indicated in the Masterplan Study for land use and transportation improvement are currently being undertaken. In the south, the Gran Abastos project is scheduled to open in 1987 and site determination for the International Bus Terminal is under way. In the north, 40 Ha of land has already been acquired for the land acquisition required for the relocation of the Atlantico University.

In the central district, planning has begun for the restoration of the old Customhouse together with the renovation of the area along Cra 50 and the reorganization of Paseo Bolivar. These are in conformity with the idea of the central district redevelopment proposed in the Masterplan Study.

Some improvements in the transportation system have also occurred.

Signalization in the central district has been under way since 1984, and the rerouting of buses in connection with this signalization has been in operation since February of 1987.

#### 2-5. Conclusion

Upon concluding the review of the Masterplan Study, it has been determined that it may still be taken as the basic framework for this Study.

All data interim to the two studies indicating discrepancies are dependent on the results of the 1985 National Census. Because the results of the National Census remain tentative, original projections are kept for the framework.

The general tendency of the development of projects in the Metropolitan Region is favorable in terms of its conformity with proposed land use and also the development idea of the central district.



## Chapter 3

### GENERAL CHARACTERISTICS OF THE CENTRAL DISTRICT

#### 3-1. Physical and Environmental Aspects

##### 3-1-1. Topographical and Geological Features of Barranquilla

The urban area of Barranquilla has developed along the Magdalena River and expands over a hill. The east grade of the hill is gentle and goes down to the Magdalena River. On the other hand, the west grade is rather steep, sometimes causing landslides. Along the left side of the Magdalena River, a sandbank forms the areas known as Zona Franca, Barranquillita, Loma I and Loma II, and the surface of this sandbank is quite even with the altitude of about 1.5m above sea level.

Barranquilla is located on two typical formations: the top layer is called the "Barranquilla formation", and the formation below, which manages to appear on the surface in the south part, and is called "Las Perdices formation".

The Barranquilla formation is comprised of stiff white clay, known as limestone, which is good foundation material. Its average thickness is 15m at the riverside where it is submerged and covered by soft river sediments and sand. In the north part near the river, it is covered by even sandbank. The geological profile is shown in FIG. 3-1.

The Perdices formation is found most frequently under limestone and sandstone, but it also appears on the surface of an outcropping in the southern part. This formation was formed by sea sediments and is over-consolidated clay originated in the Tertiary period. The clay appearing in the southern part has yellow and gray color on the surface due to alterations in climate. The outcropping is expansive in nature.

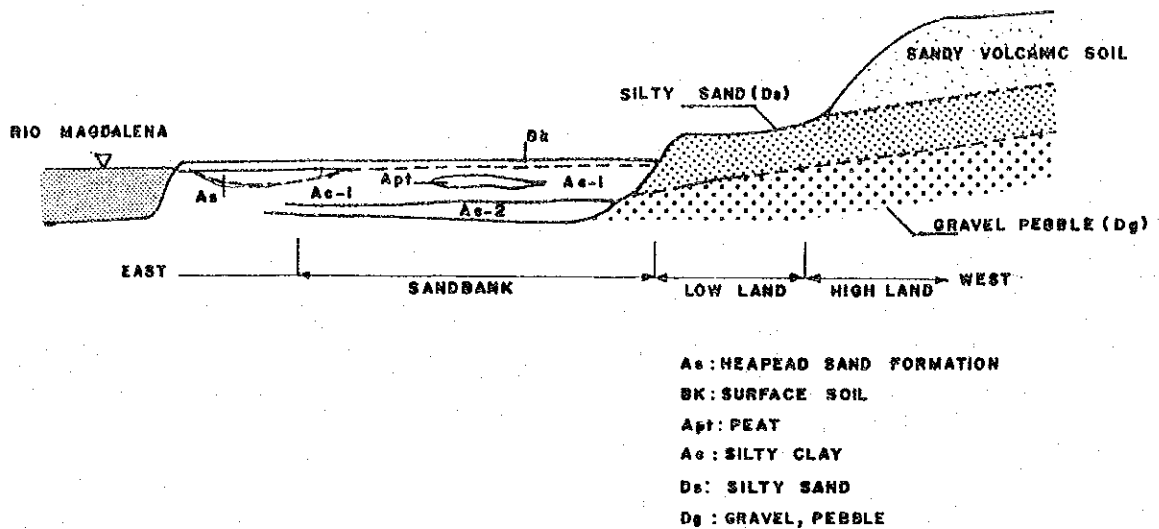


FIG. 3-1 GEOLOGICAL PROFILE

The geological study conducted by ELECTRANTA is available for the investigation of geological considerations for the proposed Riverside Bypass. The related points proposed for boring in the study are shown in FIG. 3-2, and some characteristic conditions are described below.

Surface soil covering the route area is about 1.0m deep except the parts indicated by the points of boring numbered P 18 and P 19, which are some 4m deep.

The area numbered from P 28 to P 41 has a depth of about 2.0m of sand bar sediment formation under the surface soil, which is assumed to be mainly loose density sand saturated with ground water.

Clay and peat formation of 6.0 to 9.0m deep are distributed in the area of alluvial deposits between the points of boring numbered from P 19 to P 41.

Sand, gravel and pebble layers are formed about 1.0 to 3.0m deep in the diluvial deposits. This formation is adequately rigid for bearing the structural foundation.

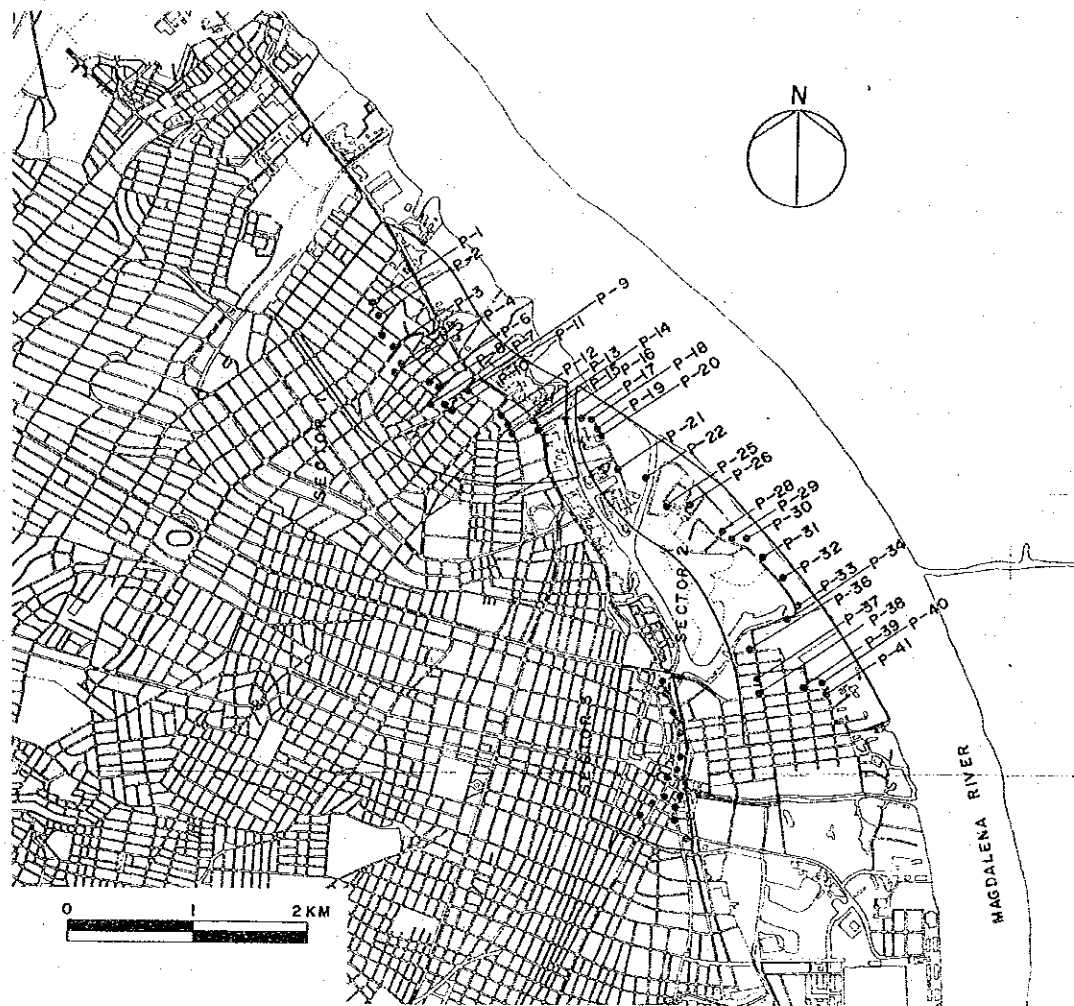


FIG. 3-2 LOCATION OF BORING POINTS

### 3-1-2. Environmental Features

One of the outstanding environmental features of the area is the contamination of the Mercado Canal. This can be attributed to the stagnant water and the garbages thrown into the canal from surrounding market activities. This situation separates and isolates the Barranquillita area from the existing central district.

Another feature is the deficiency of open space and greenery. This is the main reason why the central district is not attractive in terms of environmental amenities.

### 3-2. Land Use and Buildings

#### 3-2-1. Land Use

The land use features of the Barranquillita and Boliche area are shown in FIG. 3-3, and are summarized as follows:

- a. 43% of the total lots are vacant, and especially in the east half of the area, the vacancy ratio is more than 50%.
- b. Of the land in use, the majority of buildings are industrial, commercial or warehouses. Large manufacturers are located in close proximity to one another; the commercial area, known as the market, is in one area; warehouses, comparatively, are equally distributed around the area.

#### 3-2-2. Existing Buildings

The buildings of the Barranquillita and Boliche area are examined in terms of their age and condition. For the age of buildings, three categories are established as: old (up to 1925), intermediate (from 1926 to





FIG. 3-3 PRESENT LAND USE

1950), and contemporary (after 1951). For the condition, three ratings are set up as good, regular, and bad.

a. Building Age: The Boliche area has remarkably older buildings, and the west half of Barranquillita is a mixture of old, new, and intermediate buildings. The east half has rather new buildings.

b. Building Condition: In spite of the high percentage of old buildings in the Boliche area, the buildings identified in bad condition in that area are relatively few. On the other hand, especially in the south-east part of the area where all the buildings are contemporary, the building condition are remarkably bad.

In the area in between Calle 30 and Calle 34 (Paseo Bolivar) a number of buildings are identified as those of historic importance. This area might be a major focus of conservation in the overall urban redevelopment of the central district.

### 3-3. Socio-economic Aspects

Socio-economic features of the main study area are rather difficult to grasp and also to depict. For the purposes of the Study, three features are examined : Land tenure, land value, and street vendors.

#### 3-3-1. Land Tenure

Public Land in a project area facilitates, in general, the execution of the project. Key facilities for the project can be constructed on the land or as it can be a source to be exchanged with other land in more favorable location for the project.

The public land in the main study area amounts to some 7.1 Ha, out of which 62% (4.4 Ha) is the municipal land. The share of the public land in the area is estimated to be around 6%. FIG. 3-4 shows the location of

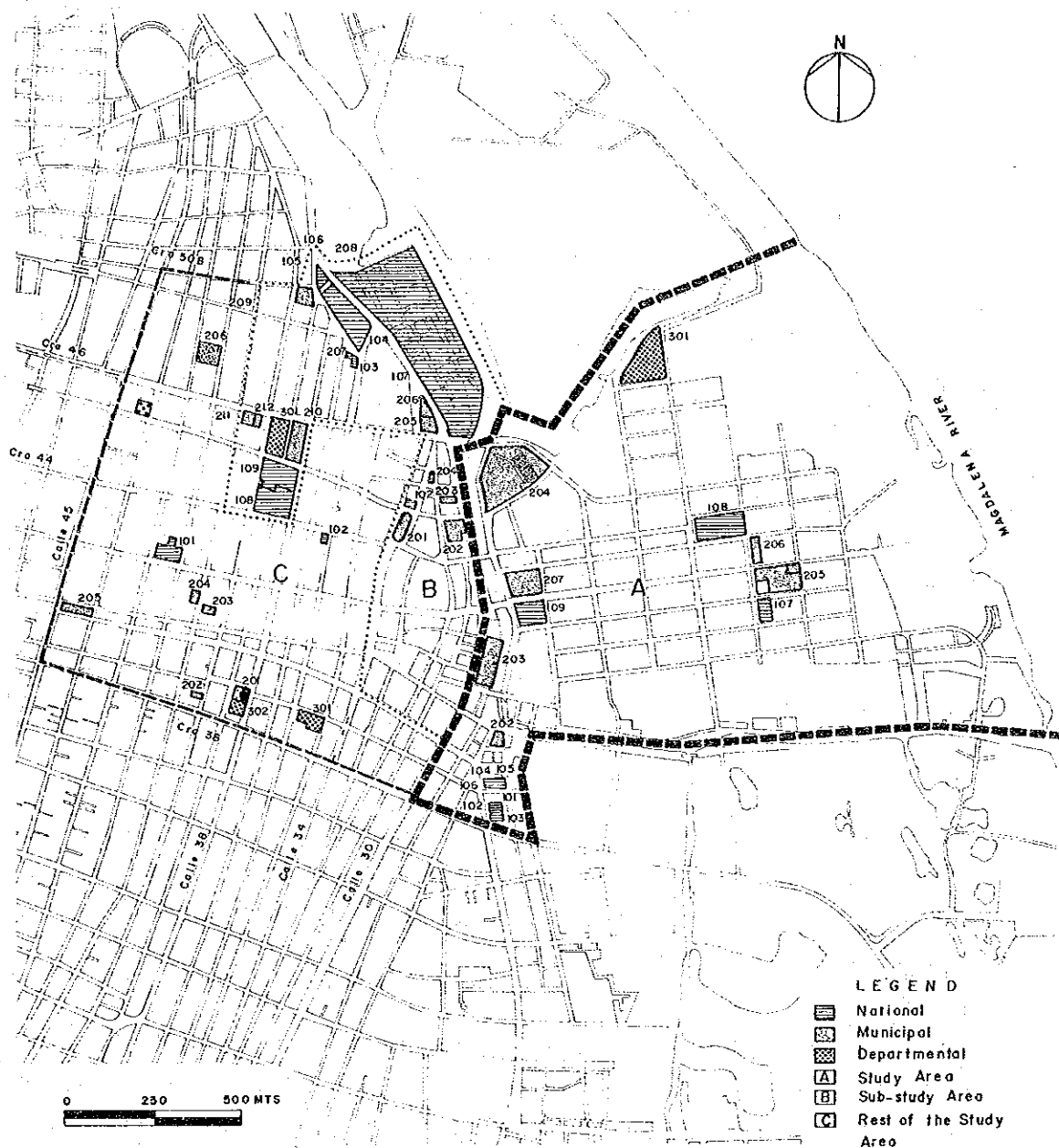


FIG. 3-4 PUBLIC LAND IN THE STUDY AREA

the public land in the Study Area (A: main) and also in the central district (B: sub).

### 3-3-2. Land Value

The land value of the main study area varies widely according to the location of a lot. The up-to-date cadastral survey by IGAC shows that the range of the value is from \$270/m<sup>2</sup> to \$6,680/m<sup>2</sup>.

Generally, the higher value is found in the west part of Barranquillita adjacent to the existing central district. The east half of Barranquillita, nearer to the Magdalena River is assessed at a comparatively lower land value. The average value of the whole area is estimated to be \$ 1,245/m<sup>2</sup>.

### 3-3-3. Street Vendors

Street vendors are one of the major problems in the central district in terms of traffic congestion and sanitation. On the other hand, they provide an important economic function.

The economic impact of street vendor activities can be obtained through the survey conducted by the Study Team in September, 1986. The area of the survey is demarcated by Calle 8, Cra 38, Calle 45 and Cra 46 as illustrated in FIG. 3-5.

The distribution of street vendor stands by zone and by kind of commodity is shown in TABLE 3-1. This table reveals that the main study area has about 48% of the total stands in the central district. The concentration of stands dealing vegetables and meat is high, 70% and 84% respectively, and this is taken into special consideration.

Some important outcomes of the survey are summarized as follows:

TABLE 3-1 STREET VENDOR STANDS BY COMMODITY AND BY ZONE

Commodity	Stand Type	Zone 1	Zone 2	Zone 3	Zone 4	Total
Vegetables	fixed	813	325	6	1	1,145
	mobile	718	285	70	14	1,087
	others	161	12	2	6	181
Meat	fixed	402	88	-	-	490
	mobile	258	32	-	1	291
	others	4	2	-	-	6
Food	fixed	321	205	3	13	542
	mobile	254	450	144	77	925
	other	16	9	5	4	34
Personal Goods	fixed	140	81	1	-	222
	mobile	335	547	425	4	1,311
	others	14	3	4	-	21
Domestic Goods	fixed	72	44	-	-	116
	mobile	57	83	56	1	197
	others	3	3	4	-	10
Services	fixed	77	21	-	-	98
	mobile	128	207	159	66	560
	others	2	-	15	5	22
Miscellaneous	fixed	42	70	11	8	131
	mobile	71	326	282	80	759
	others	31	21	13	7	72
Others	fixed	240	164	-	2	406
	mobile	185	156	27	6	374
	others	17	12	1	4	34
TOTAL	fixed	2,107	998	21	24	3,150
	mobile	2,001	2,086	1,163	249	5,504
	others	248	62	44	26	380
GRAND TOTAL		4,361	3,146	1,228	299	9,034

- Total number of working people	12,220
- Average work hours	
Weekdays	10.6
Saturday	10.4
Sunday	4.4
- Average amount of commodity purchase/ day/stand	\$4,293
- Average amount of sales/day/stand	\$6,268
- Average payment for services/day/stand	\$67
- Average profit/day/stand	\$1,934

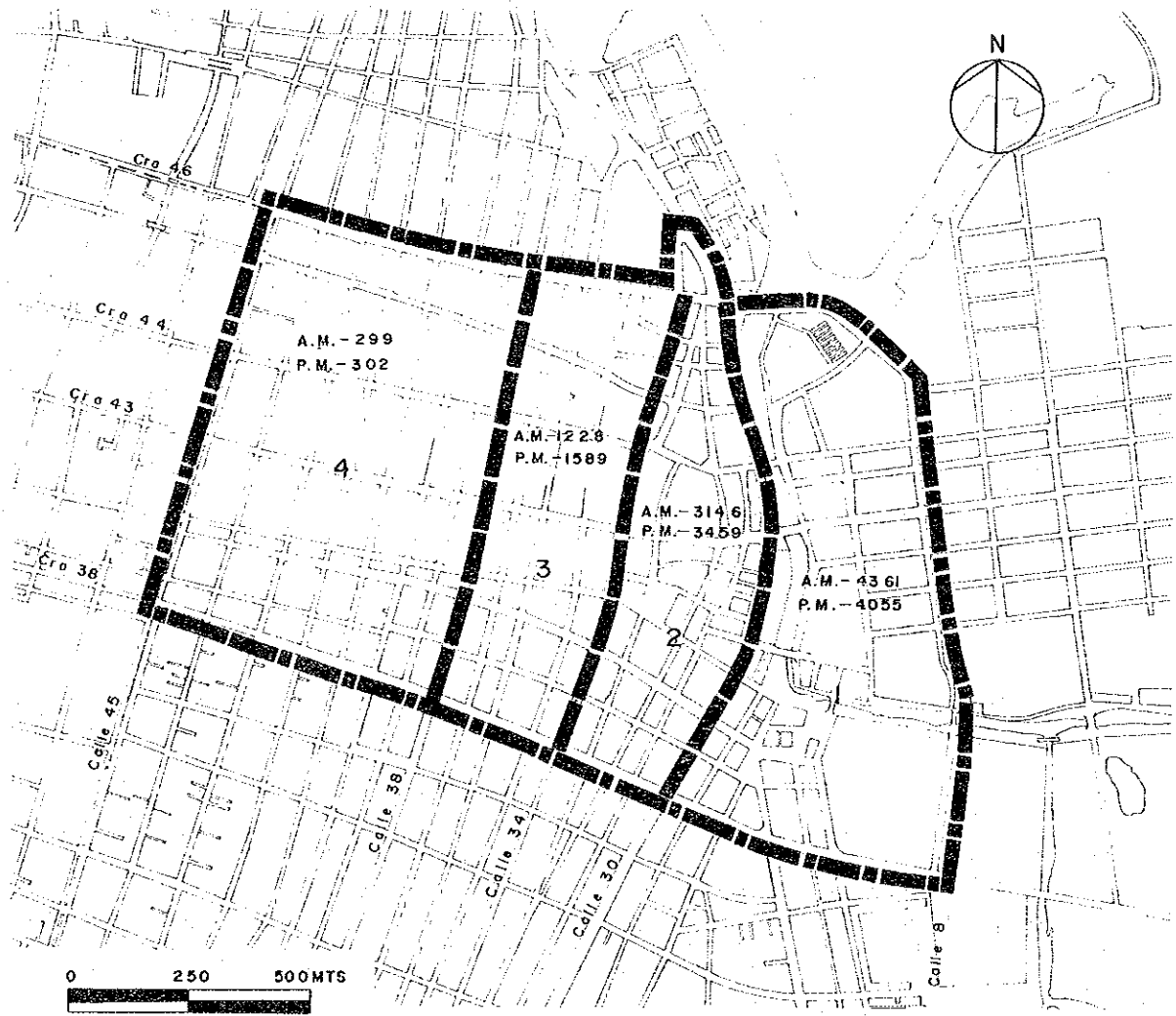


FIG. 3-5 STREET VENDORS SURVEY ZONE

On the basis of these figures, the scale of the street vendor activities in the central district is estimated as follow:

- Total amount of sales/year approx. \$ 20,000 million
- Total amount of commodity purchase/year 14,000 million
- Total amount of profit/year 6,000 million

The total number of stands in the central district may fluctuate in accordance with national and/or local economic conditions, and the dynamic aspect of street vendor activities is not within the scope of the Study.

### 3-4. Transport

#### 1) Intermunicipal Bus System

The existing intermunicipal bus system in Barranquilla is an important means of connection between the city and surrounding municipalities.

FIG. 3-6 shows the intermunicipal bus service frequency distribution together with the bus company in charge and the dispatching points in the central district. TABLE 3-2 is the summary of the service and shows that the daily services dispatched from the central district amount to about 660.

The most significant point in terms of urban renewal in the central district is the scattered location of intermunicipal bus dispatching stations. This is illustrated in FIG. 3-7 and summarized in TABLE 3-3, and justifies the creation of a new intermunicipal bus terminal.

The total number of passengers of the intermunicipal bus system is estimated to be 24,600 and the distribution is illustrated in FIG. 3-8. The average number of passengers varies by distribution section, and Galapa - Baranoa - Sabanalarga sector is the highest with 44 passengers/service.

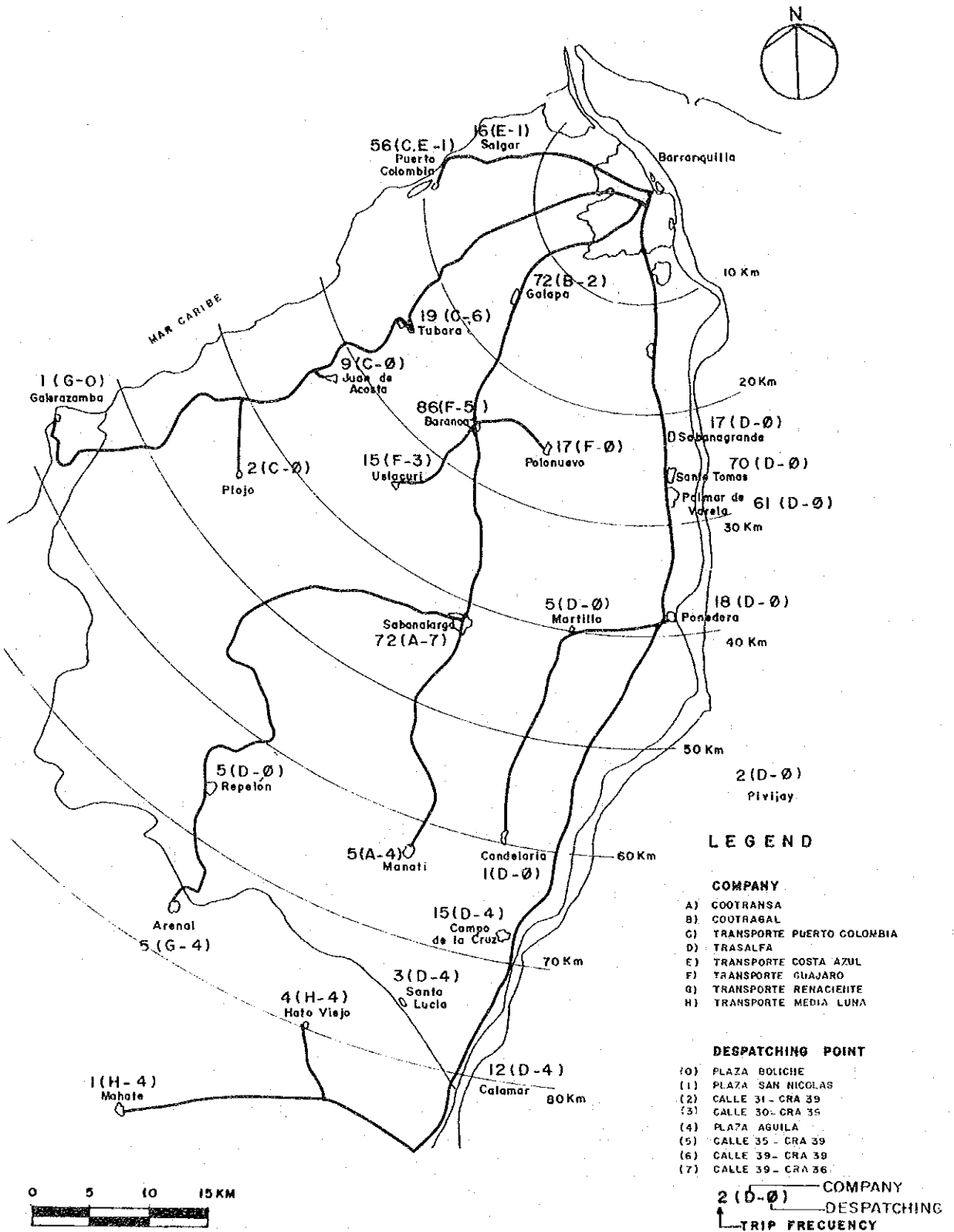


FIG. 3-6 INTERMUNICIPAL BUS SERVICE



TABLE 3-2 EXISTING INTERMUNICIPAL BUS SERVICES

Sector	Zone	Destination	** Comp.	Service Frequency (Per day)	Location Zone Defined by distance from BQ.
80	80	Salgar	E	16	20 km
		Pto. Colombia	C	56	20 km
Total				72	
83	83	Tubará	C	19	30 km
		Juán de Acosta	C	9	40 km
		Piojó	C	2	50 km
		Galerazamba*	G	1	60 km
Total				31	
81/84	81 84	Galapa	B	72	20 km
		Baranoa	F	86	30 km
		Polonuevo	F	17	30 km
		Usiacuri	F	15	40 km
		Sabanalarga	A	72	50 km
		Manati	A	5	70 km
		Repelón	D	5	70 km
		Arenal	G	5	80 km
Sub-total				205	
TOTAL				277	
82/85	85	Sabanagrande	D	47	30 km
		Santo Tomas	D	70	30 km
		Palmar de Varela	D	61	30 km
		Ponedera	D	18	40 km
		Martillo	D	5	40 km
		Candelaria	D	1	60 km
		Campo de la Cruz	D	15	70 km
		Calamar*	D	2	90 km
		Santa Lucia	D	3	80 km
		Hato Viejo*	H	4	80 km
Mahate	H	1	100 km		
TOTAL				277	
G-TOTAL				657	

\* : Located in Bolivar Department

\*\* : Please see following figure.

(Source : Bus Company Survey by Barranquilla City)

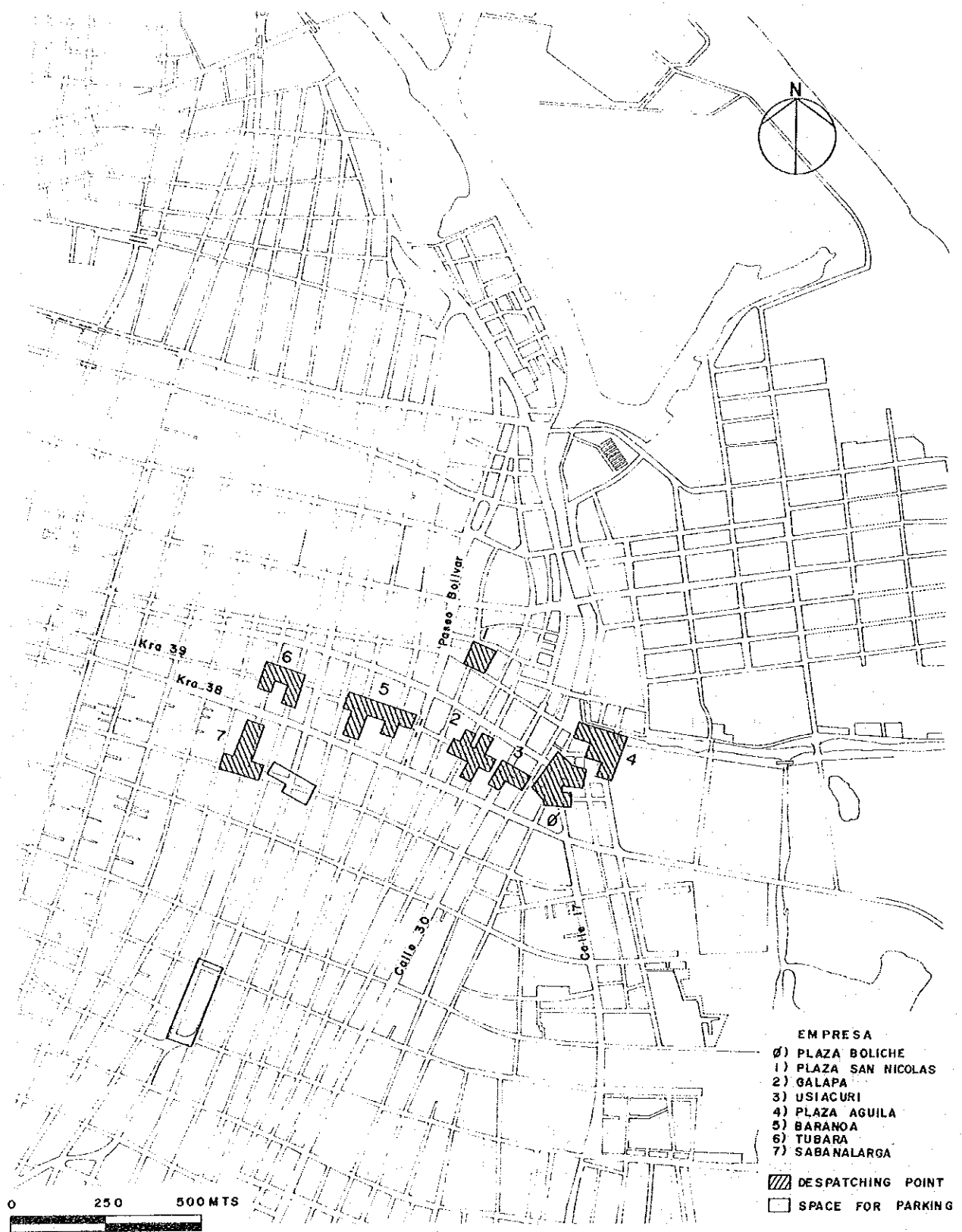


FIG. 3-7 DISPATCHING POINTS OF INTERMUNICIPAL BUS

TABLE 3-3 DESPATCHING POINT OF INTERMUNICIPAL BUS

No. Station	Despatching Point	Company	Route	Number of Workers	Parking Point No. of Cars	Access Road to and from BQ.
0	Boliche	Transalfa	Sabanagrande Palmar de Varela Santo Tomas Ponedera Martillo Repelón Polonuevo Juan de Acostas Piojé	1    1 1 1 1 1	4 10 6 5 1 3 4 2 1	Calle 30    Calle 30 Calle 47 Calle 47 Cra. 38 Cra. 38
1	Plaza San Nicolas	Transp. Pto. Colombia Colombia	Puerto Colombia	1	6	Cra. 51B
		Transp. Costa Azul	Puerto Colombia Salgar	1	2	Cra. 51B
2	Cle.31-Cra.39	Cootragal	Galapa	1	17	Calle 47
3	Cle.30-Cra.39	Cootraguajaro	Usiacuri		4	Calle 47
4	Plaza Aguila	Trasalfa	Santa Lucia Suán / Campo de la Cruz Calamar Puerto Giraldo Manati Arenal	1  1 1 2 1 1	1 3 4 1 1 1	Calle 30 Calle 30 Calle 30 Calle 30 Calle 47 Calle 47
5	Cle.35-Cra.39	Cootraguajaro	Baranoa	1	13	Calle 47
6	Cle.39-Cra.39	Transp.Pto.	Tubará	1	6	Cra. 38
7	Cra.36-Cle.39	Cootransa	Sabanalarga	1	13	Calle 47

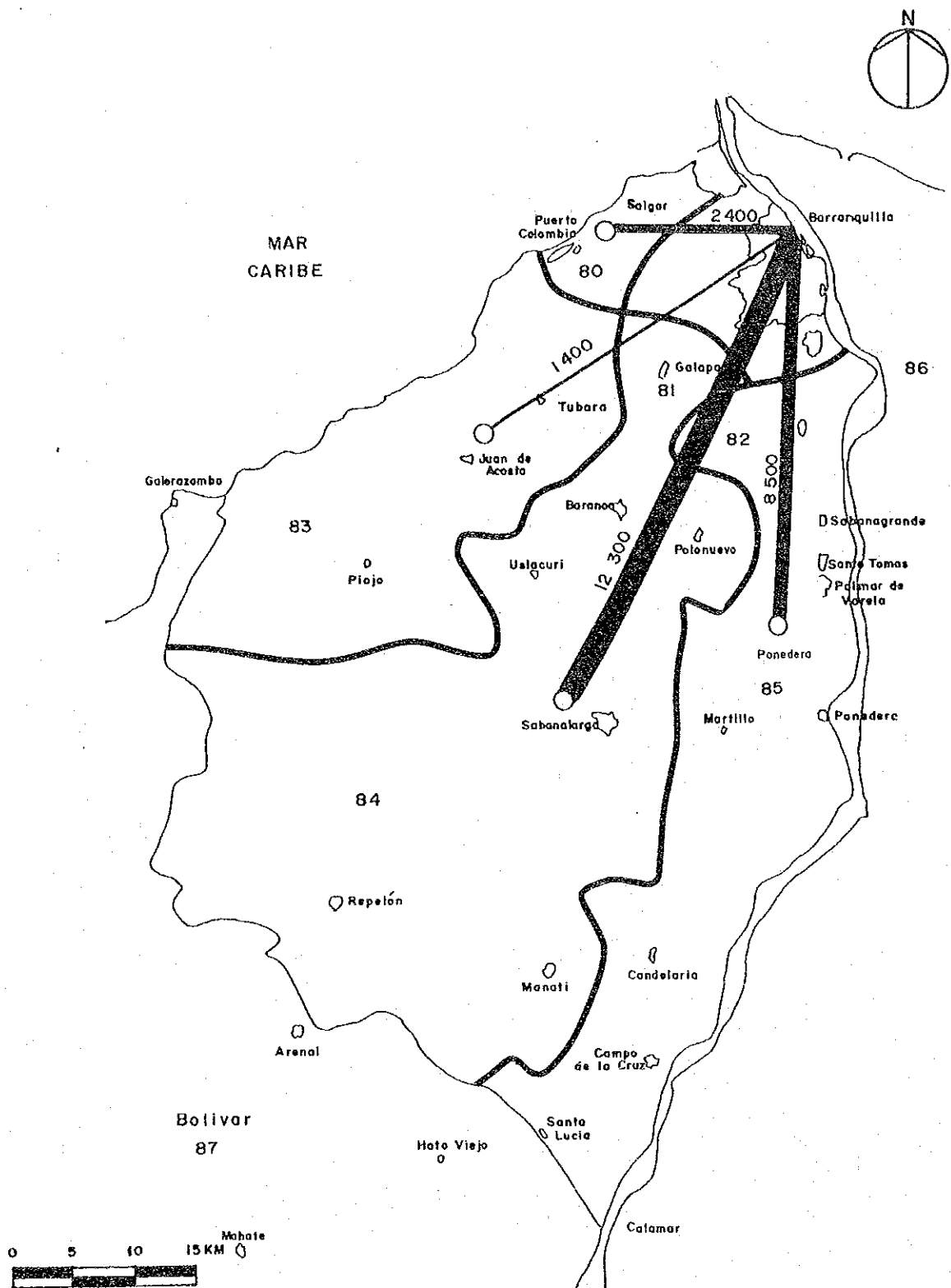


FIG. 3-8 DISTRIBUTION OF BUS PASSENGERS

## Chapter 4

### EXISTING URBAN DEVELOPMENT SYSTEMS

#### 4-1. Institutional Framework

##### 4-1-1. System of Development Plans

###### 1) Institutional Position of "Integrated Development Plan"

The legislative base of existing urban development plans is the Law No. 61 of 1978 (Urban Development Organization Law). In this law, it was prescribed that all urban nuclei with more than 20,000 inhabitants should prepare their respective Integrated Development Plans. Later the Decree No. 1306 of 1980 was issued to specify a relatively detailed standard about the process of preparation, the nature and the contents of development plans.

Meanwhile, the Decree Law No. 3104 of 1979 established the Metropolitan Area as a group of municipalities in one department with no less than 300,000 inhabitants whose principal municipality has a population of no less than 250,000 persons. It stated that metropolitan areas should prepare their Integrated Development Plans covering their total territories.

As for the indispensable measures like zoning and urban development regulations for the purpose of realization of the land use plan in the Integrated Development Plan, rather old "Urban Development Codes", which were prepared by municipalities in the 1950's in accordance with "Urban Regulation Plan" (based on the Law No. 88 of 1947), are still in force in many cities.

The basic policies of urban development at the national and departmental level are determined in the National Economic and Social Development

Plan (Law No. 38 of 1981) and in the Departmental Economic and Social Development Plan and Program (Decree No. 1527 of 1981).

2) Instruments in "Integrated Development Plan"

For the implementation of the policies proposed in the Integrated Development Plan, an investment program should be prepared. According to Article 11 of the Decree No. 1306 of 1980, the investment program should contain at least the following aspects:

- a. Basic scheme, pre-design or detailed design of each project.
- b. Priority investment with indication of the possible financial sources and the feasibility of recuperation of the investment costs through fare systems and valorization.
- c. Determination of the responsible bodies for their implementation.
- d. Administration mechanism of the completed works.

Article 12 of the same law stipulates that the Integrated Development Plan should contain at least the following normative instruments:

- a. Land use zoning regulation.
- b. Minimum standards for urban development and supply of public services in residential development.
- c. Delimitation of reserved zones for ecological, tourism, forestal or agricultural reasons.
- d. Regulations for construction license and developments of commercial, industrial and service functions.
- e. Regulation for earthquake proof construction, erosion control and contamination control.
- f. Regulations for supply of public services.
- g. Standards of roads and transport.
- h. Taxes, fares, contributions and tax incentives.
- i. Statute of valorization and structure of the office engaged in its administration.

j. Recommendations on the design and actualization of the cadastral system.

#### 4-1-2. Valorizacion and Land Expropriation

##### 1) Valorizacion

The Law No. 5 of 1921 established the system of valorizacion in order to collect the assessment for public construction works, based on the concept of recovery to the public of an increased value of properties generated by public works.

Initially, this system was oriented to the works of flood control, drainage and irrigation conducted by the national government. Later, by the Law No. 195 of 1936, the Law No. 63 of 1938 and the Law No. 1 of 1943, the right of application of valorizacion was gradually extended to municipalities of lower rank, and finally all municipalities were authorized to use this measure for their works.

Until the promulgation of the Decree No. 1604 of 1966, the assessment had been called "tax" or "contribution". The decree fixed the name of "contribution" and improved greatly the legislative system of valorizacion.

This decree was adopted as a permanent legislation by Article 1 of the Law No. 48 of 1968, and is the base of the existing valorizacion system.

Application of valorizacion for a public work requires the following administrative and technical steps:

##### a. Delimitation of Influence Zone

Using maps of scales from 1:2,000 to 1:10,000 in urban areas, the influence zone is delimited in consideration of topography, land value, land use, influence zones of other works, etc.

b. Study of Property Owners

The study is conducted by collecting and arranging cadastral parcel maps, land prices, etc. in the influence zone.

c. Citation of Property Owners

This is for the participation of designated members of property owners in the stage of preparing the budget of the work or in liquidating the cost when the work is completed.

d. Analysis of General Benefit.

The benefit generated by public works is diversified depending on the characteristics of works. Corresponding to the following classification, calculation of increased value of the properties in the influence zone is conducted and is expressed economically.

- Basic infrastructure of new urban development.
- General public works in urbanized area.
  - roads and streets
  - parks and green zones
  - public utilities
  - urban renewal
  - land improvement

e. Determination of Total Amount of Contribution.

Total amount of contribution is determined on the basis of the project budget or cost, as the case may be, and the authorized additional percentage (the upper limit is 30% according to the Decree No. 1604 of 1966), taking account of the results of the general studies on the benefit.

f. Selection of Distribution Method.

One is selected from among the following method considering the characteristics of the work.

- Simple method of front
- Simple method of area
- Combination method of area and front
- Method of benefit factors

g. Distribution of Contribution.

Applying the selected method, the amount of the contribution for each property owners is obtained.



## 2) Land Expropriation

Article 1 of the Law No. 1 of 1943 prescribed that the public works in the capital cities of departments and in the cities with no less than 25,000 persons are authorized to decree the expropriation of urban properties for motives of public benefit.

The limitation related to the population size was eliminated afterwards by the Law No. 71 of 1947, so that all municipalities have an authorized right to decree the land expropriation.

At the initial implementation stage of a public work, negotiation of land acquisition is conducted based on the project budget considering commercial land prices confidentially assessed by experts. In the case of dissensions, the matters are brought into civil court.

In the proceedings, the judge designates experts who estimate the value of the object, and they separately estimate the indemnity. When the assessment value is fixed and the consignment is done by the demander, the expropriated property is transferred to the demander.

In an urgent case, the transfer of the properties could be done before the assessment, when the demander solicits it and consigns an amount equal to the effective cadastral value plus fifty percent, as guarantee of the payment of the indemnity (Article 457 of the Code of Civil Procedure).

### 4-1-3. Financial Support Systems

In Colombia, there are various financial support systems from national level organizations to the local public sectors. The systems especially related to urban development are the following organizations and ministries:

- a. FONADE
- b. BCH (FFDU)
- c. INSFOPAL
- d. CFT
- e. CNT
- f. Ministry of Finance
- g. Ministry of Public Works and Transport

1) FONADE

FONADE is a subsidiary organization of DNP, and finances studies in accordance with the long term national development policies, as well as feasibility studies of short and medium term investment programs. Financial conditions are as follows:

Term : maximum 5 years

Grace period : maximum 1 year

Interest rate : 20-26%

2) BCH

BCH has a credit line called FFDU, the objective of which is to discount the credits of intermediate financial organizations given to municipalities, departments and other eligible bodies for the purpose of urban development works. Financial conditions are as follows:

Term : maximum 12 years

Grace period : maximum 3 years

Interest rate : 22-28%

3) INSFOPAL

INSFOPAL is a subsidiary organization of the Ministry of Public Health. This organization is to take the responsibility of financing programs, advising, coordinating, controlling and watching over the the companies

engaged in construction, and of the responsibility of the administration and operation of sanitary service systems. Financial conditions depend on the contract.

4) CFT

CFT is a subsidiary organization of the Ministry of Economic Development established for the promotion of transport industries. From the stand point of the development of transport facilities, its main function is to give technical assistance and to participate as a partner in the newly established transport companies like bus terminals.

5) CNT

CNT is also a subsidiary organization of the Ministry of Economic Development. This body finances the tourism and recreational development projects by public sectors and other eligible organizations. Financial conditions are as follows:

Term : maximum 12 years

Grace period : maximum 3 years

Interest rate : 14-16%

6) Ministry of Finance

According to the Decree Law No. 294 of 1973, the Ministry of Finance can include a public credit to local governments and public enterprises in the national budget corresponding to the needs of development.

Financial conditions depend on the contract between the nation and the debtors.

## 7) Ministry of Public Works and Transport

The Ministry of Public Works and Transport constructs national roads using its own investment budget. When the works are completed, the right of collection of valorization contribution is sometimes ceded to a Municipality. The Municipality (Municipal Valorization Office) can use a determined part of the collected amount for its road projects according to the contract with the Ministry.

### 4-1-4. Existing Problems and Resolution Directions

The existing institutional system has some problems. A summary of problems and suggestions for improvement is as follows:

- a. Integrated Development Plan should have various instruments for its implementation. But, in reality, it is very difficult to equip it with effective regulations and realizable implementation programs. New urban development codes with effective enforcement should be prepared.
- b. Priority projects with the possible financial sources, the feasibility of recuperation of investment costs, and the permanent responsible bodies for implementation and administration should be prepared and set into the Integrated Development Plan.
- c. The Valorization Office gets a loan from FFDU for implementing the work and, after the completion of the project, begins to collect the valorization contribution. The collection is generally delayed; therefore, the office suffers from the imbalance between incomes and expenditures. Some institutional measures to utilize the collected contribution before the work is implemented should be established.
- d. Each financial support system is an effective measure for individual project. But there exist no sufficient system for an integrated

project like urban development or redevelopment. The direction of BCH, which is now promoting urban renewal projects, is to be more advanced.

#### 4-2. Systems Related to the Major Projects in the Study

##### 4-2-1. Bus Terminal

In Colombia there are 10 bus terminals located in the principal cities of the interior parts of the country.

CFT has been in charge of the promotion of these projects and has given technical assistance and, in some cases, financial support.

In general, the organizational support of bus terminals is a mixture of public and private sectors. CFT participate as a member of stock holders in the company.

Construction of bus terminal is one of the projects which BCH finances through the FFDU credit line. Therefore, almost all of these projects get credit to cover over 30% of their initial investment costs.

The eligible works for finance by FFDU include the construction of related public works (access roads and public utilities), facilities for passenger services, facilities of transport company's activities, and vehicle operation. When the necessity is demonstrated for securing the financial balance of the terminal, work required for commercial activities are included.

The financial assistance from FONADE can be obtained at the stage of Feasibility Study.

#### 4-2-2. Market

The administration and operation of public markets is primarily conducted by a Municipal public enterprise.

The enterprise can utilize the credit lines of FONADE (for feasibility studies), INSFOPAL (for investment and administration) and FFDU (for investment).

FFDU credit lines would be given to the construction or renewal projects or market facilities. In addition, credit may be arranged for the integrated work for creating an efficient system of commercialization of foodstuffs, including places for retailers or wholesalers.

#### 4-2-3. Parks

The construction and maintenance of parks and recreation areas are conducted by various bodies. In municipalities which do not have sufficient resources to construct parks, private enterprises construct and maintain them and get a tax exemption corresponding to the costs.

Construction cost of public parks could be recuperated by the contribution of valorization, if an appropriate estimation of increased value of properties is made by experts in a supposedly established influence zone.

Investment cost of public parks can be financed by FFDU.

Also a CNT loan could be obtained when the nature of the project suits and is acceptable to lending body.

#### 4-2-4. Roads and Streets

Traditionally, construction works of roads and streets have been objects of valorization. Generally a Valorization Office gets the credits of FFDU based on the expected amount of valorization contribution.

As for the maintenance of existing roads and streets, municipalities gain resources, for example, by a pavement tax or a transport tax.

#### 4-2-5. Land Preparation and Public Services

Land preparation, especially land improvement of inundated areas, is one of the works originally designated by the valorization system. Also public works like water supply, drainage and sewage can be objects of valorization.

When private companies conduct urban development projects, usually they pay all necessary costs by their own capital or private finance and set their own selling price of lots including the costs of providing streets and public utilities. In cases such as this, the ownership of the public facilities is transferred to the public sector after the completion of the construction works.

The public sector, for example, a municipality or a municipal public enterprise, can get credits from INSFOPAL and FFDU for implementing such works.

The assistance of FONADE can also be obtained for studies of the projects.

#### 4-2-6. Existing Problems and Resolution Directions

From the stand point of implementing the major projects in this Study, the existing systems are not considered to be sufficient. The following are existing problems and suggestions for improvement.

- a. There is no system to support these projects as a whole and generally these are implemented by different entities, so it is difficult to consult with or to get institutional assistance from the most appropriate national level organizations.
- b. Bus Terminal companies by necessity must introduce new systems for obtaining other incomes like selling or renting of commercial lots because they suffer from the heavy burden of financial costs.
- c. A system for government subsidy should be studied for construction of public facilities like parks, the benefits of which are difficult to calculate economically.
- d. Widening of streets in urbanized areas requires extensive land acquisition. Therefore, in addition to the existing valorization and expropriation system, some measures should be studied. For example, an equivalent exchange system of properties could be studied for possible implementation.
- e. There is no established financial support system for integrating land preparation and the supply of public utilities. An institutional support system for subdivision by public or semi-public sectors should be studied.



#### 4-3. Existing Situation of Development in Barranquilla

##### 4-3-1. Existing Urban Development Plan and Project Execution System

###### 1) Urban Development Plan and Regulations

The Municipality of Barranquilla is the central city of the Barranquilla Metropolitan Area. Therefore, the urban development plan and regulations are first approved by the Metropolitan Board and then by the Municipal Council.

The Integrated Development Plan of the Barranquilla Metropolitan Area was decided by the Agreement No. 4 and No. 5 of the Metropolitan Board, 1982, and was approved by the Agreement No. 28 of the Municipal Council, 1984.

The Agreement No. 1 of the Metropolitan Board, 1985, decided the revision of the boundary of the urban area and land use for 1990 and 2000.

The Mayoral Decree No. 124 of 1986 established an institutional authority for the Master Plan of Roads and Streets, Public Transport, Traffic Control and Urban Renewal of the central district. And the Mayoral Decree No. 125 of 1986 approved the Agreement No. 1 of the Metropolitan Board, 1985.

These dispositions are the result of the Masterplan Study by JICA.

The regulations related to urban development in Barranquilla are based on the Urban Development Code of 1957, which consists of the zoning regulation and the subdivision regulation.

The zoning regulation provides for each use zone, classified as the following: use of buildings, minimum area of lots, coverage, floor-area ratio, maximum height, setback and parking space.

R-1, R-2, R-3, R-4, R-5, R-6 (residential zones)

C-1, C-2, C-3, C-4 (commercial zones)

I-L, I-P (industrial zones)

E-E (special study zone)

The subdivision regulation provides the procedure of permission, design standards and requisites for public utilities.

The responsible body for the administration of these regulations is the DAPM.

## 2) Project Execution

Considering the major projects dealt with in this Study, a brief description about the system of project execution in Barranquilla is given in the succeeding paragraphs.

### a. Bus Terminal

A bus terminal enterprise for interdepartmental bus services exists as a semi-public corporation. The stockholders are Department of Atlantico, Municipality of Barranquilla, CFT, EMT, EPM, Gran Abastos S.A. and one private bus company. This enterprise has not as yet begun its economic activity.

### b. Market

Existing public markets in Barranquilla are under the administration of EPM. Although no reliable accounting system exists for the public market, there are opinions that the markets can be profitable considering the income from rent and the administration costs.

### c. Parks

The Municipality of Barranquilla does not have a function for the construction and maintenance of parks. The existing parks in the city were constructed by private developers, Department of Atlantico and large private enterprises (for example, a beer company).

The Municipality established the Popular Recreation Corporation for construction and maintenance of public parks by the Agreement No. 16 of 1984. However, this body, as yet, does not function.

d. Roads and Streets

The construction and maintenance of roads and streets in Barranquilla are conducted by two bodies: the Municipality (Public Works Secretaria) and the Valorizacion Office.

The Public Works Secretaria is mainly engaged in the pavement and improvement of existing roads and streets by making use of the Special Investment Fund, the Pavement Fund, and the income from the transport tax.

The Valorizacion Office executes the costly works with land acquisition like construction of new roads and widening of streets. Most of the investment funding is the FFDU credit, mortgaging the income from the contribution of valorizacion.

The Valorizacion Office can use for its own purpose some parts of the collected contributions ceded by the Ministry of Public Works and Transport.

e. Land Preparation and Public Services.

In an urban development project by private sector, land preparation and supply of public services are financed by their own capital and loans.

The ownerships of public utilities are transferred to respective responsible bodies after the completion of construction works.

EPM is engaged in the supply of water, sewage and drainage.

Electricity supply is conducted by CORELCA for generation and by ELECTRANTA for transmission and distribution. ELECTRANTA is a subsidiary organization of Department of Atlantico.

Telephone service is supplied by EMT (short distance) and TELECOM (long distance). EMT is a subsidiary body of the Municipality, while TELECOM is a national entity.

Gas is supplied by PROMIGAS (for industrial use) and GASES DEL CARIBE (for domestic use).

#### 4-3-2. Investment Expenditures of Municipality and Decentralized Entities

Using the annual budget and settlement sheets of the Municipality, EPM, and the Valorizacion Office, the amount and the execution of public investment in Barranquilla are studied in the following paragraphs.

##### 1) Amount of Public Investment

According to the 1987 budget sheets of the Municipality, EPM, and the Valorizacion Office, the total amount of public investment is 5,667.6 million pesos.

TABLE 4-1 shows that the total expenditures amount to 15,899.3 million pesos. But there are some transfers of expenditures among the bodies. Therefore, the real total expenditures as a whole, are less than that amount (about 15,700 million pesos).

The occupancy ratio of the investment is about 36%.

The biggest investor is EPM with 4,408.7 million pesos, while the Valorizacion Office invests only 61.2 million pesos.

TALBE 4-1 INVESTMENT BUDGET OF MUNICIPALITY AND TWO ENTITIES, 1987

(in million pesos)

	Municipality	EPM	Valorizacion	Total
Investment (A)	1,197.7	4,408.7	61.2	5,667.6
Total expenditures (B)	3,115.4	12,619.6	164.3	(15,899.3)
(A)/(B) (%)	38.4	34.9	37.2	(35.6)

Source : Budget sheets for 1987 of the Municipality, EPM and the Valorizacion Office.

Taking account of the major projects in this Study, the investments in the corresponding fields are shown in TABLE 4-2.

TABLE 4-2 INVESTMENT BUDGET FOR FIELDS OF MAJOR PROJECTS, 1987

(in million pesos)

	Municipality	EPM	Valorizacion	Total	Percentage
Bus Terminal	20.0	-	-	20.0	0.8
Market	20.0	60.0	-	80.0	3.1
Parks	11.9	-	-	11.9	0.4
Roads and Streets	556.6	-	61.2	617.8	23.9
Water Supply	-	1,837.6	-	1,837.6	71.0
Urban Development	21.0	-	-	21.0	0.6
TOTAL	629.5	1,897.6	61.2	2,588.3	100.0

Source : Budget sheets for 1987 of Municipality, EPM and Valorizacion Office.

Total investments in the field amount to 2,588.3 million pesos, 71% of which is for water supply and 23.9% is for roads and streets.

The municipality appropriates 62.5 million pesos in these fields. Other investments are designated mainly for education, health and security facilities.

Almost all of the investment related to urban development of the municipality is designated for roads and streets (556.6 million pesos). 212 million pesos are allotted for Via 40, and 344.6 million pesos are for paving, repair and maintenance.

Expenditures for bus terminal (inter-departmental), market (foodstuffs, wholesale center) and parks are contribution from the respective semi-public entities.

"Urban Development" is the costs of studies related to the Administration of the Integrated Development Plan conducted by D.A.P.M.

EPM invests 60 million pesos in the public markets, but the main expenditure is for the water supply. It does not invest in the sewage system. Other main investments are designated for garbage collection and disposition systems.

The Valorizacion Office plans to invest 61.2 million pesos, of which 25.9 million pesos are for land acquisition and 35.3 million pesos for maintenance.

## 2) Execution of Public Investment

TABLE 4-3 shows the comparison of expenditures between the final budget and the settled amount in 1985.

The Municipality realized 77.3% of the total expenditures and 73.0% of the investment. On the other hand, EPM and the Valorizacion Office

stayed at a very low level of execution, especially in the investment.

Initially, EPM planned to get loan amounting to 4,261.8 million pesos but finally received only 892.6 million pesos. This is the reason that they could not realize the appropriated investment.

The Valorizacion Office failed to collect the budgeted amount of valorizacion contribution. In the final budget sheet, the appropriated amount was 74.7 million pesos (including interests on contributions), but the settled amount was only 13.5 million pesos.

TABLE 4-3 EXECUTION OF TOTAL EXPENDITURES AND INVESTMENT, 1985

(in million pesos)

	Municipality	EPM	Valorizacion	Total
Final budget of total expenditures (A)	1,904.7	8,429.0	93.9	(10,427.6)
Settled amount of total expenditures (B)	1,472.1	4,606.0	30.8	(6,108.9)
(B)/(A) (%)	77.3	54.6	32.8	(58.6)
Final budget of investment (C)	703.1	2,225.0	41.9	2,970.0
Settled amount of investment (D)	513.5	506.6	0.6	1,020.7
(D)/(C) (%)	73.0	22.8	1.4	34.4

Note : Figures in parentheses include transfer among three bodies.

Sources : Municipal Comptroller Office and the Valorizacion Office.

#### 4-3-3. Utilization of Existing Financial Support Systems

##### 1) The Municipality

Recently the Municipality got the FFDU through intermediate financial organizations, that is, 350 million pesos in December of 1984, 125 million pesos in June of 1985 and 25 million pesos in December of 1985.

In 1985, these loans (150 million pesos ) were not included in the initial budget, and during the fiscal year the budget was increased. The resources obtained from FFDU were appropriated mostly to the Investment Special Fund (road plan).

A large part of the non-tax revenues of the Municipality is occupied by the local distribution of the value added tax (national tax). A part of this is used for mortgages of investment loans and another part is designated for investments by ordinary funds. This revenue could be considered as a kind of subsidy by the nation.

The debt service for FFDU in 1987 amounts to 155.4 million pesos (43.7% of the total debt service). The debt service of the Municipality is increasing every year both in the absolute value and in proportion to the total expenditures (see TABLE 4-4).

TABLE 4-4 CHANGE OF DEBT SERVICE IN INITIAL BUDGET OF MUNICIPALITY,  
1985 TO 1987

(in million pesos)

Year	Total expenditures (A)	Debt service (B)	(B)/(A) (%)
1985	1,715.5	117.5	6.5
1986	2,200.1	236.4	10.7
1987	3,115.4	356.0	11.4

Source : Budget sheets of Municipality.



## 2) EPM

EPM is making most use of the financial support systems.

According to the 1987 budget sheet, the debt services for domestic public loans are 14.7 million pesos for FONADE, 602.8 million pesos for FFDU and 169.1 million pesos for the Ministry of Finance.

In addition, EPM was given the IBRD credit whose debt service in 1987 amounts to 315.6 million pesos (see TABLE 4-5).

TABLE 4-6 shows that the debt service of EPM is currently at a high level and increasing steadily.

TABLE 4-5 DEBT SERVICE BY FINANCIAL SOURCE IN INITIAL BUDGET OF EPM, 1987

(in million pesos)

	Capital	Interest	Total
FONADE	7.4	7.3	14.7
FFDU	164.3	438.5	602.8
Ministry of Finance	55.6	113.5	169.1
Other domestic banks	192.5	106.4	298.9
IBRD	99.5	216.1	315.6
Other foreign banks	365.9	191.1	557.0
TOTAL	885.2	1,072.9	1,958.1

Source : Budget sheet for 1987 of EPM.

TABLE 4-6 CHANGE OF DEBT SERVICE IN INITIAL BUDGET OF EPM, 1985 - 1987

(in million pesos)

Year	Total expenditures (A)	Debt service (B)	(B)(A) (%)
1985	8,429.0	900.6	10.7
1986	10,509.6	1,383.8	13.2
1987	12,619.6	1,958.1	15.5

Source : Budget sheets of EPM.

### 3) The Valorizacion Office

The Valorizacion Office has not received a financial support credit. Contracted parts of the ceded contributions of valorizacion by the Ministry of Public Works and Transport can be used by the Office as shown below:

- Contribution of Circunvalar : 90%
- of Puerto Colombia Highway : 30%
- of the access road to Pumarejo Bridge : 90%
- of Country Arroyo and Carrera 60 : 90%

### 4-3-4. Existing and Future Problems in Barranquilla

The problems related to urban development in Barranquilla are classified and summarized as follows:

- a. Planning and Regulations.
  - An update of land use regulations should be prepared in accordance with the Integrated Development Plan.
  - Visions for future development of economic and social sectors should be established.

- Strategic development programs should be formed combining the socio-economic and physical development fields.

b. Public Investment Programs

- The amount of public investment is not sufficient.
- The Valorizacion Office has a difficulty in obtaining credits from intermediate financial bodies because its financial status is insolvent due to inefficiencies in the system for collecting contributions.
- EPM and the municipality are depending on the growing amount of credits, and the burden of debt services is increasing.
- Therefore, various measures for utilizing the resources of the private sector should be sought.
- There is no division responsible for arroyo and drainage.
- Parks and recreational facilities are mainly constructed by private sector, the Municipality does not have a function for construction and maintenance of these facilities.
- The Municipality should create divisions within the organization responsible primarily for improving the esthetic and environmental circumstances of Barranquilla.



**PART II**  
**DEVELOPMENT PLAN**  
**AND DESIGN**



## PART II: DEVELOPMENT PLAN AND DESIGN

### Chapter 5

#### DEVELOPMENT POLICY AND LAND USE

##### 5-1. Features of the Development Problems

###### 5-1-1. Key Features of the District

The present situation of the central district and its problems are summarized, in short, as follows: the district, once full of vitality, has now degenerated and been abandoned.

The causes of this situation are numerous, but the following are important factors from the view point of urban planning:

- a. Relative decline of economic power of Barranquilla compared with other cities of Colombia: Barranquilla, at one time, because of its location on the Magdalena River, was the distribution center for import, export, and internal goods transportation not only for Colombia, but for the entire continent. The major avenue for trade, until the advent of air transport and a national roadway system, was the Magdalena River.  
The technological innovations in air and land transport systems, however, have deprived Barranquilla of geographical superiority in trade.
- b. Rapid urbanization with poorly planned expansion and areas of decay: urbanization in Barranquilla in the last few decades has been no more than the rural-urban immigration, and this has led to the creation and proliferation of squatter areas with intrinsic economic decline.

Those two points seem to have taken place almost parallel with each other in 1950's and 1960's, resulting in the evaluation of commercial and business functions from the central district. Moreover, another factor may have accelerated the central district deterioration, namely;

- c. Lack of planned response to the changing urban physical condition: Most of the measures taken to address the deterioration have been more makeshift and of a laissez-faire nature, although some efforts to regulate planning for the district can be observed in the latter half of the 1950's.

#### 5-1-2. Development Premises of the District

Considering the features of the district, the following are the development premises for its revitalization:

- a. Regional, metropolitan and urban economy has to be enhanced through reorganization and revitalization of various industrial sectors. This will lead to the reinforcement of the central district mainly by the tertiary sector.
- b. As a result of improvements in the employment situation through economic activation, the standard of living for the general public should be raised. This will contribute to the smooth rotation of economic cycle and do much for the amelioration of social problems now inherent in the central district, that is, social safety and so forth.
- c. It is essential that institutional mechanisms be created to facilitate planning activities and project implementation in the central district as well as in more wide-spread areas. Motivated by the general favorable consensus for development policies, regulational, organizational and financial entities need to be created.



### 5-1-3. Duality of Development

Taking into account the existing problems and the future requirements for revitalization in the central district, it is clear that any development actions in the district should be driven by the following two points:

- a. Attention and contribution of development actions to the solution of existing problems.
- b. Concentration on corresponding development actions to any future plans of urban functions and of space organization.

Thus, the projects involving these dual aspects take priority when project proposals in the central district are implemented.

### 5-1-4. Location of the Study Area

The main study area of this Study is the Barranquillita and Boliche area from among the strategic project areas identified in the Masterplan Study.

The area has some specific problems summarized as follows:

- a. Poor drainage conditions due to flat land formation
- b. Contamination of the Mercado Canal
- c. Crowded market area with street vendors
- d. Poor provisions for public utilities and lack of greenery
- e. Squatter settlement and its expansion
- f. Indiscriminate location of bus terminals

On the other hand, from the viewpoint of the requirement for the future reorganization of urban functions in a wider area, the Study Area has the following favorable conditions:

a. Proximity to the existing activity center.

b. Underdeveloped land usage with vacant land and with comparatively low land value.

These factors leave ample room for the introduction of a more intense development project instead of being limited by renewal actions in the existing built up district.

Thus, the Barranquillita and Boliche area is the most preferable location for meeting the dual development requirements in the central district.

#### 5-1-5. Introduction of New Development Measures

The magnitude and the character of integrated development with varied projects in the Barranquillita and Boliche area will require new development measures, since the existing measures, as stated in Part I of this Report, cover a rather limited development field.

Those new measures have to be well supported by regulatory, organizational and financial foundations for integrated implementation of the plan. The final outcome of this Study will be concerned with those project implementation measures.

#### 5-2. Development Target and Policy

##### 5-2-1. Development Target

The principal development target of the Barranquillita and Boliche area can be manifested, in short, as follows:

Regeneration and creation of region-wide major activity center with high amenity and environmental quality.

The significance of the phrase can be explained analytically in the following:

- a. Historically, the central district of Barranquilla had been a region-wide activity center. The word "regeneration" means the recovery of the relative importance of the district up to the past one, and "creation" stands for the formation of a new center surpassing the past level in both quantity and quality.
- b. The extent of the development is shown in the word "region-wide", and it may be reasonable to understand the word meaning the entire Caribbean coastal region.
- c. The words "major activity center" usually signify a more comprehensive multiple activity center than the conventional word CBD (central business district), and the aspect of the mixed development is shown in these words.
- d. The qualitative level of the development is expressed in the words "high amenity and environmental quality". "Amenity" is used here to mean comfortable and agreeable social environment for people and any institutions or industries, and "environmental quality" is that of natural environment.

Thus, the target level of the development is rather high. This is mainly because the development has to be a model for future renovation in the existing built-up central district.

#### 5-2-2. Development Policy

The development policy is based on the development target.

First of all, there are two fundamental requirements or conditions which must be met to regenerate the area:

a. Restructuring the Central District by Eliminating Existing Blockage Between the Area and the Existing Central District:

This will introduce a new access system to and from the area, and remove the factors which separate the area physically and moreover, psychologically, from the rest of the city.

b. Infrastructure Development:

It is of critical importance to develop an infrastructure in the area to provide favorable conditions for the development. Major elements of infrastructure development are: the improvement of drainage by land filling, Arroyo inflow protection, and provision for public utilities.

Then, with the foundation for further development actualized, the following three strategies are planned as the core of development policy for creating the new activity center:

a. Actualization of Rational Land Use:

Taking into account the existing activities and the future framework of the central district, a rational combination and configuration of land use should be introduced. A major priority in the formation of a future region-wide activity center is the reorganization and reinforcement of commerce as well as the introduction of business. Furthermore, the introduction of housing will contribute to the regeneration of the area, and the location of industrial buildings will be moved to better serve industrial growth and changes. To secure the amenities of the area, parks and greenery will be introduced to a considerable extent.

b. Installation of Functional and Safe Transportation System:

To improve the access to and from the area, the road and street network is to be systematically arranged. To solve the confusion of intermunicipal bus systems, a new terminal will be built to coordinate with the urban bus systems, and a pedestrian pathway system will be provided to enhance the amenities in the area.

c. Creation of Suitable Environment for an Urban Center:

The major cause of degradation of the natural environment is the contamination of the Mercado Canal. The canal will be filled and a park will take its place. Other improvements to the environment are the arrangement of pedestrian ways and a water-front promenade. All of these will contribute much to the enhancement of urban amenities.

5-3. Development Framework

In the Masterplan Study, it was estimated that, in the year 2000, the resident population of the central district would be some 24,000 persons and the working population some 130,000 persons (secondary sector: 22,000 persons, and tertiary sector: 107,000 persons).

Out of this framework, the following are the assumptions to be adopted in this Study for the main study area:

- Resident population : 20,000 persons
- Secondary sector working population : 1,800 persons
- Tertiary sector working population : 23,600 persons

5-4. Land Use Policy

5-4-1. Combined Use

To revitalize the area, it is necessary for the land area to be used in many and varied ways. If the area is to become a regional activity center, concentration must be given to three development aspects of land usage:

- a. Existing usage of land must be improved.
- b. New uses for the land must be introduced.

- c. Consideration must be given to the way in which land is used in surrounding areas.

#### 5-4-2. Combined Usage Applied to Study Area

The functions of the area as the regional activity center will be best organized for efficiency and effectiveness by:

- a. Improving Functions in Existing Locations:

Taking into consideration the existing situation of land use (capital investment, conformity with surroundings, and so on), some facilities will remain where they are currently located. To establish more conformity cosmetic improvement is required. For example, the establishment of an industrial park where the Philips factory is now located will allow expansion and improve the existing surroundings.

- b. Relocating and Improving Functions Existing in the Area:

Some functions in the area are to remain but be reorganized and relocated. The relocation will increase their effectiveness in the area. Two projects exemplify this reorganization: the relocation of the existing vendors and shopkeepers in a market place and a new industrial zone for the relocation of existing small industries and warehouses.

- c. Introducing New Functions to the Area:

Combined land use will activate the area, and to accomplish this the following are elements not currently in the area which are to be introduced:

- High-level commercial activities.
- Business activities as the key function of the region-wide activity center.
- Housing to form a community for the business population.
- Bus terminal to improve the intermunicipal bus systems in relation with the local urban bus systems.

- Parks and recreational facilities to contribute to the creation of appropriate urban environment and amenities.

#### 5-4-3. Conformity Between Land Use Area and Future Planning Framework

The land use has to conform with the planning framework by the year 2000, and this conformity is to be expressed in reasonable land use density.

#### 5-4-4. Relationship between Land Use and Road/Street System

- a. Calle 30 is one of the major arterials in the Study area. It runs north and south forming the western boundary of the Study area. The existing Calle 30 has four lanes. It will be widened to six lanes. The roadway will be both widened and realigned; the realignment will move the existing roadway slightly westward. The westward realignment serves two major purposes: additional land area will be provided for the proposed Mercado Canal Park, and the area west of the project area will be provided with the incentive to continue renovations westward.
- b. The Riverside Bypass runs north and south forming the eastern boundary of the Study Area. It will exist, for the most part, on currently vacant land. Its creation and location will serve two purposes: it will become a major access route to the activity center and a means by which inner city north-south traffic may be avoided. The Bypass also separates the development area from land to be conserved in the east for future use. Definite measures must be taken for the conservation of this area.
- c. Utilizing the existing grid pattern of streets in Barranquilla, the land use in this Study can be arranged in super-blocks.
- d. Special attention is paid in this Study to facilitating the mobility of pedestrians by the installation of pedestrian walkways in order to introduce amenities in the area.

#### 5-4-5. Policy for Land Use Configuration

##### a. Functional Relationship among Land Uses

- The importance of easier access from the bus terminal to all kinds of land use is to be fully taken into account.
- The intermunicipal bus services will impact the market activities. Together with the general commercial activities, the bus terminal and market functions are to be integrated.
- The introduction of housing will facilitate the residents' enjoyment in living close to their work-places.
- It is necessary to extend and continue the growth of existing commercial and business activities in the central district.
- Multipurpose-purpose use of parks and greenery in the area will enhance the amenities of urban environment.

##### b. Consideration to Surrounding Land Use:

- Southside: considering the port function and related industrial land use, it is necessary to leave room for the installation of industrial activities.
- Northside: underdevelopment and vacant land of Loma 1 is a favorable location for a residential zone in the area.
- Eastside: the area between Riverside Bypass and the Magdalena River is to be conserved for future expansion of land use.
- Westside: suitable extension of existing activities are to be established to realize the continuity of the existing and future activity center.