

しているものが多い。

BUTELの説明によると、ケーブルおよび屋外線を製造している会社は5社あり、最大対数1000対までの Alpeh タイプの市内プラスチック・ケーブルを製造している。市外ケーブルは製造していない。また、電柱、PUC管、ケーブル接続材料を供給する会社が各一社ずつあり、市内線路に関しては国産品または外国製品の国内市場からの調達によって国内で賄うことができるとしている。

#### 6-4 伝送設備

図-17～図-20に中部ルソンにおける現存のマイクロ伝送路図を示す。又、図-21に2000年に予定されるマイクロ伝送路図を示す。更に、これらには示されていないが、VHF等による細い枝伝送路が多数ある。伝送路はBUTEL、PLDT、PT&TおよびRCP Iによって所有されるが、フィリピン政府はNEDAの調整によって、各社間の重複投資を避けるため、同一区間に重複して伝送路を設定しない方針であるので、この点配慮する必要がある。

PLDTはジーマズからの4億ドルに上る借款により、X-4プロジェクトを実施する予定であり、本計画を付属資料-IIの4のProposed Backbone Configuration(X-4)に示す。中部ルソン計画ではX-4プロジェクトに対する統合が必要となろう。

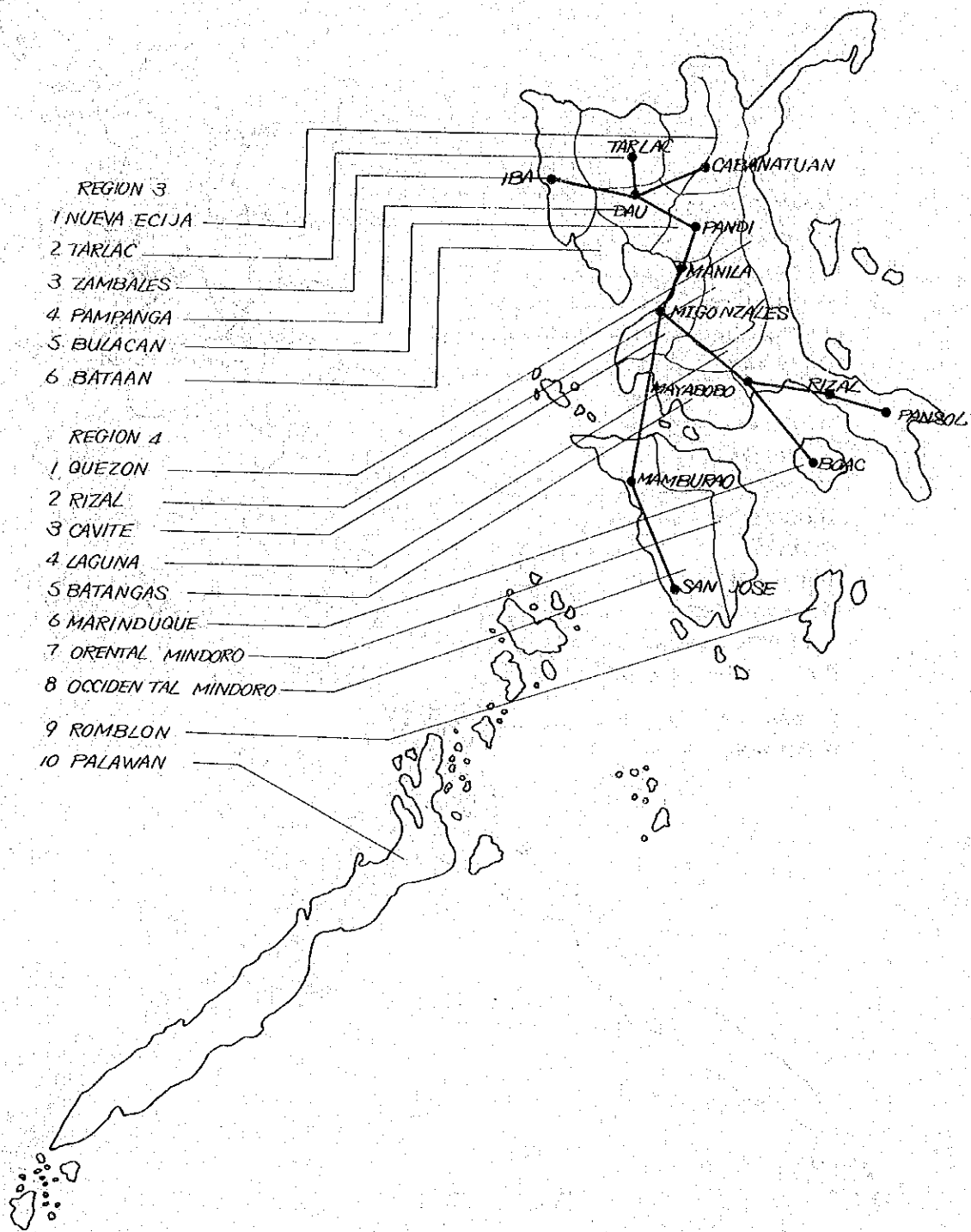
中部ルソンでのBUTEL提案のマイクロ伝送路図を図-10に示す。他に新設および更改電話局と既設網をつなぐ、多数の枝伝送路が必要である。BUTELでは、ケーブル方式は盗難・雷害等に弱いため、極力無線にしたい意向をもっており、一応留意する必要がある。

次に、事前調査で訪問したBUTELの無線・伝送設備について簡記する。写真-8、写真-9はDAUの無線中継所である。BUTELの幹線マイクロは、MANILA-PANDI-DAU-TARLAC → とつながり、Lenkurt社製7GHz、300ch、1+1方式を用いており、ここからCABANATUANへSTC Australiaの400MHz無線機を用いて1chとIBAへ150MHzを用いて1chを分岐している。電源は220V 60 $\times$ でInternational Harvester Co. 5KVAの発々が別棟に設備されていた。電話局と離れた独立の中々を構成しているが、設備は老朽化しており、取替を要すること明らかである。

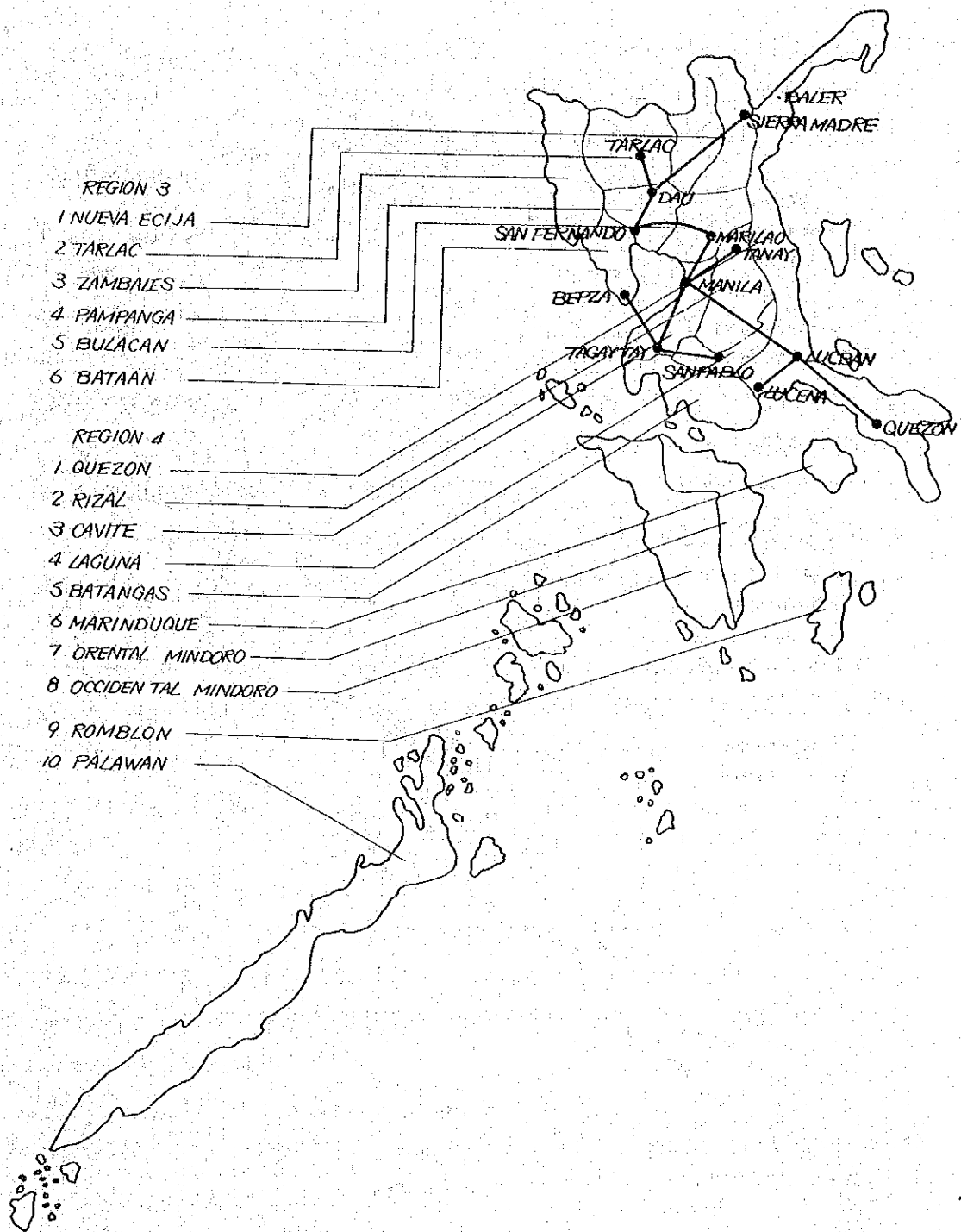
Region IIIではこのように一応の伝送路網をもつが、Region IVではUHFまたは短波によりマニラに直接接続されるものが多く、例えばミンドロ島最大の町カラパンでは短波により電話2回線、電報1回線、電報為替1回線の伝送回線をもつだけである。

写真-10はTAGAYTAYにあるGrenger Associates Co. の400MHz 1ch無線機、および電信機を示す。

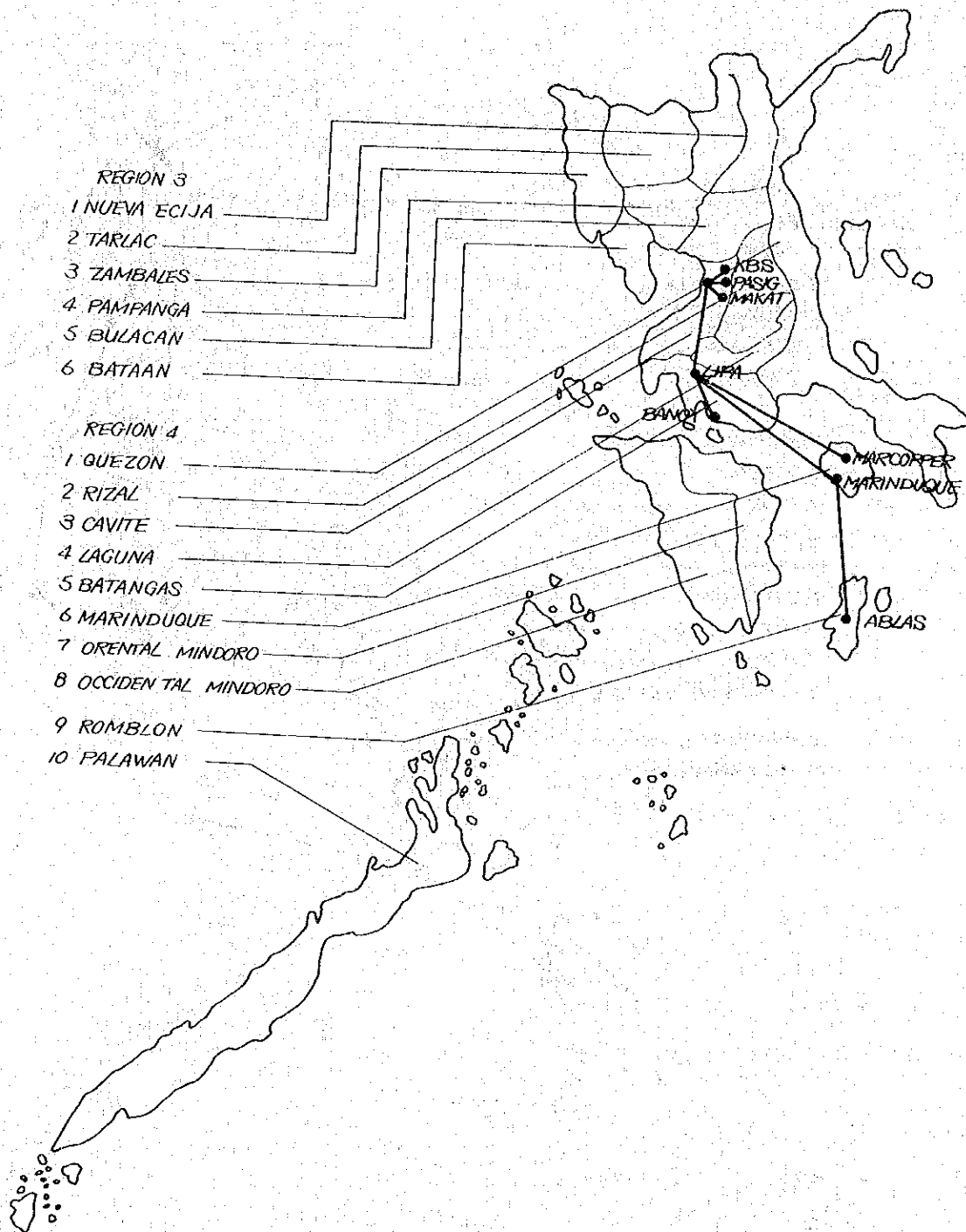
中部ルソンの本格調査では、島が多数含まれているが、島では道路の整備が必ずしも良くなく、特に雨の降った後は(雨期にはほとんど毎日雨が降るが)不通になる事も多いので、天候に留意して調査計画を樹てることが大切である。



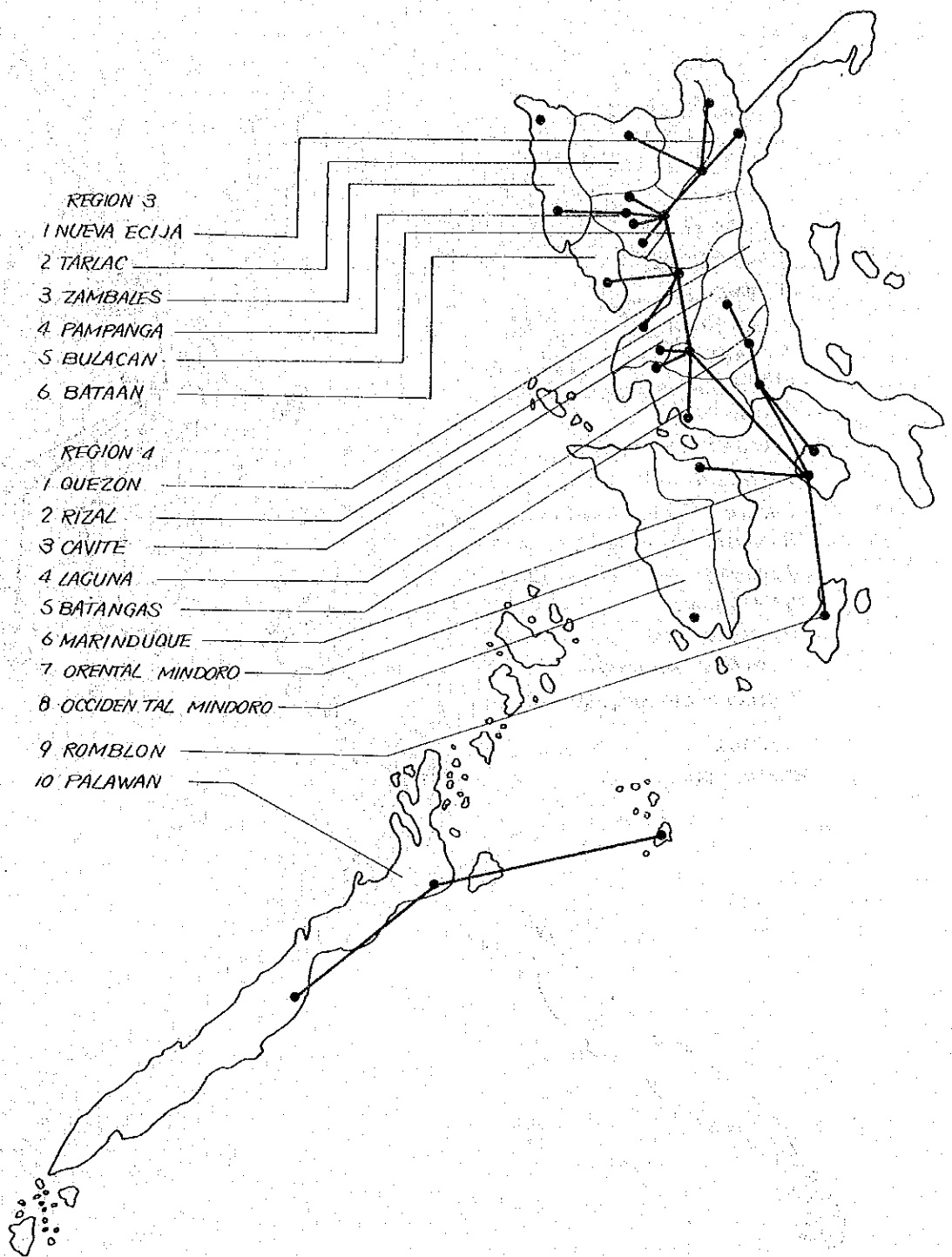
☒-17 BUTEL EXISTING COMMUNICATION SYSTEM



☒- 18 PLDT EXISTING COMMUNICATION SYSTEM



☒-19 PT & T EXISTING  
COMMUNICATION SYSTEM



☒-20 RCPI EXISTING COMMUNICATION SYSTEM

EXISTING AND PROPOSED TELECOMMUNICATIONS NETWORK  
 Ministry of Transportation and Communications

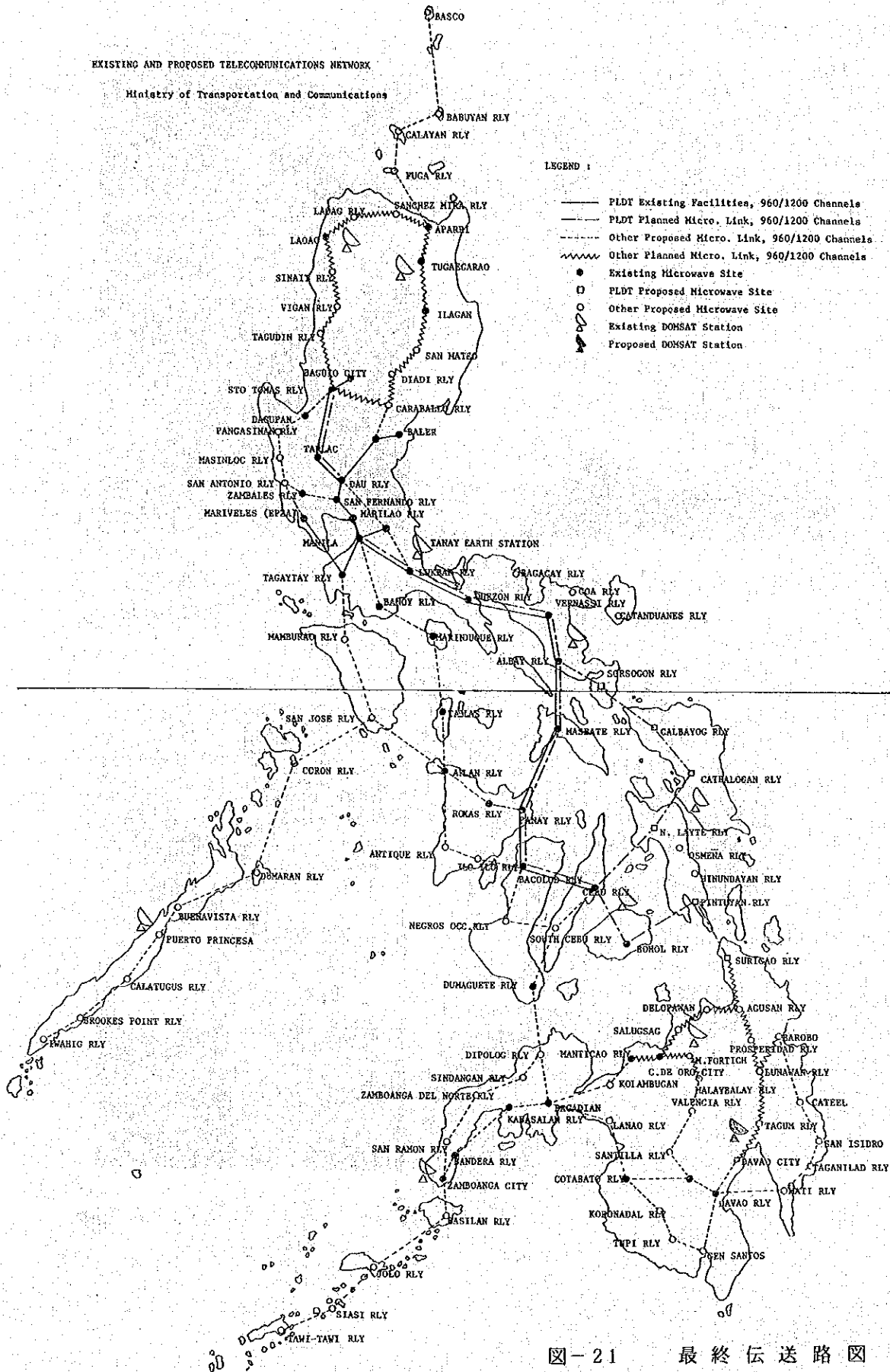


图-21 最終伝送路图

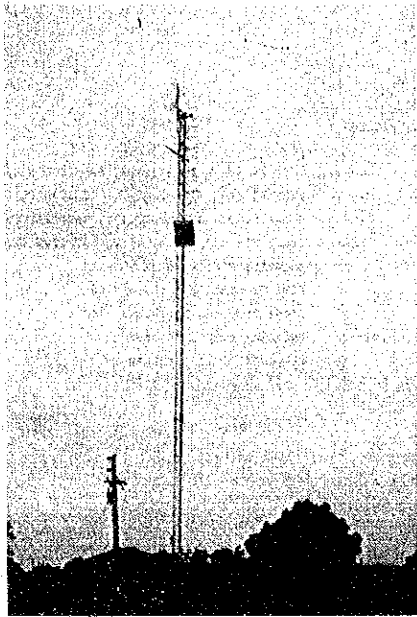


写真-⑧ マイクロ用アンテナと支持鉄塔  
(DAU無線中継所)

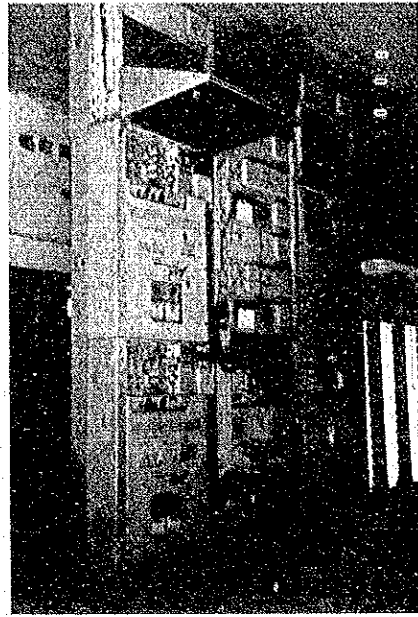


写真-⑨ マイクロ送受信機  
(DAU無線中継所)

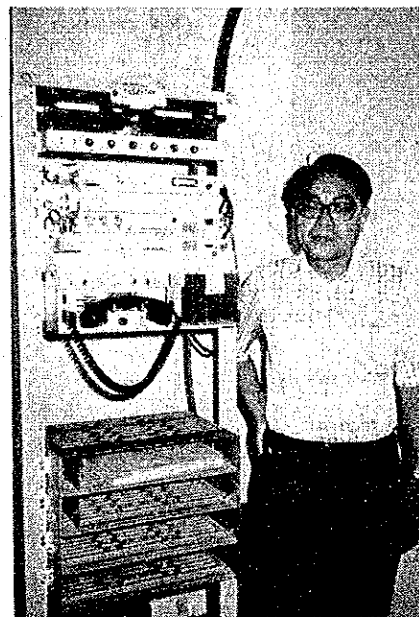


写真-⑩ 1チャンネルマイクロ送受信機  
(タガイタイ)

## 付 属 資 料 一 II

1. Minutes of the Meeting on the Implementing Arrangements
2. Rural Telecommunications Project, Regions III & IV(Proposed Project)
3. List of Cities and Municipalities with Telephone System
4. Present and Future Telephone System in Regions III & IV
5. Statistics of Regions III & IV
6. Statement of Operation
7. 一般参考資料
8. Population Density by Municipality      Municipality
9. 面会者一覧
10. 入手地図一覧
11. その他保管資料一覧
12. 購入図書一覧



THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF POLITICAL SCIENCE  
1100 EAST 58TH STREET  
CHICAGO, ILLINOIS 60637

1. MINUTES OF THE MEETING ON THE IMPLEMENTING ARRANGEMENTS ON THE TECHNICAL COOPERATION BETWEEN THE JAPAN INTERNATIONAL COOPERATION AGENCY AND THE BUREAU OF TELECOMMUNICATIONS, MINISTRY OF TRANSPORTATION & COMMUNICATIONS FOR THE FEASIBILITY STUDY ON THE RURAL TELECOMMUNICATION PROJECT, REGIONS III & IV OF THE REPUBLIC OF THE PHILIPPINES

The meeting was held on April 1, 1980, at the Conference Room of the Bureau of Telecommunications, Metro Manila, Philippines to discuss the draft of the Implementing Arrangements for the feasibility study on the Rural Telecommunication Project, Regions III & IV of the Republic of the Philippines. Attending the meeting were:

BUTEL

Gen. C. S. CARREON (Director)  
Mr. M. B. CASAS (Asst. Director)  
Mr. C. A. ADRIANO

Embassy of Japan

Mr. Kenjiro IZUMI

Japanese Study Team

Mr. Koichi ONOE (Leader)  
Mr. Nasayuki KASHIWANO  
Mr. Akira MATSUKI  
Mr. Shigemaro AOKI  
Mr. Akio ITOH (Coordinator)

Japanese Expert

Mr. Yasukazu SUGIYAMA  
Mr. Mitsuharu ANDO  
Mr. Yoshio NAKANO

1. Gen. CEFERINO S. CARREON expressed his thanks to the members of the Japanese Study Team who were sent to

the Philippines in response to the request of the Government of the Republic of the Philippines, and expressed the hope that the objectives of the Preliminary Study Team were attained.

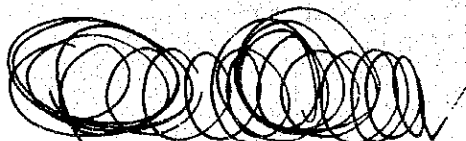
Mr. KOICHI ONOE, Leader of the Japanese Study Team, appreciated the cooperation extended by the Philippines to the Japanese Study Team in their two weeks survey work.

2. The Japanese Study Team submitted the draft copy of the Implementing Arrangement to Gen. CEFERINO S. CARREON for consideration.

Gen. CEFERINO S. CARREON and the Japanese Study Team discussed the draft of the Implementing Arrangement.

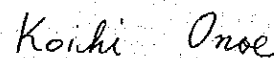
As a result of the exchange of views and discussions, both parties have agreed on the draft of the Implementing Arrangement, hereto attached.

Manila, April 1, 1980



CEFERINO S. CARREON  
Director

BUREAU OF TELECOMMUNICATIONS  
MINISTRY OF TRANSPORTATION  
& COMMUNICATIONS



KOICHI ONOE  
Leader

JAPANESE PRELIMINARY  
STUDY TEAM FOR THE  
RURAL TELECOMMUNICATIONS  
PROJECT REGIONS III & IV  
IN THE REPUBLIC OF THE  
PHILIPPINES

IMPLEMENTING ARRANGEMENTS ON THE TECHNICAL COOPERATION  
BETWEEN THE JAPAN INTERNATIONAL COOPERATION AGENCY AND  
THE BUREAU OF TELECOMMUNICATIONS, MINISTRY OF TRANSPORTATION  
& COMMUNICATIONS FOR THE FEASIBILITY STUDY ON THE RURAL  
TELECOMMUNICATION PROJECT, REGIONS III & IV OF THE REPUBLIC  
OF THE PHILIPPINES

AGREED  
BETWEEN

JAPAN INTERNATIONAL COOPERATION AGENCY

AND

BUREAU OF TELECOMMUNICATIONS  
MINISTRY OF TRANSPORTATION & COMMUNICATIONS

DATED:

\_\_\_\_\_  
CEFERINO S. CARREON  
DIRECTOR

BUREAU OF TELECOMMUNICATIONS  
MINISTRY OF TRANSPORTATION  
& COMMUNICATIONS

\_\_\_\_\_  
TAKAO HIROTA  
DIRECTOR

SOCIAL DEVELOPMENT COOPERA-  
TION DEPARTMENT  
JAPAN INTERNATIONAL COOPERA-  
TION AGENCY

IMPLEMENTING ARRANGEMENTS ON THE TECHNICAL COOPERATION BETWEEN  
THE JAPAN INTERNATIONAL COOPERATION AGENCY AND THE BUREAU OF  
TELECOMMUNICATIONS, MINISTRY OF TRANSPORTATION & COMMUNICATIONS  
FOR FEASIBILITY STUDY ON THE RURAL TELECOMMUNICATION PROJECT,  
REGIONS III & IV OF THE REPUBLIC OF THE PHILIPPINES

1. INTRODUCTION

In response to the request of the Government of the Republic of the Philippines, the Government of Japan dispatched a preliminary study team to the Philippines in March, 1980 prior to a feasibility study of the Rural Telecommunication Project, Regions III & IV.

Based on the report of the above preliminary study team, the Government of Japan has decided to undertake a feasibility study in accordance with laws and regulations in force in Japan with regard to the technical assistance programs, and exchanged the Note Verbal on the feasibility study the Government of the Republic of the Philippines.

The Japan International Cooperation Agency (hereinafter to be referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation program of the government of Japan, will carry out the works necessary for the study.

The Bureau of Telecommunications (hereinafter to be referred to as "BUTEL") shall be the coordinating body to other governmental and non-governmental organizations concerned for the smooth implementation of the study and shall provide a counterpart to the Japanese Study Team.

The present document sets forth the Implementing Arrangement agreed between JICA and BUTEL for the study which is to be implemented by JICA in close collaboration with BUTEL and other agencies concerned.

## II. IMPLEMENTATION OF THE STUDY

1. The study shall be implemented in accordance with the work plan which is given in detail in the Scope of Work (ANNEX I).
2. The study shall be undertaken in accordance with the Study Schedule (ANNEX 2) which is formulated on the basis of the Scope of Work.

## III. DISPATCH OF JAPANESE STUDY TEAMS

The JICA shall, at its own expense, dispatch Japanese study teams in accordance with the schedule mutually agreed upon by both JICA and BUTEL.

## IV. PROVISION OF MEASURING EQUIPMENT AND OTHER MATERIALS

The JICA shall, at its own expense, provide measuring equipments and other materials, necessary for the implementation of the study.

## V. TRAINING OF PHILIPPINES COUNTERPARTS IN JAPAN

The JICA shall, at its own expense, receive Philippine Government personnel connected with the study for technical training in Japan in accordance with the normal procedures under the Colombo Plan Technical Cooperation Scheme.

## VI. MEASURES TO BE TAKEN BY THE GOVERNMENT OF THE PHILIPPINES

1. The Government of the Philippines, in accordance with the Note Verbale exchanged between the Government of the Philippines, shall be responsible for dealing with claims which may be brought by third parties against the Japanese study team members, and shall hold them harmless in respect of claims or liabilities arising in the course of or otherwise connected with the discharge of their duties in the implementation of the study, except when such claims or

liabilities arise from the gross negligence or wilfull misconduct of the above-mentioned individuals.

Should any question arise in connection with the foregoing, both Governments shall immediately consult with each other.

2. The BUTEL shall, at its own expense, provide the following:
  - 1) Available data and information related to the study. (ANNEX 3)
  - 2) Counterpart officials during the field survey.
  - 3) Credentials or Identification (ID) cards to the members of the study team who shall work in the Philippines for the execution of the study.
  - 4) Suitable office space in BUTEL office.
  - 5) Appropriate number of vehicles with drivers.
3. The BUTEL shall make the necessary arrangements for the following:
  - 1) Secure permission for entry into private properties and restricted areas.
  - 2) Hiring of laborers as needed, but wages shall be chargeable to JICA funds allotted for the study.
  - 3) Availability of medical facilities when needed but medical expenses shall be chargeable to JICA allotted for the study.
4. The BUTEL shall make the necessary arrangements with proper agencies concerned:
  - 1) To ensure the safety of the study team.

- 2) To exempt the study team members from taxes, duties, fees and other charges on measuring equipments and other materials brought into the Philippines for conducting the study.
- 3) To secure permission to bring out data or materials relating to the study from the Philippines to Japan.



ANNEX I

SCOPE OF WORK  
FOR  
FEASIBILITY STUDY  
ON  
THE RURAL TELECOMMUNICATION PROJECT, REGIONS III & IV  
OF  
THE REPUBLIC OF THE PHILIPPINES

I. OBJECTIVES OF THE STUDY

The study aims to confirm the feasibility of the Rural Telecommunication Project, Regions III & IV.

II. OUTLINE OF THE STUDY

The study will entail field surveys in the Philippines and analysis works in Japan. Items to be covered by the study are as follows:

1. General

Present status of telecommunication facilities and services in the Philippines.

- 1) Telecommunication development plan
- 2) TV and radio broadcasting network expansion plan
- 3) Present technical standards of telecommunication facilities
- 4) Telecommunication service revenues expenditures
- 5) Present tariff system

2. Regions III & IV

- 1) Telecommunication demand forecast
- 2) Telecommunication traffic forecast

- 3) Network plan
- 4) Telecommunication installation plan
- 5) System design
  - a) Telephone exchanges
  - b) Subscriber network
  - c) Radio Transmission system
  - d) Cable Transmission system
  - e) Telex exchanges
  - f) Buildings
- 6) Implementation schedule
- 7) Operation and maintenance
- 8) Economic analysis and project evaluation

### III. REPORT

#### 1. Preparation of report

The JICA will prepare and submit 20 copies of the following reports to the Government of the Philippines.

##### 1) Draft final report

Within about three months of the completion of the field survey, the draft final report will be submitted to the Government of the Philippines by a team from JICA.

The Government of the Philippines is requested to provide with its comment on the draft final report during stay of the team in the Philippines.

##### 2) Final report

Within two months after the return of the team, JICA will submit the final report to the Government of the Philippines.


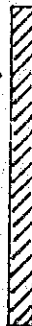

#### 2. Contents of report


The report will contain the following items.

- 1) Telephone & Telex demand forecast
- 2) Telephone & Telex traffic forecast

- 3) Telephone network plan
- 4) Technical standards for the project
- 5) System design
  - a) Telephone exchanges
  - b) Radio Transmission system
  - c) Cable Transmission system
  - d) Telex exchanges
  - e) Buildings
- 6) Implementation schedule
- 7) Operation and maintenance
- 8) Economic analysis
- 9) Project evaluation

STUDY SCHEDULE

Year & Month	1980						1981											
	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
Preliminary Study	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">             Preparation of report  <input type="text"/> </div> <div style="text-align: center;">           Rainy season            Preparation  <input type="text"/> </div> </div>																	
Feasibility Study	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">           Field Survey   </div> <div style="text-align: center;">           Preparation of draft report  <input type="text"/>            Explanation              Final report  <input type="text"/> </div> </div>																	

Remarks:  work in the Philippines

ANNEX 3

DATA AND INFORMATION REQUIRED

1. Statistical data on the national economy
2. National development plan
3. Organizational chart including names and positions of the BUTEL's key persons
4. TV and radio broadcasting network expansion plan
5. Technical standards of telecommunications facilities
6. General meteorological statistics

AGENCY: Bureau of Telecommunications

RURAL TELECOMMUNICATIONS PROJECT  
REGIONS III & IV

1.0 PROJECT DESCRIPTIONS:

1.1 Name - Rural Telecommunications Project

1.2 Location - Regions III and IV

1.3 Activities Involved -

The Project will involve -

- a) Establishment of rural telephone exchanges/ systems in deserving municipalities of the above Regions (See Annex);
- b) Installation of manual toll switchboards at existing BUTEL and private local telephone exchange for long distance call interconnection;
- c) Establishment of telex exchanges in the regional centers of San Fernando, Pampanga and Batangas City;
- d) Installation of UHF/VHF spur links passing through main backbone network to interconnect the exchanges to the capitals, and the capitals to the main switching centers.
- e) Expansion and/or replacement of present local telephone exchanges that needs such works.

2.0 PROJECT COMPONENTS:

The project will compose the following:

- a) Toll Switching Center - As maybe determined in the feasibility study.
- b) Local Telephone Exchanges - "
- c) Telex Exchange - "
- d) Telephone Inter-provincial Stations (Long Distance) - "

- e) UHF/VHF radio transmission systems to interconnect all the new and the existing telecom facilities to the main backbones network • As maybe determined in the feasibility study.
- f) Microwave network linking Manila to Tagaytay then Mamburao, San Jose, Occ. Mindoro to Romblon via Aklan relay station.

**3.0 ESTIMATED PROJECT COST:**

₱ 437,500,000.00 of which \$35,000,000.00 is foreign exchange component.

**4.0 PROJECT SCHEDULE:**

Feasibility Study . . . . . 6 months  
Negotiation for Loan . . . . . 6 months • 1 year  
Detailed Engineering . . . . . 8 months  
Construction . . . . . 3 years

**5.0 PROJECT RELEVANCE TO NATIONAL DEVELOPMENT PLAN:**

**5.1 Problems to Solve •**

For a developing country like the Philippines, telephone communications is a vital requirement. But many parts of the country particularly the countryside, are still without adequate telecommunication services. At present, there are about 531,000 telephones only in the country, two-thirds of which are in Metro Manila, one-sixth are in the primary urban centers and the rest in the secondary and tertiary urban centers. The 45M Filipinos, this is equivalent to UF 3 which is far below the recommended UF 8 for developing countries.

**5.2 Integration of Government and Private Communications Facilities •**

Integration has been recognized as the primary solution to most problems affecting the sector which is presently characterized by duplicative telecommunication services. In this regard, the government established guidelines towards the rationalization of domestic networks particularly in the telephone service. The guidelines are based on

the OPERATOR-ONE AREA concept. Under this concept private systems like the PLDT, RETELCO and PILTEL were given the first options to select the places where they will provide services as included in their programs. The remaining municipalities in the list prepared by a Plan Committee and identified as needing telephone service were then assigned to BUTEL. This in effect makes the private and government sectors complimentary to each other.

BUTEL's proposal to extend telephone service to the rural areas is also intended to correct disparities in economic conditions between the rural and urban settlements as this service is expected to catalyze the expansion of local commercial activities which is also essential to countryside development.

In this project BUTEL avoids the possibility of future duplication of facilities and services by selecting only the places not included in the expansion plan of private companies line up. However, the radio links to be provided shall have enough capacity to integrate operation of existing and proposed exchanges of private firms along the routes.

Telex services will take care of the transmission and reception of record messages urgently needed by the businessmen and commercial establishment. This is expected also to revolutionize the handling of telegram messages, thru automation.

The project was picked out from the 10-year plan of the Bureau (approved by NEDA) involving the provinces under Regions III and IV.

## 6.0 DESCRIPTION OF AGENCY (BUTEL):

### 6.1 Functions -

The Bureau of Telecommunications as described in P.D. No. 1 has the following functions:

- a) Provide telecom facilities for government offices.



- b) Provide communication services to augment limited existing similar private communication services.
- c) Extend services into areas where no such service is available.
- d) Assist private sectors in providing and maintaining backbone network.

## 6.2 Present Facilities -

The Bureau of Telecommunications has at present the following facilities:

- a) Twenty two (22) telephone exchanges in the capital towns and cities in the Philippines with and installed capacity of 11,500 telephones.
- b) Twelve (12) additional telephone exchanges in the provinces presently under installation with total capacity of 3,200 lines or 3,775 telephones.
- c) An Inter-Provincial telephone service providing long distance telephone service to/from 100 localities.
- d) An International Telephone Switchboard for overseas calls direct to Guam, Japan, Taipei and Hongkong.
- e) 1,320 telegraph or radio/telegraph station all over the country.
- f) A 700-line telex system with switching centers of 100 lines each at Baguio, Cagayan de Oro and Cebu and 400 lines in Manila.

BUREAU OF TELECOMMUNICATIONS

RURAL TELECOMMUNICATIONS PROJECT REGIONS III & IV  
MUNICIPALITIES TO BE PROVIDED WITH FACILITIES

## A. LOCAL TELEPHONE SYSTEM:

REGION - III

- |                             |                               |
|-----------------------------|-------------------------------|
| 1. Bagac, Bataan            | 18. Porac, Pampang*           |
| 2. Abucay, Bataan           | 19. Cerona, Tarlac            |
| 3. Samal, Bataan            | 20. Ia Paz, Tarlac            |
| 4. Bustos, Bulacan          | 21. Botolan, Zambales         |
| 5. San Ildefonso, Bulacan   | 22. Bulacan, Bulacan          |
| 6. San Rafael, Bulacan      | 23. Jean, Nueva Ecija         |
| 7. Zaragosa, Nueva Ecija    | 24. San Antonio, Nueva Ecija  |
| 8. Lupao, Nueva Ecija       | 25. Sto. Domingo, Nueva Ecija |
| 9. Pantabangan, Nueva Ecija | 26. Macabebe, Pampanga        |
| 10. Quezon, Nueva Ecija     | 27. Sexmoan, Pampanga*        |
| 11. Aliaga, Nueva Ecija     | 28. Masantol, Pampanga        |
| 12. Cabiao, Nueva Ecija     | 29. San Isidro, Nueva Ecija   |
| 13. Cabaldon, Nueva Ecija   | o30. Iba, Zambales            |
| 14. Llanera, Nueva Ecija    | o31. Dinalupihan Bataan       |
| 15. Arayat, Pampanga        | o32. Pandi, Bulacan           |
| 16. Candaba, Pampanga       | o33. Sta. Rosa, Nueva Ecija   |
| 17. Mexico, Pampanga        | o34. Angat, Bulacan           |

REGION - IV

- |                           |                                |
|---------------------------|--------------------------------|
| 1. Padre Garcia, Batangas | 15. Gloria, Or. Mindoro        |
| 2. Lubang, Occ. Mindoro   | 16. Roxas, Or. Mindoro         |
| 3. Bongabong, Or. Mindoro | 17. Socorro, Or. Mindoro       |
| 4. Naujan, Or. Mindoro    | 18. Victoria, Or. Mindoro      |
| 5. Alabat, Quezon         | 19. Coro, Palawan              |
| 6. Catanauan, Quezon      | 20. Narra, Palawan             |
| 7. Guinayangan, Quezon    | 21. Quezon, Palawan            |
| 8. Umisan, Quezon         | 22. Taytay, Palawan            |
| 9. Romblon, Romblon       | 23. Cuyo, Palawan              |
| 10. Oaiongan, Romblon     | 24. Mulanay, Quezon            |
| 11. Agoncillo, Batangas   | 25. San Francisco, Quezon      |
| 12. Calaca, Batangas      | 26. Ternate, Cavite            |
| 13. Gen. Trias, Cavite    | 27. San Narciso, Quezon        |
| 14. Tagaytay City, Cavite | 28. San Agustin, Romblon       |
|                           | o29. San Jose, Occ. Mindoro    |
|                           | 30. Puerto Galera, Or. Mindoro |

## B. TOLL SWITCHING CENTERS

REGION - III

1. Sta. Rosa, Nueva Ecija
2. Pandi, Bulacan

REGION - IV

1. Tagaytay City
2. Calapan, Or. Mindoro
3. Batangas City

## NOTE:

- \* STILL WITHOUT TELECOM, TELEGRAPH FACILITIES.  
o Replacement of actual telephone facilities.

2. RURAL TELECOMMUNICATIONS PROJECT  
REGIONS III & IV

AGENCY: Bureau of Telecommunications

1.0 PROJECT DESCRIPTIONS:

1.1 Name - Rural Telecommunications Project

1.2 Location - Regions III and IV

1.3 Activities Involved -

The Project will involve -

- a) Establishment of rural telephone exchanges/ systems in deserving municipalities of the above Regions (See Annex);
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- e) Expansion and/or replacement of present local telephone exchanges that needs such works.

2.0 PROJECT COMPONENTS:

The project will compose the following:

- a) Toll Switching Center - As maybe determined in the feasibility study.
- b) Local Telephone Exchanges - "
- c) Telex Exchange - "
- d) Telephone Inter-provincial Stations (Long Distance) - "

- e) UHF/VHF radio transmission systems to interconnect all the new and the existing telecom facilities to the main backbone network • As maybe determined in the feasibility study.
- f) Microwave network linking Manila to Tagaytay then Mamburao, San Jose, Occ. Mindoro to Romblon via Aklan relay station.

**3.0 ESTIMATED PROJECT COST:**

₱ 437,500,000.00 of which \$35,000,000.00 is foreign exchange component.

**4.0 PROJECT SCHEDULE:**

Feasibility Study - - - - - 6 months  
Negotiation for Loan - - - - - 6 months - 1 year  
Detailed Engineering - - - - - 8 months  
Construction - - - - - 3 years

**5.0 PROJECT RELEVANCE TO NATIONAL DEVELOPMENT PLAN:**

**5.1 Problems to Solve •**

For a developing country like the Philippines, telephone communications is a vital requirement. But many parts of the country particularly the countryside, are still without adequate telecommunication services. At present, there are about 531,000 telephones only in the country, two-thirds of which are in Metro Manila, one-sixth are in the primary urban centers and the rest in the secondary and tertiary urban centers. The 45M Filipinos, this is equivalent to UF 3 which is far below the recommended UF 8 for developing countries.

**5.2 Integration of Government and Private Communications Facilities •**

Integration has been recognized as the primary solution to most problems affecting the sector which is presently characterized by duplicative telecommunication services. In this regard, the government established guidelines towards the rationalization of domestic networks particularly in the telephone service. The guidelines are based on

the OPERATOR-ONE AREA concept. Under this concept private systems like the PLDT, RETELCO and PILTEL were given the first options to select the places where they will provide services as included in their programs. The remaining municipalities in the list prepared by a Plan Committee and identified as needing telephone service were then assigned to BUTEL. This in effect makes the private and government sectors complimentary to each other.

BUTEL's proposal to extend telephone service to the rural areas is also intended to correct disparities in economic conditions between the rural and urban settlements as this service is expected to catalyze the expansion of local commercial activities which is also essential to countryside development.

In this project BUTEL avoids the possibility of future duplication of facilities and services by selecting only the places not included in the expansion plan of private companies line up. However, the radio links to be provided shall have enough capacity to integrate operation of existing and proposed exchanges of private firms along the routes.

Telex services will take care of the transmission and reception of record messages urgently needed by the businessmen and commercial establishment. This is expected also to revolutionize the handling of telegram messages, thru automation.

The project was picked out from the 10-year plan of the Bureau (approved by NEDA) involving the provinces under Regions III and IV.

## **6.0 DESCRIPTION OF AGENCY (BUTEL):**

### **6.1 Functions**

The Bureau of Telecommunications as described in P.D. No. 1 has the following functions:

- a) Provide telecom facilities for government offices.

- b) Provide communication services to augment limited existing similar private communication services.
- c) Extend services into areas where no such service is available.
- d) Assist private sectors in providing and maintaining backbone network.

## 6.2 Present Facilities -

The Bureau of Telecommunications has at present the following facilities:

- a) Twenty two (22) telephone exchanges in the capital towns and cities in the Philippines with and installed capacity of 11,500 telephones.
- b) Twelve (12) additional telephone exchanges in the provinces presently under installation with total capacity of 3,200 lines or 3,775 telephones.
- c) An Inter-Provincial telephone service providing long distance telephone service to/from 100 localities.
- d) An International Telephone Switchboard for overseas calls direct to Guam, Japan, Taipei and Hongkong.
- e) 1,320 telegraph or radio/telegraph station all over the country.
- f) A 700-line telex system with switching centers of 100 lines each at Baguio, Cagayan de Oro and Cebu and 400 lines in Manila.

BUREAU OF TELECOMMUNICATIONS

RURAL TELECOMMUNICATIONS PROJECT REGIONS III & IV  
MUNICIPALITIES TO BE PROVIDED WITH FACILITIES

## A. LOCAL TELEPHONE SYSTEM:

REGION - III

- |                             |                               |
|-----------------------------|-------------------------------|
| 1. Bagac, Bataan            | 18. Porac, Pampang*           |
| 2. Abucay, Bataan           | 19. Ceron, Tarlac             |
| 3. Samal, Bataan            | 20. La Paz, Tarlac            |
| 4. Bustos, Bulacan          | 21. Botolan, Zambales         |
| 5. San Ildefonso, Bulacan   | 22. Bulacan, Bulacan          |
| 6. San Rafael, Bulacan      | 23. Jean, Nueva Ecija         |
| 7. Zaragosa, Nueva Ecija    | 24. San Antonio, Nueva Ecija  |
| 8. Lupao, Nueva Ecija       | 25. Sto. Domingo, Nueva Ecija |
| 9. Pantabangan, Nueva Ecija | 26. Macabebe, Pampanga        |
| 10. Quezon, Nueva Ecija     | 27. Sexmoan, Pampanga*        |
| 11. Aliaga, Nueva Ecija     | 28. Masantol, Pampanga        |
| 12. Cabiao, Nueva Ecija     | 29. San Isidro, Nueva Ecija   |
| 13. Cabaldon, Nueva Ecija   | o30. Iba, Zambales            |
| 14. Llanera, Nueva Ecija    | o31. Dinalupihan Bataan       |
| 15. Arayat, Pampanga        | o32. Pandi, Bulacan           |
| 16. Candaba, Pampanga       | o33. Sta. Rosa, Nueva Ecija   |
| 17. Mexico, Pampanga        | o34. Angat, Bulacan           |

REGION - IV

- |                           |                                |
|---------------------------|--------------------------------|
| 1. Padre Garcia, Batangas | 15. Gloria, Or. Mindoro        |
| 2. Lubang, Occ. Mindoro   | 16. Roxas, Or. Mindoro         |
| 3. Bongabong, Or. Mindoro | 17. Socorro, Or. Mindoro       |
| 4. Naujan, Or. Mindoro    | 18. Victoria, Or. Mindoro      |
| 5. Alabat, Quezon         | 19. Coro, Palawan              |
| 6. Catanauan, Quezon      | 20. Narra, Palawan             |
| 7. Guinayangan, Quezon    | 21. Quezon, Palawan            |
| 8. Umisan, Quezon         | 22. Taytay, Palawan            |
| 9. Romblon, Romblon       | 23. Cuyo, Palawan              |
| 10. Oaiongan, Romblon     | 24. Mulanay, Quezon            |
| 11. Agoncillo, Batangas   | 25. San Francisco, Quezon      |
| 12. Calaca, Batangas      | 26. Ternate, Cavite            |
| 13. Gen. Trias, Cavite    | 27. San Narciso, Quezon        |
| 14. Tagaytay City, Cavite | 28. San Agustin, Romblon       |
|                           | o29. San Jose, Occ. Mindoro    |
|                           | 30. Puerto Galera, Or. Mindoro |

## B. TOLL SWITCHING CENTERS

REGION - III

1. Sta. Rosa, Nueva Ecija
2. Pandi, Bulacan

REGION - IV

1. Tagaytay City
2. Calapan, Or. Mindoro
3. Batangas City

## NOTE:

- \* STILL WITHOUT TELECOM, TELEGRAPH FACILITIES.
- o Replacement of actual telephone facilities.

3. LIST OF CITIES AND MUNICIPALITIES WITH TELEPHONE SYSTEM  
AS OF JUNE 1, 1979)

		<u>NUMBER OF EXCHANGES</u>	
		<u>PRIVATE</u>	<u>GOVERNMENT</u>
<b>I. <u>COVERAGE BY REGION</u></b>			
Luzon	(Region I - V - 30 Province)	101	30
Visayas	(Region VI-VIII- 11 Prov.)	16	9
Mindanao	(Region IX-XII - 17 Prov.)	20	11
	<b>TOTAL</b>	<b>137</b>	<b>50</b>
<b>II. <u>BY TYPE</u></b>			
	Electronic (EAX)	3	-
	Cross Point (CPX-5)	8	-
	Cross Point (Penta Costa)	2	-
	Cross Bar Ericsson (XB)	37	31
	Step by Step (SXS)	53	10
	Manual (M)	33	9
	Relaymatic	1	-
	<b>TOTAL</b>	<b>137</b>	<b>50</b>
<b>III. <u>BY SECTOR (TOTAL NUMBER OF EXCHANGES)</u></b>			
1. Private			137
	Philippine Long Distance Tel. Co.	32	
	Republic Telephone Co.	30	
	Pilipino Telephone Corp.	9	
	Filipinas Telephone Co.	7	
	Radio City Telephone Co.	4	
	Northern Telephone Co.	5	
	Others	50	
2. Government			50
	BUTEL	30	
	Local	16	
	CEDA	4	
<b>IV. <u>TOTAL NUMBER OF OPERATORS</u></b>			
	Private	47	
	Local Government	16	
	BUTEL	1	
	CEDA	1	
	<b>TOTAL</b>	<b>65</b>	



I. COVERAGE BY REGION

NUMBER OF EXCHANGES  
PRIVATE GOVERNMENT

Luzon

Region I - 6 provinces	15	6
II - 3 "	4	3
III - 6 "	29	5
IV - 9 "	28	5
IV-A-	15	8
- 6	10	5
<u>30</u>	<u>101</u>	<u>30</u>

Visayas

Region VI - 5 provinces	9	3
VII - 3 "	4	3
VIII - 3 "	3	3
<u>11</u>	<u>16</u>	<u>9</u>

Mindanao

Region IX - 4 provinces	5	2
X - 5 "	3	7
XI - 5 "	9	1
XII - 4 "	3	1
<u>18</u>	<u>20</u>	<u>11</u>

Total <u>59</u> provinces	<u>137</u>	<u>50</u>
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II. BY TYPE

Electronic (EAX)	3	-
Cross Point (CXP-5)	8	-
Cross Point (Penta Costa)	2	-
Cross Bar Ericcson (XB)	37	31
Step by Step (SXS)	53	10
Manual (M)	33	-
Relaymatic	1	-
	<u>137</u>	<u>50</u>

III. BY SECTOR (TOTAL NUMBER OF EXCHANGES)

I. Private 137

Phil. Long Distance Tel. Co.	32
Republic Telephone Company	30
Pilipino Telephone Corp.	9
Filipinas Telephone Co.	7
Radio City Telephone Co.	4
Northern Telephone Co.	5
Others	<u>50</u>

II. Government 50

BUTEL	30
Local	16
CEDA	<u>4</u>

IV. TOTAL NUMBERS OF OPERATORS

Private	47
Local Government	16
BUTEL	1
CEDA	1
TOTAL	<u>65</u>

Telephone Density per 100 Population = 1.2

LIST OF CITIES AND MUNICIPALITIES WITH TELEPHONE SYSTEM  
(AS OF JUNE 1, 1979)

BY REGION

REGION PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTIONS)		POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS
				RES.	EXT.				
<b>REGION I</b>									
ABRA									
Bengued		SXS	800	-	-	29,529	0.63	-	Gov't.
<b>BENGUET</b>									
Baguio City									
La Trinidad		SXS	400	97	107	111,132	4.82	0.47	Private
		RETELCO			30	23,264	0.97	1.25	Private
<b>ILOCOS NORTE</b>									
Laoag City		XB	500	-	-	71,799	1.04	-	Gov't.
		XB	800	-	-	659	1.75	-	Gov't.
<b>ILOCOS SUR</b>									
Vigan		SB	1,000	-	-	32,860	0.62	-	Gov't.
Candon		SXS	300	-	-	32,860	0.62	-	Gov't.
<b>LA UNION</b>									
San Fernando		SXS	1,198	444	964	66,208	2.62	2.10	Private
San Juan Bac.									
Bauang		M	104	124	34	-	0.25	0.27	Gov't.
Naguilian		XB	100	-	-	39,758	0.11	-	Private
Aringay		XB	50	-	-	30,026	0.15	-	Private
Agoo		SXS	50	-	-	26,064	0.08	-	Private
Rosario		XB	200	119	53	35,212	0.58	0.40	Private
		XB	50	-	-	26,402	0.10	-	Private
<b>PANGASINAN</b>									
Dagupan City									
Mangaldan									
Calasiao									
San Fabian		SXS	2,404	1,104	1,431	105,888	3.05	0.79	Private
Urdaneta		SXS	200	100	-	70,972	0.27	-	Private
Lingayen		M	-	-	-	65,624	-	-	Gov't.
		XB	50	32	11	54	0.15	0.34	Private
San Carlos		XB	100	-	-	100,586	0.08	-	Private
Bayambang		XB	150	-	-	65,238	0.10	-	Private
			TOTAL	5,472	4,216	1,664	13,289		

REGION	PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTIONS)		POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS
					RES.	EXT.				
<b>REGION II</b>										
<b>CAGAYAN</b>										
	Tuguegarao	RETELCO	CXP	600	257	272	614	0.88	1.10	Private
		Prov'l Gov't Tel. Sys.	M	400	-	-	100	0.15	-	Government
	Aparri	RETELCO	EMD	300	18	42	71	0.16	-	Private
<b>ISABELLE</b>										
	Ilagan	(RETELCO-Affiliate)	EMD-M	400	56	57	110	0.15	1.22	Private
	Santiago	BUTEL	XB	500	-	-	306	0.50	-	Government
	Cauayan	RETELCO	EMD	300	12	35	71	0.13	-	Private
<b>NUEVA VISCAYA</b>										
	Bayombong/	BUTEL	XB	300	-	-	409	1.20	-	Government
	Solano			TOTAL	3,343	386	1,377			
<b>REGION III</b>										
<b>BULACAN</b>										
	Malolos/	RETELCO	CXP	600	368	175	618	0.39	0.61	Private
	Piariadel	Meycauayan Tel. Sys.	M	360	477	196	688	0.95	0.41	Private
	Meycauayan									
	Bocaue	Radio City Tel. Sys.	M	340	183	111	301	0.63	0.61	Private
		(E. Papa)								
	Marilao	Radio City Tel. Co.	M	320	123	36	161	0.66	0.29	Private
	Angat	BUTEL	XB	300	-	-	71	0.33	-	Government
	Balagtas	Balagtas Tel. Sys.	XB	200	-	-	227	0.95	-	Private
		(Domingo de Asis)								
	Sta. Maria	Radio City Tel. Co.	M	100	47	21	69	0.14	0.45	Private
		(Ernesto A. Papa)								
	San Miguel	PLDT	SXS	100	58	26	92	0.13	-	Private
	Polo/Ovando	RETELCO	XB	720	601	310	953	0.75	0.36	Private
<b>BATAAN</b>										
	Balanga	RETELCO	XB	1,000	252	216	525	1.37	1.00	Private
	Orani	Delfin A. Papa	M	200	165	100	265	0.80	6.66	Private
	Limay	RETELCO	SXS	200	26	359	387	2.11	1.43	Private
	Mariveles	RETELCO	SXS	50	15	14	53	0.13	1.21	Private
	Dinalupihan	BUTEL	SXS	300	-	-	-	-	-	Government
<b>NUEVA ECIJA</b>										
	Cabanatuan	RETELCO	XB	1,000	533	497	151	0.88	1.10	Private
	San Jose City	Mun. of San Jose Tel.	XB	100	-	-	30	0.03	-	Government
	Sta. Rosa	BUTEL	XB	500	-	-	208	0.66	-	Government
	Gapan	PLDT	SXS	400	106	74	202	0.35	-	Private

REGION PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTIONS)		POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS
				RES.	EXT.				
<b>PAMPANGA</b>									
Angeles City	Evangelista Tel. Co.	SXS	4,100	-	-	280,859	2.43	-	Private
San Fernando	PLDT	SXS	1,909	965	1,030	111,349	2.30	1.10	Private
Sto. Toma	PLDT				566				
Guagua/Sta. Mabalacat	Filipinas Tel. Co.	SXS	500	275	130	75,408	0.54	-	Private
Bacolor	Mabalacat Tel. Sys.	M	400	-	-	74,227	1.08	-	Private
Mavabébe	Filipinas Tel. Co.	SXS	500	67	211	48,885	0.20	0.54	Private
Masantol	Pampanga Tel. Co.	M	200	-	-	51,812	0.23	-	Private
Apalit	Pampanga Tel. Co.	M	200	-	-	37,282	0.58	-	Private
	Valencia Tel. Co.	SXS	200	-	-	47,998	0.30	-	Private
<b>TARLAC</b>									
Tarlac	PLDT	XB	1,721	867	624	171,389	1.07	-	Private
	BUTEL	XB	500	-	-	71	-	-	Government
Conception	PLDT	M	622	183	123	79,207	0.43	0.64	Private
Bamban/Capas	PLDT	XB	50	-	-	-	-	-	-
Camiling	PLDT	XB	208	67	33	55,562	0.25	0.63	Private
<b>ZAMBALES</b>									
Olongapo City	PILTEL	XPB	3,600	663	443	156,777	0.79	0.78	Private
Subic	PILTEL	M	300	12	19	36,307	0.12	-	Private
	TOTAL			6,202	4,858	1,640	19,352		
<b>REGION IV</b>									
<b>BATANGAS</b>									
Balayan	Western Batangas Tel. Sys.	M	340	101	139	42,326	0.57	1.38	Private
Batangas City	RETELCO	CXP	1,200	685	662	137,140	1.07	0.85	Private
Bauan					114				
Tanauan	RETELCO	CXP	500	271	117	80,031	0.54	0.54	Private
Nasugbo	Western Batangas Tel. Sys.	M	220	-	-	59,556	0.11	-	Private
Lemery	Western Batangas Tel. Sys.	M	340	-	-	41,465	0.33	-	Private
Lipa City	RETELCO	CXP	600	245	181	125,305	0.38	0.85	Private
Ibaan	BUTEL	SXS	200	-	49				Government
<b>CAVIITE</b>									
Imus	Filipinas Telephone Co.	SXS	500	338	63	56,772	0.75	0.19	Private
Bacoor/Kawit	Filipinas Telephone Co.	SXS	500	184	27	62,950	0.22	0.15	Private
Cavite City	Filipinas Telephone Co.	SXS	1,000	930	165	102,146	1.14	0.18	Private
Dasmariñas	Filipinas Telephone Co.	SXS	200	-	-	24,704	0.11	-	Private
Binakayan/Bacoor									
Cavite City	Communications & Elect. Development Authority	XB	100	-	-	62,950	0.13	-	Government

NOTE \* Capas and Bamban had a separate telephone exchange (XB).

REGION PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTIONS)			POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS
				RES.	BUS.	EXT.				
Rosario C.O.										
Novelita	Filipinas Tel. Co.	SXS	600	-	-	145	30,952	0.47	-	Private
Trece Martinez City	Communications & Elect. Development Authority	XB	150	-	-	50	9,119	0.55	-	Government
Tejeros C.O.	CEDA	XB	100	-	-	30	42,474	0.07	-	Government
Tanza/Gen. Trias	CEDA	XB	50	-	-	40	33,058	0.12	-	Government
Naic										
<u>LAGUNA</u>										
San Pablo City	PLTD	SXS	2,126	1,520	671	468	2,659	1.79	0.45	Private
Binan	Independent Tel. Co.	XB	250	-	-	-	650	0.75	-	Private
Calamba	RETELCO	CXP	1,000	588	379	379	174	1.04	0.70	Private
Sat. Cruz/Pag	RETELCO	CXP	1,000	463	230	104	797	1.29	0.63	Private
Sanjan Lumban	RETELCO	SXS	1,000	409	1,025	206	1,640	0.78	1.60	Private
Los Banos	RETELCO	SXS	100	72	88	5	165	0.29	1.001	Private
Sta. Rosa	RETELCO	SXS	100	-	-	-	1	0.29	-	Private
Csbuyal	RETELCO (Ext. of Caib)									
<u>MARINDUQUE</u>										
Boac	PILTEL	M	150	47	91	9	147	0.39	1.64	Private
Sta. Cruz	PILTEL	M	75	11	21	-	32	0.07	1.80	Private
<u>MINDORO OCC.</u>										
San Jose	BUTEL	XB	500	-	-	-	40	0.62	-	Government
Mamburao	BUTEL	SXS	300	-	-	-	-	-	-	Government
<u>MINDORO OR.</u>										
Calapan	Calapan Tel. System	M	400	316	180	68	428	0.75	0.57	Private
<u>PALAWAN</u>										
Puerto	PILTEL	XB	250	148	101	46	295	0.52	0.63	Private
Pricesa City										
<u>QUEZON</u>										
Lucena City	PLTD	SXS	2,188	1,150	681	406	2,319	2.24	0.74	Private
Lucban	Lucban Tel. System	SXS	200	-	-	-	127	0.48	-	Private
Gumaca	Jaime Ramos Tel. Co.	SXS	100	25	55	3	83	0.25	-	Private
Sariaya										
Antipolo										
<u>RIZAL</u>										
Angono	RETELCO	M	200	127	32	5	164	0.94	0.32	Private
Binangonan	RETELCO	EMD-M	400	76	29	9	114			Private

REGION PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTIONS)		POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS
				BUS.	EXT.				
Cainta/Antipolo	RETELCO	EAX	4,000	1,175	376	163,978	2.29	0.41	Private
Taytay	RETELCO	EMD-M	300	37	15	31,529	0.35	-	Private
Tanay/Palilla			TOTAL	9,981	6,149	2,101	19,887		
<b>REGION IV-A</b>									
<b>METRO MANILA</b>									
Caloocan City	PLDT (Caloocan)	SXS	26,935	2,462	2,225	13,278	4.03	0.27	Private
Valenzuela/Malabon									
Mavetas	PLDT (Grace Park)	SXS	15,361	7,320	5,637	21,716	2.46	0.81	Private
	BUTEL	SXS	1,500	-	-	490	0.07	-	Government
Manila City	PLDT (Intramuros)	SXS	31,916	30,736	15,539	52,334	11.88	4.98	Private
	PLDT (Malate)	SXS	30,078	23,367	12,784	51,032	3.59	1.36	Private
	PLDT (Tondo)	SXS	32,949	11,400	6,807	41,483	2.75	0.48	Private
	BUTEL (San Lazaro)	XB	2,250	-	-	602	0.04	-	Government
	PLDT (Sta. Mesa)	SXS	25,366	6,428	6,737	32,526	2.18	0.32	Private
	BUTEL (Malte) Remedies	XB	2,000	-	-	464	0.03	-	Government
Quezon City	PLDT (Quezon City East Avenue)	SXS	33,642	10,286	11,506	46,558	3.80	0.41	Private
	BUTEL (Del Monte)	SXS	1,500	-	-	352	0.03	-	Government
	BUTEL (Roces)	SXS	1,500	-	-	891	0.08	-	Government
	BUTEL (Diliman)	SXS	1,500	-	-	501	0.05	-	Government
	BUTEL (Cubao)	SXS	1,500	-	-	632	0.06	-	Government
Pasay City	PLDT (Navaliches)	SXS	4,201	5,024	1,022	5,360	0.44	-	Private
Makati	PLDT (Pasay)	SXS	7,644	3,934	2,336	10,501	3.77	0.32	Private
Mandaluyong/	PLDT (Makati)	SXS	38,539	38,770	27,237	83,004	17.05	2.22	Private
San Juan	PLDT (Greenhills)	SXS	30,176	14,392	12,878	47,912	11.41	0.65	Private
	BUTEL	SXS	1,500	-	-	646	-	-	Government
Marikina/San									
Matoo	RETELCO	EAX	4,000	1,435	711	6,109	3.31	0.32	Private
Muntinlupa/									
San Pedro	RETELCO	XB	1,580	1,492	162	2,288	1.41	1.02	Private
Paranaque/									
Las Pinas	PLDT	SXS	9,625	5,341	4,084	17,553	7.10	0.75	Private
Pasig/Pateres/									
Taguig	RETELCO	EAX	4,000	6,732	9,099	1,801	4.08	1.62	Private
			TOTAL	172,244	166,486	111,566	453,703		
						5,749,868			

REGION	PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTIONS)		POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS		
					RES.	EXT.						
<b>REGION V</b>												
<b>ALBAY</b>												
	Gaspi City	Mayon Telephone Corp. (Ramires Tel. Corp.)	SXS	400	175	427	24	626	105,446	0.61	2.44	Private
	Daraga	Mayon Telephone Corp.	SXS	400	304	251	22	577	72,205	0.80	0.85	Private
	Tabaco	Bicol Telephone and Telegraph Inc. BTTI	M	190	51	117	32	181	72,394	0.68	1.54	Private
	Tabaco/Malinao/Mallipot	Mayon Telephone Corp.	SXS	200	34	45	220	181	-	-	1.16	Private
<b>CAMARINES NORTE</b>												
	Daet	North Camarines Tel. Co. BUTEL	M	400	100	154	10	287	62,743	1.35	1.54	Private
	Labo	Labo Telephone System	XB	500	-	-	-	601	-	-	-	Government
			M	200	24	30	2	56	60,487	0.09	0.07	Private
<b>CAMARINES SUR</b>												
	Naga City	Naga Telephone Co.	SXS	1,500	428	610	110	1,148	83,637	1.37	1.43	Private
	Iriga	Iriga Telephone Co.	SXS	400	163	141	-	310	81,055	0.38	0.86	Private
	Nabua	Iriga Telephone Co.	M	200	96	22	-	118	46,525	0.26	0.23	Private
<b>CATANDUANES</b>												
	Virac	BUTEL	XB	500	-	-	-	499	40,591	0.97	-	Government
<b>MASBATE</b>												
	Masbate	PILTEL	XB	250	111	130	26	262	47,227	0.46	1.23	Private
<b>SORSOGON</b>												
	Sorsogon	BUTEL	XB	500	-	-	-	381	53,856	0.62	-	Government
		TOTAL			1,058	1,317	326	4,723				
<b>REGION VI</b>												
<b>A</b>												
	Kalibo	BUTEL (T.S. PLDT)	XB	800	-	-	-	929	32,256	1.59	-	Government
<b>ANTIQUE</b>												
	San Jose de Buena	BUTEL	XB	500	-	-	-	390	26,891	1.48	-	Government
<b>CAPIZ</b>												
	Rexas City	PLDT	SXS	1,038	211	263	110	584	82,048	0.69	1.21	Private

REGION PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTION)			POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS
				RES.	BUS.	EXT.				
<u>ILOILO</u>										
Iloilo City/Oton	PLDT	SXS	7,521	4,370	3,210	1,864	305,064	3.06	0.77	Private
Calinog	BUTEL	XB	500	-	-	-	29,821	0.61	-	Government
Pototatau	BUTEL	SXS	300	-	-	-				Government
<u>NEGROS OCC.</u>										
Bacolod City	PLDT	SXS	8,864	5,266	4,404	2,944	197,737	6.29	0.85	Private
Binalbagan	"RCY" Tel. system (Renato C. Yulo)	XB	150	40	55	31	39,011	0.52	1.38	Private
Cadiz City	PLDT	XB	100	92	79	20	131,024	0.19	1.38	Private
Kabankalan	PLDT	SXS	190	57	54	19	76,611	0.16	-	Private
San Carlos City	San Carlos Tel. Sys. (Angelina X. Antonio)	M	600	165	202	20	95,077	0.41	-	Private
Silay/Talisay	PLDT	SXS	906	624	211	189	71,663	1.42	0.36	Private
Victorias	Victorias Tel. System	XB	150	72	69	18	51,550	0.25	0.96	Private
		TOTAL		10,897	8,547	5,195	26,155			
<u>REGION VII</u>										
<u>BOHOL</u>										
Tagbilaran City	BUTEL (Premier Anto. Tel. Net) Tagbilaran Republic Tel. Sys.	XB	1,500	-	-	-	45,780	2.11	-	Government
		M	350	37	23	248			0.62	Government
<u>CEBU</u>										
Cebu City/Minglanilla										
Talisay/Consolacion/										
Mandawi City	PLDT	SXS	17,624	9,035	9,371	4,274	591,941	3.75	0.99	Private
Lapu-Lapu City	PLDT	SXS	2,997	1,726	1,976	1,240	161,993	2.86	1.14	Private
Danao City	Bancar Industris Tel. Co.	SXS	250	-	-	-	57,791	0.11	-	Private
		TOTAL					811,725			
<u>NEGROS OR.</u>										
Dumaguete City	BUTEL	XB	1,500	-	-	-	65,337	2.60	-	Government
	Dumaguete Tel. Service	M	480	-	-	-			1.19	Private
Guihuingan	BUTEL	SXS	300	-	-	-				Government
		TOTAL		10,798	11,370	5,514	30,859			



REGION	PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTION)		POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS		
					RES.	EXT.						
<u>REGION VIII</u>												
<u>LEYTE</u>												
	Tacloban City	Tacloban City Tel. Sys. (RETELCO)	XB	1,000	450	528	219	1,197	82,800	1.49	-	Private
	Ormoc	Ormoc City Tel. Corp.	SXS	400	-	-	-	175	89,256	0.69	-	Private
	Baysay	BUTEL	XB	500	-	-	-	469	-	-	-	Government
		BUTEL	SXS	300	-	-	-	-	-	-	-	Government
<u>SOUTHERN LEYTE</u>												
	Maasin	BUTEL	XB	500	-	-	-	341	61,168	0.50	-	Government
<u>WESTERN SAMAR</u>												
	Catbalogan	BUTEL	XB	500	-	-	-	442	62,319	0.68	-	Government
	Catbalayog City	Ernesto Quisumbing Calbayog Telephone Sys.	M	300	-	-	-	120	107,035	0.11	-	Private
		TOTAL			450	528	219	2,744				
<u>EASTERN SAMAR</u>												
	Guivail	BUTEL	SXS	300	-	-	-	-	-	-	-	Government
	Boroigan	BUTEL	SXS	300	-	-	-	-	-	-	-	Government
	NORTHERN SAMAR	Catarman/Butel	SXS	300	-	-	-	-	-	-	-	Government
<u>REGION IX</u>												
<u>SEBU</u>												
	Dipolog City	Nationwide Tel. Co.	M	400	105	40	15	160	65,808	0.25	1.17	Private
		Cruztelco (Julue S. Cruz Mun. Tel. of Dipolog)	XB	600	314	286	61	661	63,150	1.21	0.91	Private
		Mun. Tel. of Dipolog	M	400	-	-	-	100	-	-	-	Government
<u>ZAMBOANGA DEL NORTE</u>												
	Zamboanga City	PLDT	SXS	2,385	1,401	1,503	1,242	4,416	268,103	1.47	1.08	Private
	Pagadian City	Parulan Tel. Sys.	XB	250	27	84	-	111	74,258	0.15	3.11	Private
	Ipil	Ipil Tel. Co.	XB	150	-	-	-	70	43,032	0.16	-	Private
<u>BASILAN</u>												
	Basilan City	City of Basilan Gov't Telephone System	M	200	133	200	-	384	190,565	0.20	1.50	Government
		TOTAL			1,980	2,113	1,318	5,632				

REGION PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTION)		POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS		
				RES.	EXT.						
<u>REGION X</u>											
<u>AGUSAN DEL NORTE</u>											
Butuan City	Butuan City Tel. Co. Inc. (Marcelino Aquino)	XB	1,000	607	618	181	1,266	209,751	0.72	1.02	Private
Nasipit	City of Butuan Tel. Sys. Mun. Gov't Tel. Sys.	XB	157	-	-	-	240	-	-	-	Government
		XB	250	-	-	-	100	35,416	0.28	-	Government
<u>BUKIDNON</u>											
Malaybalay	Prov'l Gov't Tel. Sys.	SXS	90	76	81	31	90	73,281	0.12	1.07	Government
<u>MISAMIS OCC.</u>											
Ozamis City	Utilities Management Corp. (PETELCO)	EMD-M	1,000	222	240	68	530	90,823	0.86	-	Private
	City Gov't Tel. System	XB	400	-	-	-	250	-	-	-	Government
<u>MISAMIS ORIENTAL</u>											
Cagayan de oro	Prov'l Gov't Tel. Sys.	XB	2,000	-	-	-	2,800	188,774	1.40	-	Government
Gingoog City	Parulian Telephone Sys.	XB	200	30	60	6	96	79,705	0.12	2.00	Private
<u>SURIGAO DEL NORTE</u>											
Surigao City	BUTEL (PLDT T.S.)	XB	1,000	-	-	-	622	67,916	1.01	-	Government
	Municipal Government	M	200	-	-	-	561	-	-	-	Government
			TOTAL	935	999	286	6,555				
<u>REGION XI</u>											
<u>DAVAO DEL NORTE</u>											
Tagum	Tagum Telephone Sys. (De Claro Tel. Co. Inc.)	XB	250	57	93	12	320	72,945	0.44	1.63	Private
Maco	Maco Telephone Sys.	XB	100	-	-	-	80	45,769	0.18	-	Private
<u>DAVAO DEL SUR</u>											
Davao City	PLDT	SXS	8,864	3,061	5,173	2,731	11,720	620,407	2.36	1.32	Private
	Davao City Tel. System	XB	3,900	-	-	-	3,200	-	-	-	Government
	PILTEL	M	220	255	179	32	466	69,747	0.66	0.61	Private
<u>DAVAO ORIENTAL</u>											
Mati	Mati Telephone Sys. (Jesus Co.)	XB	800	-	-	-	594	99,672	0.40	1.10	Private

REGION PROVINCES	TELEPHONE CO./OPR.	TYPE OF EXCHANGE	CAPACITY	TELEPHONE LOAD (CONNECTION)		POPULATION SERVED	TEL/100 POP. SERVED	BUS/RES RATIO	REMARKS
				RES.	EXT.				
<u>SURIGAO DEL SUR</u>									
Tandag	Mario Serra Ty (Tandag Electric & Tel. Co.)	XB	100	52	48	50,996	0.32	0.92	Private
Bislig	RETELCO PICOP	EMD	600	28	51	53,791	0.17	-	Private
<u>SOUTH COTABATO</u>									
Gen. Santos City	PIITEL	M	1,200	479	739	126,281	1.04	1.65	Private
Koronadal	Marbel Tel. Sys. (Antonio C. Yap)	XB	350	76	172	80,028	0.35	2.26	Private
	TOTAL			4,763	6,455	2,921	17,958		
<u>REGION XII</u>									
<u>MAGUINDANAO</u>									
Corabato City	North Corabato Prov'l Gov't Telephone System	SXS	1,000	451	549	91,829	1.20	1.22	Government
<u>LANAO DEL NORTE</u>									
Iligan City	Maranao Telephone Co.	XBP	2,000	422	731	147,028	0.94	1.72	Private
<u>MARANAO</u>									
Marawi City	Sharigan Telephone Corp.	XB	150	-	-	64,497	0.10	-	Private
	Penta Costa (Authorized M)								
<u>NORTH COTABATO</u>									
Kidapawan	Kidapawan Tel. System	XB	150	41	46	59,022	0.16	1.12	Private
	TOTAL			914	1,326	227	2,529		
	GRAND TOTAL			225,037	214,750	133,114	605,067		

4. Present and Future Telephone System  
in Regions III & IV

EXISTING BUTEL TELEPHONE EXCHANGES

REGION - III

1. Dinalupihan, Bataan (300 L)
2. Angat, Bulacan (300 L)
3. Pandi, Bulacan (300 L) (under construction)
4. Sta. Rosa, Nueva Ecija (300 L)
5. Tarlac, Tarlac (300 L)
6. Iba, Zambales (600 L)

REGION - IV

1. Ibaan, Batangas (200 L)
2. Mamburao, Occ. Mindoro (300 L)
3. San Jose, Occ. Mindoro (300 L)

MUNICIPALITIES WITH TELEPHONES

(Existing, Private)

REGION - III

	<u>TOWNS</u>	<u>CAPACITY</u>	<u>TYPE</u>	<u>OPERATOR</u>
1.	Balanga, Bataan	1,000 L	CXP	RETELCO
2.	Limay, Bataan	200 L	SXS	RETELCO
3.	Mariveles, Bataan	50	SXS	RETELCO
4.	Orani, Bataan	200	M	PAPA
5.	San Miguel, Bulacan	100	SXS	PLDT
6.	Polo-Obando, Bulacan	720	XB	RETELCO
7.	Baliwag, Bulacan	400	CXP	RETELCO
8.	Malolos/Plaridel, Bulacan	600	CXP	RETELCO
9.	Hagonoy/Paombong, Bulacan	400	EMP	RETELCO
10.	Meycauayan, Bulacan	360	M	Radio City
11.	Marilac, Bulacan	320	M	Radio City
12.	Bocaue, Bulacan	340	M	Radio City
13.	Sta. Maria, Bulacan	100	M	Radio City
14.	Balagtas, Bulacan	200	XB	de Asis
15.	San Jose, Bulacan	200	SXS	Rural Tel.
16.	Gapan, Nueva Ecija	400	SXS	PLDT
17.	Cabanatuan City	1,000	XB	RETELCO
18.	San Jose City	100	M	Mun.
19.	San Fernando/Sto. Tomas, Pampanga	1,900	SXS	PLDT
20.	Guagua, Pampanga	500	SXS	Fil. Tel.
21.	Bacolor, Pampanga	200	SXS	Fil. Tel.
22.	Macabebe, Pampanga	200	M	Pamp. Tel.
23.	Masantol, Pampanga	200	M	Pamp. Tel.
24.	Angeles City	4,100	SXS	Evangelists
25.	Mabalacat, Pampanga	400	M	Mabalacat Tel.
26.	Apalit, Pampanga	200	SXS	Valencia
27.	Bamban, Tarlac	50	XB	PLDT
28.	Capas, Tarlac	50	XB	PLDT
29.	Concepcion, Tarlac	320	M	PLDT
30.	Tarlac, Tarlac	1,700	XB	PLDT
31.	Camiling, Tarlac	200	SXS	PLDT
32.	Olongapo City	3,600	XB	PILTEL
33.	Subic, Zambales	300	M	PILTEL

REGION - IV

	<u>TOWNS</u>	<u>CAPACITY</u>	<u>TYPE</u>	<u>OPERATOR</u>
1.	Lipa City	600	CXP	RETELCO
2.	Batangas-Bauan	1,200	CXP	RETELCO
3.	Tanauan, Batangas	500	CXP	RETELCO
4.	Balayan, Batangas	340	M	Western Tel.
5.	Masugbu, Batangas	220	M	Western Tel.
6.	Lemery, Batangas	340	M	Western Tel.
7.	Cavite City	1,000	SXS	Fil. Tel.
8.	Imus, Cavite	500	SXS	Fil. Tel.
9.	Bacoor-Kawit, Caviet	500	SXS	Fil. Tel.
10.	Rosario-Noveleta, Cavite	600	SXS	Fil. Tel.
11.	Dasmaringas, Cavite	200	SXS	Fil. Tel.
12.	Tejeros, Cavite	100	SB	CEDA
13.	Naic, Cavite	50	XB	CEDA
14.	Trece Matires City	150	XB	CEDA
15.	Binakayan, Cavite	100	XB	CEDA
16.	San Pablo City	2,100	SXS	PLDT
17.	Calamba/Cabuyao Sta. Rosa, Laguna	1,000	CXP	RETELCO
18.	Los Banos (U.P.), Laguna	600	SXS	RETELCO
19.	Sta. Cruz/Pagsanjan, Laguna	1,000	CXP	RETELCO
20.	Sta. Rosa, Laguna	100	SXS	RETELCO
21.	Los Banos, Laguna	500	EMD	RETELCO
22.	Binan, Laguna	250	XB	Independent
23.	Boac, Marinduque	160	M	PILTEL
24.	Sta. Cruz, Laguna	75	M	PILTEL
25.	Calapan, Or. Mindoro	400	M	Calapan Tel.
26.	Puerto Princess City	250	XB	PILTEL
27.	Lucena City	2,100	SXS	PLDT
28.	Gumaca, Quezon	100	SXS	PLDT
29.	Lucban, Quezon	100	SXS	Ramos
30.	Cainta/Antipolo Taytay, Rizal	4,000	FAX	RETELCO
31.	Binangonan, Rizal	400	EMD	RETELCO
32.	San Mateo/Marikina Montalban, Rizal	4,000	FAX	RETELCO
33.	Angono, Rizal	480	EMD	RETELCO
34.	San Pedro/Munting-Lupa, Rizal	1,500	XB	RETELCO
35.	Tanay, Rizal	200	M	RETELCO

PLDT PRESENT TELEPHONE SYSTEM

REGION - III

	<u>OFFICE</u>	<u>PRESENT</u>	<u>ADDITION LINES</u> <u>X - 4 PROGRAM</u>	<u>REMARKS</u>
1.	San Fernando, Pamp.	1,700 L	2,300 L	
2.	Tarlac, Tarlac	1,480 L	-	
3.	Concepcion, Tarlac	520 L	700 L	
4.	Camiling, Tarlac	150 L	100 L	
5.	Gapan, Nueva, Ecija	400 L	-	
6.	San Miguel, Bulacan	150 L	-	

REGION - IV

1.	San Pablo City	1,840 L	800 L	
2.	Lucana City	200 L	2,400 L	

PLDT PROPOSED TELEPHONE EXCHANGE

REGION - III

1. Calumpit, Bulacan
2. Morzagaray, Bulacan
3. Guimba, Nueva Ecija
4. Bongabon, Nueva Ecija
5. Sto. Tomas, Pampanga
6. San Narciso, Zambales
7. Cuyapo, Nueva Ecija
8. Talavera, Nueva Ecija
9. San Marcelino, Zambales
10. San Antonio, Zambales
11. Moncada, Tarlac
12. Masinloc, Zambales
13. Palayan, City
14. San. Tinio, Nueva Ecija
15. San Felipe, Zambales
16. Hermosa, Bataan
17. Rizal, Nueva Ecija
18. Laur, Nueva Ecija
19. San Leonardo, Nueva Ecija
20. Mimalin, Pampanga
21. Floridablanca, Pampanga
22. Victoria, Tarlac
23. Sta. Ignacia, Tarlac
24. Sta. Cruz, Zambales
25. San Isidro, Nueva Ecija

REGION - IV

1. Maic, Cavite
2. Lucban, Quezon
3. Seraiya, Quezon
4. Infanta, Quezon
5. Pagbilan, Quezon
6. Tayabas, Quezon
7. Atimonan, Quezon
8. Calauag, Quezon
9. Tiaong, Quezon
10. Tagkawayan, Quezon
11. Baler, Quezon



OTHER PROPOSED TELEPHONE SYSTEM

REGIONS - III & IV

1. Orion, Bataan	PETELCO
2. Morong, Bataan	PILTEL
3. Castellejos, Zamb.	PILTEL
4. Morong, Rizal	PETELCO
5. Cardona, Rizal	PETELCO
6. Pililla, Rizal	PETELCO
7. Mauban, Quezon	PETELCO
8. PASTE, Laguna	PETELCO
9. San Jose, Butangas	PETELCO
10. San Juan, Batangas	PETELCO
11. Cuenca, Batangas	PETELCO
12. Liliw, Lagune	PETELCO
13. Calatagan, Batangas	PETELCO
14. Lian, Batangas	PETELCO
15. Rosario, Batangas	PETELCO
16. Talimay, Batangas	PETELCO
17. Mogpog, Marinduque	PILTEL
18. Torrijos, Marinduque	PILTEL
19. Buenavista, Marinduque	PILTEL
20. Gasan, Marinduque	PILTEL
21. Brookes Point, Palawan	PILTEL
22. Roxas, Palawan	PILTEL

PLDT Toll Truck Offices

PRESENT -

1. Mainla
2. San Fernando, La Union
3. Baguio City
4. Dagupan City
5. San Fernando, Pampanga (III)
6. Tarlac, Tarlac (III)
7. San Pablo City (III)
8. Lucena City (III)
9. Mandaue City (III)
10. Bacolod City
11. Iloilo City
12. Cagayan de Oro City
13. Davao City
14. Zamboanga City

Additional Office under X-4 Program (1981-84)

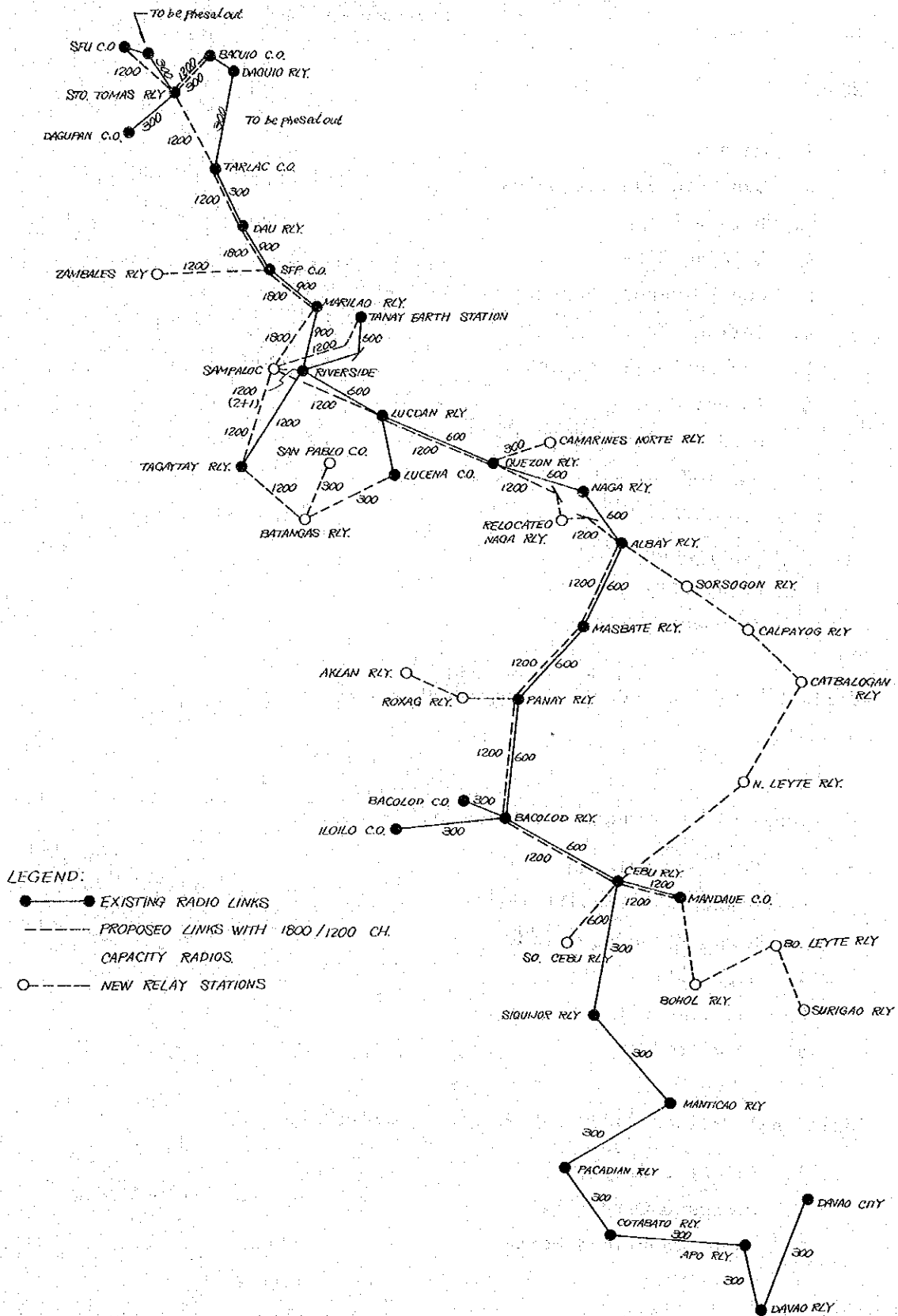
1. Legaspi City

Additional Offices under X-5 Program (1983-1987).

1. Malolos, Bulacan (III)
2. Dasmariñas, Cavite (IV)
3. Boac, Marinduque (IV)
4. Naga City
5. Pagadian City
6. Cotabato City

Additional Offices under X-6 Program (1988-1992).

1. Batangas City (IV)
2. Olongapo City (III)
3. Daet, Camarines Norte
4. Roxas City



☒-22 PROPOSED BACKBONE CONFIGURATION  
( X - 4 )

5. STATISTICS OF REGION III AND IV  
(As of 1975)

<u>L O C A T I O N</u>	<u>C L A S S I F I C A T I O N</u>	<u>P O P U L A T I O N</u>
REGION III CENTRAL LUZON		
District I:		
<u>BATAAN</u>	First Class	263,269
1. Abucay	5th "	20,437
2. Bagac	5th "	10,676
3. Balanga	3rd "	34,289
4. Dinalupihan	4th "	36,302
5. Hermosa	5th "	23,246
6. Limay	2nd "	18,182
7. Mariveles	5th "	25,167
8. Morong	5th "	7,793
9. Orani	3rd "	29,464
10. Orion	5th "	24,283
11. Pilar	5th "	16,699
12. Samal	5th "	16,731
13.		
<u>TARLAC</u>	First "	640,899
1. Anao	5th "	6,084
2. Bamban	5th "	22,723
3. Camiling	3rd "	52,311
4. Capas	4th "	42,561
5. Concepcion	3rd "	72,554
6. Gerona	4th "	46,573
7. La Paz	5th "	32,885
8. Mayantoc	5th "	16,427

LOCATION	CLASSIFICATION	POPULATION
9. Moncada	4th Class	31,825
10. Paniqui	3rd "	53,031
11. Pura	5th "	14,409
12. Ramos	5th "	10,626
13. San Clemente	5th "	7,406
14. San Manuel	5th "	12,803
15. Sta. Ignacia	5th "	23,157
16. Tarlac	First "	160,595
17. Victoria	4th "	34,889
<u>ZAMBALES</u>	Second "	416,280
1. Botolan	5th "	27,307
2. Cabangan	5th "	11,586
3. Candelaria	5th "	14,630
4. Castillejos	5th "	17,990
5. Masinloc	3rd "	24,807
6. Olongapo	First "	147,109
7. Iba	5th "	21,020
8. Palawig	5th "	16,359
9. San Antonio	4th "	21,099
10. San Felipe	5th "	13,905
11. San Marcelino	4th "	20,735
12. San Narciso	5th "	19,278
13. Santa Cruz	4th "	32,307
14. Subic	4th "	28,139
DISTRICT - 2		
BULACAN	First "	1,050,134
1. Angat	4th "	23,344
2. Balagtas	4th "	21,422
3. Baliuag	2nd "	61,624
4. Socaua	4th "	40,577

LOCATION	CLASSIFICATION	POPULATION
5. Bulacan	4th Class	28,361
6. Bustos	4th "	22,622
7. Calumpit	4th "	41,041
8. Guiguinto	4th "	20,590
9. Hagonoy	3rd "	65,592
10. Malolos	2nd "	83,491
11. Marilao	4th "	21,017
12. Meycauayan	2nd "	60,225
13. Norzagaray	3rd "	23,750
14. Obando	4th "	32,378
15. Pandi	5th "	18,824
16. Paombong	3rd "	24,383
17. Plaridel	4th "	32,613
18. Pulilan	5th "	34,234
19. San Idelfonso	4th "	39,593
20. San Jose del Monte	4th "	59,021
21. San Miguel	3rd "	66,870
22. San Rafael	4th "	32,342
23. Sta. Maria	3rd "	45,615
24. Dna. Remedios Trinidad	New Municipality	
<u>NUEVA ECIJA</u>	First Class	947,995
1. Aliega	5th "	28,290
2. Bongabon	5th "	29,932
3. Cabanatuan City	2nd "	115,258
4. Cabiao	5th "	32,252
5. Carrangian	5th "	16,875
6. Cuyapo	4th "	39,109
7. Cebaldon	5th "	15,673
8. Gapan	3rd "	50,506

LOCATION	CLASSIFICATION	POPULATION
<b>NUEVA ECUIJA (Cont.)</b>		
9. Gen. M. Natividad	5th Class	14,405
10. Gen. Tinio	5th "	21,088
11. Guimba	3rd "	55,781
12. Jaen	5th "	33,626
13. Laur	5th "	16,896
14. Licab	5th "	13,374
15. Llanera	5th "	16,160
16. Lupao	5th "	22,106
17. Munoz	4th "	38,619
18. Nawpicuan	6th "	1,350
19. Palayan City	5th "	12,140
20. Pantabangan	5th "	18,074
21. Peñaranda	5th "	15,142
22. Quizon	5th "	17,178
23. Rizal	4th "	28,597
24. San Antonio	4th "	38,065
25. San Jose City	3rd "	58,387
26. San Isidro	5th "	25,621
27. San Leonardo	5th "	29,201
28. Santa Rosa	5th "	25,732
29. Santo Domingo	5th "	25,306
30. Talavera	4th "	53,011
31. Talugog	5th "	12,225
32. Zaragoza	5th "	21,598
<b>PAMPANGA</b>	First "	1,042,164
1. Angeles City	1st- B Class	131,164
2. Apalit	4th "	41,283
3. Arayat	5th "	52,739
4. Bacoor	4th "	46,044

LOCATION	CLASSIFICATION	POPULATION
PAMPANGA (Cont.)		
5. Candaba	5th Class	48,458
6. Florida Blanca	4th "	45,419
7. Guagua	2nd "	65,336
8. Lubao	3rd "	69,903
9. Mabalacat	4th "	69,874
10. Macabebe	4th "	42,397
11. Magalang	5th "	31,462
12. Masantol	4th "	32,658
13. Mexico	4th "	48,805
14. Minaliu	5th "	25,428
15. Porac	4th "	44,462
16. San Fernando	1st "	98,382
17. San Luis	5th "	23,866
18. San Simon	5th "	21,553
19. Sta. Ana	5th "	22,595
20. Sta. Rita	5th "	22,167
21. Santo Tomas	5th "	21,320
22. Sexmoan	5th "	16,849



LOCATION	CLASSIFICATION	POPULATION
<u>BATANGAS</u>	1st Class A	1,032,009
Dist. I		
1. Agoncillo	5th Class	14,976
2. Alitagtag	4th "	12,243
3. Balayan	3rd "	38,214
4. Balete	5th "	8,229
5. Batangas City	1st A "	125,363
6. Bauan	1st C "	38,200
7. Calaca	5th "	31,705
8. Calatagan	4th "	23,648
9. Cuenca	5th "	15,975
10. Ibaan	4th "	23,019
11. Laurel	5th "	15,143
12. Lemery	4th "	36,705
13. Liain	5th "	23,271
14. Lipa City	2nd "	106,094
15. Lobo	5th "	22,092
16. Mabini	5th "	21,694
17. Malvar	5th "	15,584
18. Mataas na Kahoy	5th "	10,928
19. Nasugbu	2nd "	50,822
20. Padre Garcia	5th "	17,541
21. Rosario	4th "	47,298
22. San Jose	5th "	25,757
23. Sab Juan	4th "	52,936
24. San Luis	5th "	16,884
25. San Nicolae	6th "	8,877
26. San Pascual	3rd "	21,761
27. Sta. Teresita	5th "	10,087

LOCATION	CLASSIFICATION	POPULATION
Cont'n.		
28 Sto. Tomas	3rd Class	37,452
29 Tael	3rd "	26,705
30 Talisay	5th "	16,624
31 Tanauan	2nd "	46,705
32 TaYsan	5th "	17,705
33 Tingloy	6th "	11,963
34 TuY	5th "	21,839
LAGUNA	1st "	803,750
1 Alaminos	4th "	18,504
2 Bay	5rd "	19,363
3 Binan	3th "	67,444
4 CabuYao	5nd "	36,505
5 Calawba	2th "	97,432
6 Calauan	5th "	23,370
7 Cavinti	5th "	11,463
8 Famy	6th "	5,222
9 Kalayaan	6th "	8,501
10 Liliw	5th "	15,907
11 Los Baños	4th "	38,351
12 Luisiana	5th "	12,346
13 Lumban	5th "	14,842
14 Mabitac	6th "	7,415
15 Magdalen	5th "	9,071
16 MajaYjay	5th "	13,182
17 Nagcarlan	5th "	27,493
18 Paete	4th "	14,733

LOCATION	CLASSIFICATION	POPULATION
19. Pagaajan	4th Class	16,188
20. Pakil	5th "	8,375
21. Pangil	6th "	79,263
22. Pila	5th "	18,399
23. Rizal	6th "	8,097
24. San Pablo City	2nd "	116,607
25. Sand Pedro	3rd "	43,439
26. Sta. Maria	5th "	13,731
27. Ste. Cruz	3rd "	52,672
28. Sta. Rosa	4th "	47,639
29. Siniloan	5th "	14,386
30. Victoria	5th "	13,810
<u>MARINDUQUE</u>	2nd "	162,804
1. Boac	3rd "	35,649
2. Buenavista	5th "	11,787
3. Gasan	4th "	20,596
4. Mompog	3rd "	24,736
5. Sta. Cruz	1st-C "	49,274
6. Torrijos	4th "	20,762
7.		
<u>QUEZON</u>	1st A "	1,024,987
1. Agdangan	6th "	7,163
2. Alabat	5th "	10,939
3. Atimonan	4th "	37,483
4. Buenavista	6th "	14,462
5. Burdeos	5th "	14,229
6. Calauag	4th "	54,035
7. Candelaria	3rd "	49,384
8. Catanauan	5th "	38,473

LOCATION	CLASSIFICATION	POPULATION
9. Dolores	5th Class	13,617
10. Gen Luna	5th "	15,193
11. Gen Nakar	5th "	11,571
12. Guinayangan	5th "	26,860
13. Gumaca	4th "	39,337
14. Infanta	5th "	25,271
15. Jumalig	6th "	4,014
16. Lopez	4th "	55,849
17. Lucban	4th "	23,044
18. Lucena City	2nd "	92,336
19. Macalelon	5th "	16,215
20. Mauban	5th "	32,653
21. Malansay	5th "	28,011
22. Padre Burgos	5th "	13,016
23. Pagbaleo	4th "	29,304
24. Panukan	6th "	7,657
25. Patnungan	6th "	6,371
26. Perez	6th "	6,464
27. Pitogo	5th "	14,840
28. Plaridel	6th "	6,051
29. Polilio	5th "	20,058
30. Quezon	5th "	10,465
31. Real	5th "	13,231
32. Sampaloc	5th "	8,874
33. San Andres	6th "	15,956
34. San Antonio	5th "	16,204
35. San Francisco	5th "	25,183
36. Sariaya	3rd "	66,847
37. San Narciso	5th "	24,556
38. Tagkawayan	4th "	32,187
39. Tayabas	4th "	37,756
40. Teyong	4th "	45,245
41. Unisan	5th "	17,318

LOCATION	CLASSIFICATION	POPULATION
<u>AURORA</u>		<u>90,975</u>
1. Baler	5th Class	16,046
2. Casiguran	"	11,670
3. Dilasag	"	3,556
4. Dinalongan		3,718
5. Dingalan	6th Class	7,591
6. Dipaculao	5th Class	13,617
7. Maria Aurora	5th Class	23,252
8. San Luis	5th Class	11,515
<u>CAVITE</u>	<u>1st Class</u>	<u>628,321</u>
1. Alfonso	5th Class	20,623
2. Amadeo	"	14,471
3. Bacoor	3rd Class	62,225
4. Carmona	5th Class	51,004
5. Cavite City	2nd Class	82,456
6. Daemarillas	5th Class	22,805
7. Gen. E. Aguinaldo	6th Class	8,565
8. Gen. Trias	4th Class	34,807
9. Imus	3rd Class	48,556
10. I dang	5th Class	28,709
11. Kawit	4th Class	33,813
12. Magallanes	6th Class	9,330
13. Maragondon	5th Class	14,785
14. Mendez-Nunell	5th Class	13,844
15. Naic	4th Class	32,130
16. Noveleta	5th Class	12,141
17. Rosario	3rd Class	28,725
18. Silang	4th Class	44,809
19. Tagaytay City	4th Class	13,388

LOCATION	CLASSIFICATION	POPULATION
20. Tanza	5th Class	37,383
21. Ternate	6th Class	6,593
22. Trese Martiras City	5th Class	7,179
<u>RIZAL</u>	<u>1st Class</u>	<u>414,192</u>
1. Angono	5th Class	17,574
2. Antipolo	2nd Class	40,644
3. Baras	3rd Class	9,722
4. Binangonan	3rd Class	63,215
5. Cainta	2nd Class	36,971
6. Cardona	4th Class	21,266
7. Talejale	5th Class	9,276
8. Montalban	3rd Class	31,176
9. Morong	5th class	21,058
10. Pililla	4th Class	18,985
11. San Mateo	4th Class	38,955
12. Tanay	3rd Class	33,382
13. Taytay	2nd Class	59,274
14. Teresa	4th Class	13,394
<u>QUE. MINDORO</u>	<u>2nd Class</u>	<u>185,787</u>
1. Abra de Ilog	5th Class	10,810
2. Calintan	5th Class	10,740
3. Loco	6th Class	6,491
4. Lubang	5th Class	15,292
5. Magaysay	5th Class	13,132
6. Mamburao	5th Class	12,655
7. Palawan	5th Class	7,346
8. Rizal	5th Class	14,938
9. Sablayan	4th Class	31,117
10. San Jose	3rd Class	53,100
11. Sta. Cruz	6th Class	10,166

LOCATION	CLASSIFICATION	POPULATION
<u>ORIENTAL MINDORO</u>	<u>1st Class</u>	<u>388,744</u>
1. Baco	5th Class	15,738
2. Bansud	5th Class	20,095
3. Bongabon	5th Class	38,358
4. Bulalakao	5th Class	14,038
5. Calapan	3rd Class	55,608
6. Gloria	5th Class	22,249
7. Mansalay	5th Class	19,544
8. Naujan	4th Class	54,641
9. Pinamalayan	4th Class	42,701
10. Pola	5th Class	19,072
11. Puerto Galera	5th Class	10,129
12. Roxas	5th Class	24,273
13. San Teodoro	6th Class	7,862
14. Socorro	5th Class	20,868
15. Victoria	5th Class	23,568
<u>PALAWAN</u>	<u>1st Class</u>	<u>300,065</u>
1. Aboyan	5th Class	10,452
2. Agutaya	6th Class	4,397
3. Araceli	6th Class	5,552
4. Balabac	5th Class	11,152
5. Batarasa	5th Class	18,510
6. Brooke's Pt.	5th Class	36,967
7. Bueuanga	6th Class	6,934
8. Cagayanillo	6th Class	4,023
9. Coron	5th Class	20,828
10. Cuyo	5th Class	12,839
11. Dumaran	6th Class	7,019
12. El Nido	5th Class	8,749
13. Linapayan	6th Class	3,671
14. Mageeayay	6th Class	9,418

LOCATION	CLASSIFICATION	POPULATION
15. Narra	5th Class	25,256
16. Puerto Princesa City	2nd Class	45,709
17. Quezon	5th Class	26,481
18. Roxas	5th Class	19,976
19. San Vicente	5th Class	7,420
20. Taytay	5th Class	17,712
21. Kalayaan	New Mun.	
<u>ROMBLON</u>	<u>3rd Class</u>	<u>182,209</u>
1. Alcantara	6th Class	8,749
2. Santon	6th Class	7,545
3. Cajidiocan	5th Class	13,350
4. Concepcion	6th Class	4,997
5. Calatrava		5,682
6. Corcuera	6th Class	8,739
7. Looc	5th Class	14,864
8. Magdiwang	6th Class	7,504
9. Odiongan	5th Class	30,198
10. Romblon	5th Class	22,489
11. San Agustin	5th Class	20,829
12. San Andree	6th Class	8,964
13. San Fernando	6th Class	14,008
14. San Jose	6th Class	5,352
15. Sta. Fe	6th Class	8,939
16. Ferrol	New Mun.	





7. 一般參考資料

7-1 過去3年間(1977~1979)の台風実績

NAME OF TYPHOON	RESPECTIVE PLACES
1977 =====	
1) ATRING Jan 10 - 13	Samar, Cantanduanes, Bicol Region, Quezon Provinces and Northern Luzon
2) BINING May 26 - 27	Part of Luzon
3) KURING	Western Luzon, Mindoro, Palawan
4) DALING Jul 3 - 5	Parts of Luzon
5) ELANG Jul 16 - 19	Bicol Region, Central Luzon, rest of Luzon, Visayas, Northern and Eastern Mindanao
6) GORING Jul 20 - 26	entire Luzon
7) KULING	Gusty winds over extreme Northern Luzon
8) IBIANG Aug. 17 - 23	Metro Manila, Northern Luzon
9) LUMING Aug. 31 - Sept. 13	Northern Luzon, Central Luzon, Panay Island
10) MILING Sept. 3 - 9	Rains over Luzon and Visayas
11) NARSING	Northern Luzon, Batanes, rains over Metro Manila, some parts of Visayas.
12) ODING Sept. 14 - 23	Cagayan, Kalinga-Apayao, Abra, Ilocos Sur, rest of Luzon
13) PINING Sept. 21 - 24	Cagayan, Babuyan Island, Northern Luzon, Luzon, Visayas
14) RUBING Oct. 14 - 16	Bicol Region, Eastern Visayas, and Northern Mindanao
15) SALING Oct. 16 - 19	Bicol Region, Central Visayas, Northern & Eastern Mindanao
16) TASING Nov. 3 - 5	Bicol Region, Visayas, Northern Mindanao
17) UNding Nov. 10 - 17	Bicol, Quezon, Metro Manila, Pangasinan, Zambales, Southern Tagalog, rest of Central Luzon, Eastern Visayas and Northern Luzon

NAME OF TYPHOON	RESPECTIVE PLACES
( 1977 Cont'n)	
18) WALDING Dec. 2 - 6	Samar, Bicol Region, rest of Luzon, Metro Manila and Visayas, Northern Mindanao
19) YEYENG Dec. 31 - Jan 4	Surigao, Samar, Leyte, Northern Mindoro, Bicol Region

NAME OF TYPHOON	RESPECTIVE PLACES
1978 =====	
1) ATANG April 18 - 27	Batanes Group Babuyan Island, Ilocos Norte, Mindoro, Eastern and Central Visayas, Luzon, Metro Manila, Visayas, Northern and Eastern Mindanao.
2) BISING Jun 16 - 18	Part of Luzon
3) KLARING Jun 21 - 25	Northern Luzon, Metro Manila
4) DELING Jun 27 - 30	Metro Manila, Bicol Region, Southern Tagalog Provinces, Visayas, and Northern Mindanao.
5) EMANG July 23 - 30	Luzon, Mindoro, Palawan
6) GADING Aug. 5 - 7	Luzon, Metro Manila
7) HELING Aug. 9 - 14	Batanes, Cagayan, Isabela, Luzon, Metro Manila, Eastern and Central Visayas, Mindoro, Palawan, Eastern Mindoro
8) ILIANG Aug. 14 - 15	Northern Luzon
9) LOLENG Aug. 15 - 17	Metro Manila, Northern and Western Province of Central Luzon, Southern Tagalog Provinces, Mindoro and Palawan
10) MIDING Aug. 20 - 26	Batanes, Northern Luzon, Central Luzon, Metro Manila, rest of Luzon, Mindoro and Palawan
11) NORSING Aug. 28 - 31	Luzon
12) OYANG Aug. 29 - 30	Luzon
13) PASING Sept. 9 - 10	Central Luzon, Metro Manila, Northern Luzon and Southern Tagalog Provinces.
14) RUPING Sept. 10 - 12	Extreme Northern Luzon Pangasinan, Zambales
15) TERING Sept. 21 - 22	Luzon, Mindoro, Palawan, and Eastern Visayas

NAME OF TYPHOON	
(1978 Cont'n)	
16) UDING Sept. 22 - 23	Luzon, Mindoro, Palawan
17) WELING Sept. 24 - 28	Metro Manila, Bicol Region, Southern Tagalog Provinces, Quezon, Mindoro, Isabela, Quirino, Central Luzon, Palawan, Romblon, Masbate, Eastern Visayas, Mindanao
18) YANING Oct. 7 - 14	Bicol Region, Central Luzon, Quirino, Banguet, La Union, Nueva Vizcaya, Metro Manila, Southern Tagalog and the rest of Northern Luzon. Rest of Luzon and Visayas.
19) ANING Oct. 10 - 13	Batanes Group and Cagayan, Metro Manila, Central Luzon, Southern Tagalog, Northern Luzon and Western Visayas.
20) BIDANG Oct. 15 - 19	Metro Manila, Central Luzon, Bicol Region, Southern Tagalog, Isabela, Cagayan and Samar
21) KADING Oct. 25 - 27	Metro Manila, Southern and Central Luzon, Bicol, Mindoro, Masbate and Eastern Samar, Nueva Vizcaya, Samar, Northern Cebu, Leyte, Northern Luzon, Rest of Visayas.
22) DELANG Nov. 16 - 20	North and Eastern Luzon, Bicol Region, and Eastern Visayas
23) ESANG Nov. 20 - 24	Northern and Eastern Luzon, Bicol Region, and Eastern Visayas
24) GARDING Dec. 12 - 13 - 15	Central Luzon and Western Visayas

NAME OF TYPHOON	RESPECTIVE PLACES
<u>1979</u>	
1) AURING March 22 - 23	Recurved to the Northeast upon entering the Phil. Area of Responsibility (PAR)
2) BEBENG April 12 - 20	Crossed Tacloban, Leyte thru Masbate and Romblon then recurved passing over Southern Quezon and Camarines Norte, Surigao del Sur, and Norte, Agusan del Norte, Leyte, Samar, Masbate, Mindoro, Marinduque and Batangas. PSS#2 - Bohol, Agusan del Sur, Cebu, Davao, Misamis Oriental, Northern portion of Negros Occidental, Panay Island, Cuyo Island, Calamian Group, Metro Manila, Southern Tagalog Provinces, Aurora-Sub Province, PSS#1 Quirino, Davao del Sur and Norte, rest of Visayas, Bukidnon, Lanao, Prov. Misamis Occidental Zamboanga del Norte, Camiguin, Rest of Central Luzon, Isabela, and Cagayan.
3) KARING May 10 -16	Passed over Surigao del Norte, Bohol, South Cebu, Central Negros, Northern Palawan, then recurved crossing Southern Tagalog Prov., and Central Quezon, W. Luzon, Metro Manila, Central & Northern Luzon, Camarines Norte, Southern Tagalog Provinces, Visayas and Northern Mindanao.
4) DIDING May 23 - 24	Did not cross the country but intensified the South West Monsoon that brought rains and thunderstorm over Luzon.
5) ETANG June 30 - July 5	Cagayan then moved out to China Sea then PSS#3-Batanes, Ilocos Norte and Sur, Abra, Mt. Province, Kalinga-Apayao and Cagayan, PSS#2-rest of Northern Luzon, Nueva Ecija, Quezon Province, Pangasinan, Zambales, Tarlac, and Bicol Region. PSS#1 rest of Luzon, Metro Manila, Visayas
6) GENING July 5 - 9	Batanes-Cagayan Area, Isabela, Aurora, Quezon and Bicol Region
7) HERMING July 25 - 29	Crossed Batanes, rest of Luzon, Visayas, Batanes Group, Rest of Northern Luzon, Metro Manila, Western Province of Luzon
8) ISING July 29 - Aug. 2	Batanes, Luzon, Visayas, Cagayan, Ilocos Norte, Kalinga-Apayao, Abra, Isabela, rest of Northern Luzon, Eastern and Central Luzon, Metro Manila, Southern Tagalog Provinces, Mindoro, Romblon and Marinduque.
9) LUDING Aug. 3 - 6	Bicol Region, Batanes, Luzon, Visayas and Northern and Eastern Luzon
10) MAMENG	Luzon, Visayas, Metro Manila, Central Luzon, Batanes, Cagayan, Ilocos Norte and Northern portion of Kalinga-Apayao, rest of Northern Luzon, rest of Luzon Mindoro.

NAME OF TYPHOON	RESPECTIVE PLACES
11) NENENG Aug. 19 - 23	Occasionally rainshower, gusty winds Western Section of Northern Luzon, Batanes, Rest of Northern Luzon
12) ONTIANG Sept. 1 - 2	Crossed Northern Eastern boundary of PAR
13) PEPANG Sept. 16	Catanduanes, Camarines Sur, Southern Quezon, Batangas, Cavite, PSS#3 - Catanduanes, Camarine, Quezon and Aurora Prov. PSS#2 - Bataan, Bulacan, Zambales, Northern Pangasinan, Mindoro, Romblon, Pampanga, rest of Bicol Region, Isabela, Laguna, Eastern Section of Nueva Ecija, Rizal, Marinduque, Batangas, Cavite and Metro Manila PSS#1 - rest of Luzon, Masbate, Northern Samar, Northern Panay, and Northern Palawan.
14) ROSING Sept. 23 - 27	no effect
15) SISANG Oct. 1 - 4	Manila, Cavite, Quezon, Aurora
16) TRINING Oct. 3 - 5	Gusty winds Luzon, Visayas, Metro Manila, Rest of Luzon, Visayas.
17) URING Oct. 5 - 11	Western Manila Metro Manila, rest of Luzon and Visayas
18) WARLING Oct. 13 - 16	Batanes, Cagayan, Isabela, Abra, Kalinga-Apayao and Ilocos Norte, rest of Luzon, Metro Manila, and Visayas.
19) YAYANG Nov. 4 - 7	Metro Manila, Cavite, Central Luzon, rest of Quezon, Aurora, Northern Luzon, Samar, Bicol Region, Masbate, Mindoro, Marinduque, Southern Tagalog Provinces, Capiz, Aklan, Northern Panay, Northern Cebu, and Northern Leyte, Northern Mindanao, Southern Panay, rest of Visayas, rest of Cebu and Leyte
20) ADING Nov. 8 - 11	Batanes, Cagayan, Isabela, Samar, Bicol, rest of Luzon
21) BARANG Dec. 9 - 13	Eastern Mindanao, Eastern Visayas, Eastern Luzon and Central Visayas.
22) KRISING Dec. 21 - 24	West Pangasinan, La Union, Benquet, Ilocos Provinces, Masbate, Northern Panay, Romblon, Mindoro, Northern Palawan and Calamina Quezon, Southern Tagalog Provinces, Visayas, rest of Northern Luzon, Pangasinan, Tarlac, Pampanga, and Nueva-Ecija

## 7-2 離島への交通

### ○ ミンドロ島

空路 マニラ → サンホセ (火木を除く毎日) 往復 412 ペソ

5:55 6:35

マニラ → マンブラオ (毎日) 往復 266 ペソ

12:20 13:10

海路 バタンガス → カラパン (毎日) 片道 9.25 ペソ

8:00 10:00

9:00 11:00

12:00 15:00

15:00 17:00

22:00 24:00

カラパン → バタンガス

8:00 10:00

10:00 12:00

12:00 15:00

16:00 18:00

21:00 23:00

プコルトガレラ → バタンガス (毎日) 片道 7.5 ペソ

07:00 10:00

15:00 18:00

### ○ タブラス (ホテルはオデイオンガンにしかない)

空路 マニラ → タブラス 往復 360 ペソ

9:55 11:00 (月, 水, 金)

12:40 13:45 (木)

### ○ ロンブロン (ホテルはロンブロンにある)

タブラスからサンオーガスチンまで船が出ている。

### ○ マリンドゥケ

空路 マニラ → マリンドゥケ (火, 木を除く毎日) 往復 272 ペソ

9:40 10:20

### ○ パラワン島

空路 マニラ → プエルトプリンセサ 往復 808 ペソ

6:45 7:55 (火, 水, 土)

11:50 13:00 (毎日)



7-3 マニラのハイヤー代

JICA事務所がアッセンするSuburban Car Rental Service (Tel. 86-75-81 / 87-38-85) の料金は次のとおり

○メトロマニラ市内	最初の5時間(基本料)	250 ペソ
	超過1時間につき	40 ペソ
○メトロマニラ市外	最初の6時間(基本料)	500 ペソ
	超過1時間につき	55 ペソ

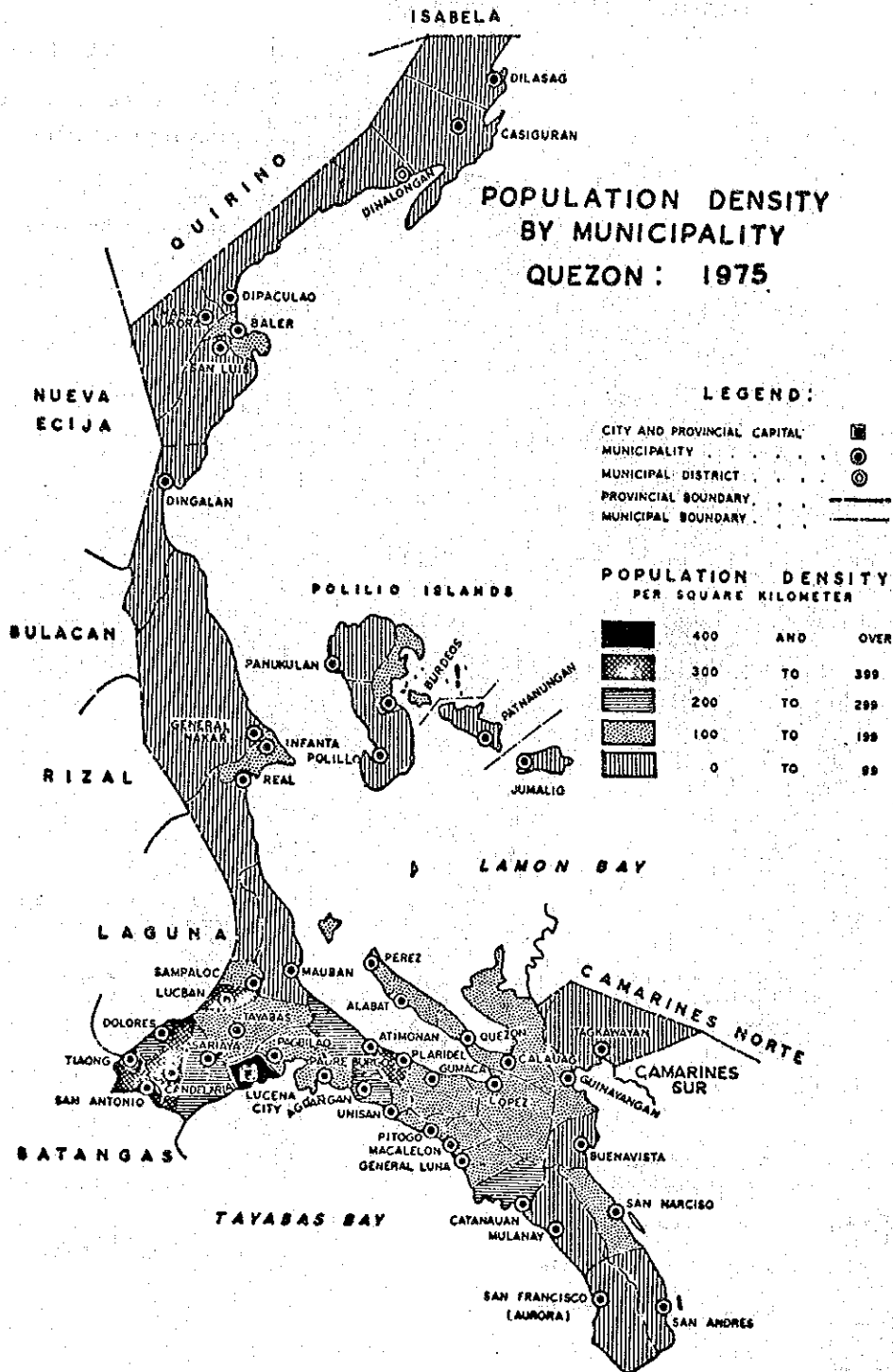
## 7-4 BUTEL 所有の調査用機材

SURVEY EQUIPMENT & MATERIALS TO BE SUPPLIED

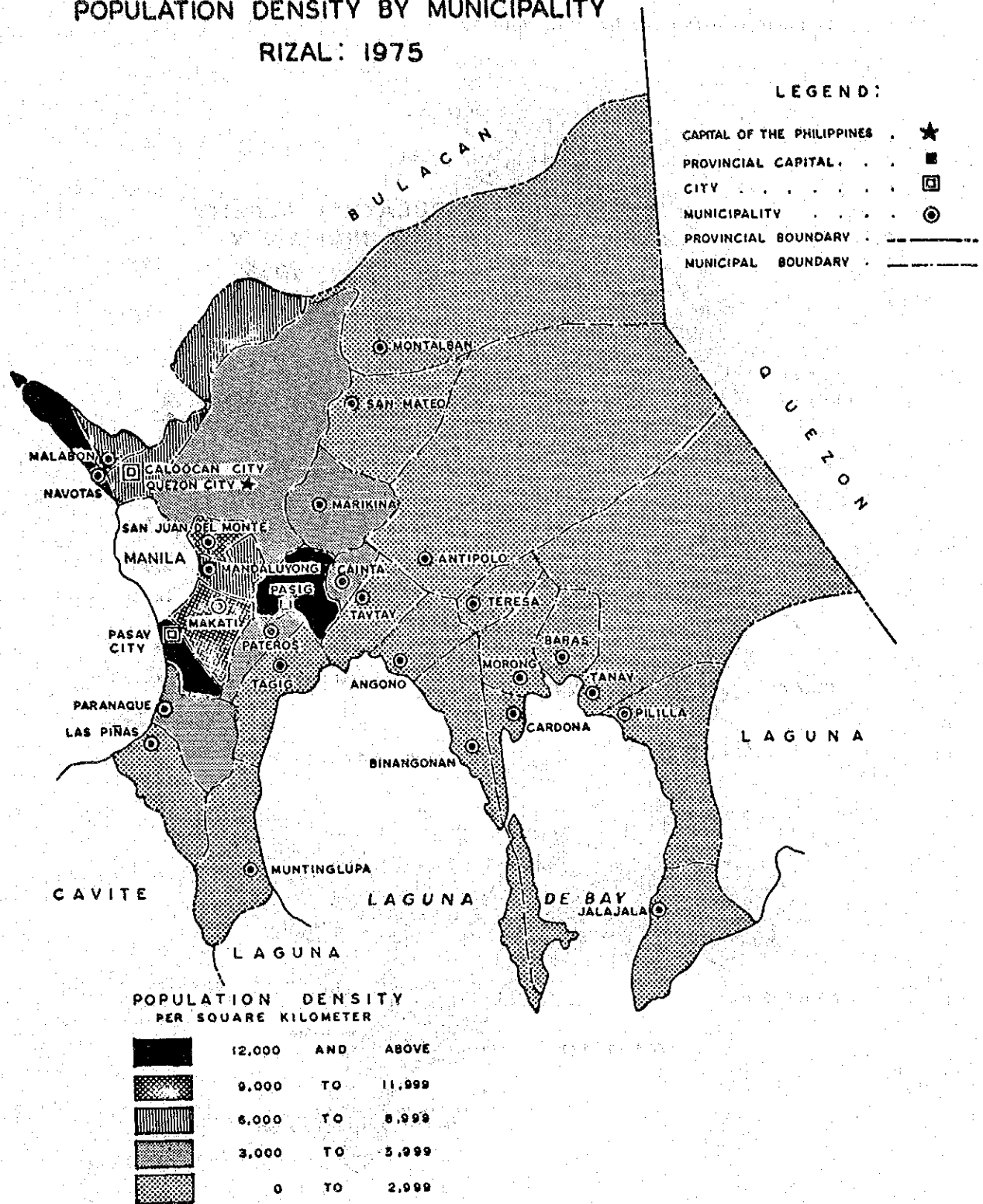
<u>No.</u>	<u>Description</u>	<u>Unit Price</u> (CIF, Manila)	<u>Q'ty</u> (set)	<u>Amount</u>
1-2	ML512A Field Strength Meter (25 to 500 MHz)	¥1,438,000	2	¥2,876,000
1-b	MZ 18A Doublet Antenna	138,000	2	276,000
1-c	MB 9A Tripod	57,500	2	115,000
1-d	MZ 15A DC Power Supply	92,000	2	184,000
1-e	MP 520 ( ) CM Directional Coupler	46,000	2	92,000
1-f	Coaxial Adapter for MP520 ( )	9,800	2	19,600
1-g	MG 523B Standard Signal Generator	713,000	2	1,426,000
1-h	MP 614A 50 $\Omega$ 75 $\Omega$ Impedance Transformer	23,000	2	46,000
1-i	MP 612A RF Fuse Holder with MP 613A Fuse	16,000	2	32,000
2-a	ML 56A Field Strength Meter (470 to 900 MHz)	748,000	2	1,496,000
2-b	MZ 5A AC Power Supply	34,500	2	69,000
2-c	MP 511A Doublet Antenna with Tripod	92,000	2	184,000
2-d	MP 520D CM Directional Coupler	46,000	2	92,000
3-a	TR-3200 Transceiver	60,000	4	240,000
3-b	VB-3200 Power Amplifier	37,000	4	148,000
3-c	PB-20 Battery Pack	26,000	4	104,000
3-d	PB-15 Battery Pack	6,800	4	27,200
3-e	BC-1 Charger	1,700	4	6,800
3-f	3-element Yagi Antenna (GY-73P)	9,000	4	36,000

<u>No.</u>	<u>Description</u>	<u>Unit Price</u> (CIF, Manila)	<u>Q'ty</u> (set)	<u>Amount</u>
3-g	Coaxial Cord (2m)	4,500	4	18,000
3-h	12-element Yagi Antenna (435UF12)	¥ 10,000	4	¥ 40,000
3-i	Coaxial Cord (10m)	6,500	4	26,000
3-j	Aluminum Pole (10m)	104,000	4	416,000
4	NT-2A Theodolite with Tripod	438,000	4	1,752,000
5-a	MM-1 Micro Altimeter	546,000	2	1,092,000
5-b	Pocketable Altimeter (3D-21)	45,500	4	182,000
6	Brunton's Pocket Compass	22,000	4	88,000
7	Binoculars (Nikon 8 x 30E)	33,000	4	132,000
8	A 35 Canon Datelux Camera	32,000	4	128,000
9-a	SX-70 ALPHA Polaroid Camera	58,000	4	232,000
9-b	Film for Polaroid Camera (10 sheets)	2,600	10	26,000
	Total			¥11,601,600

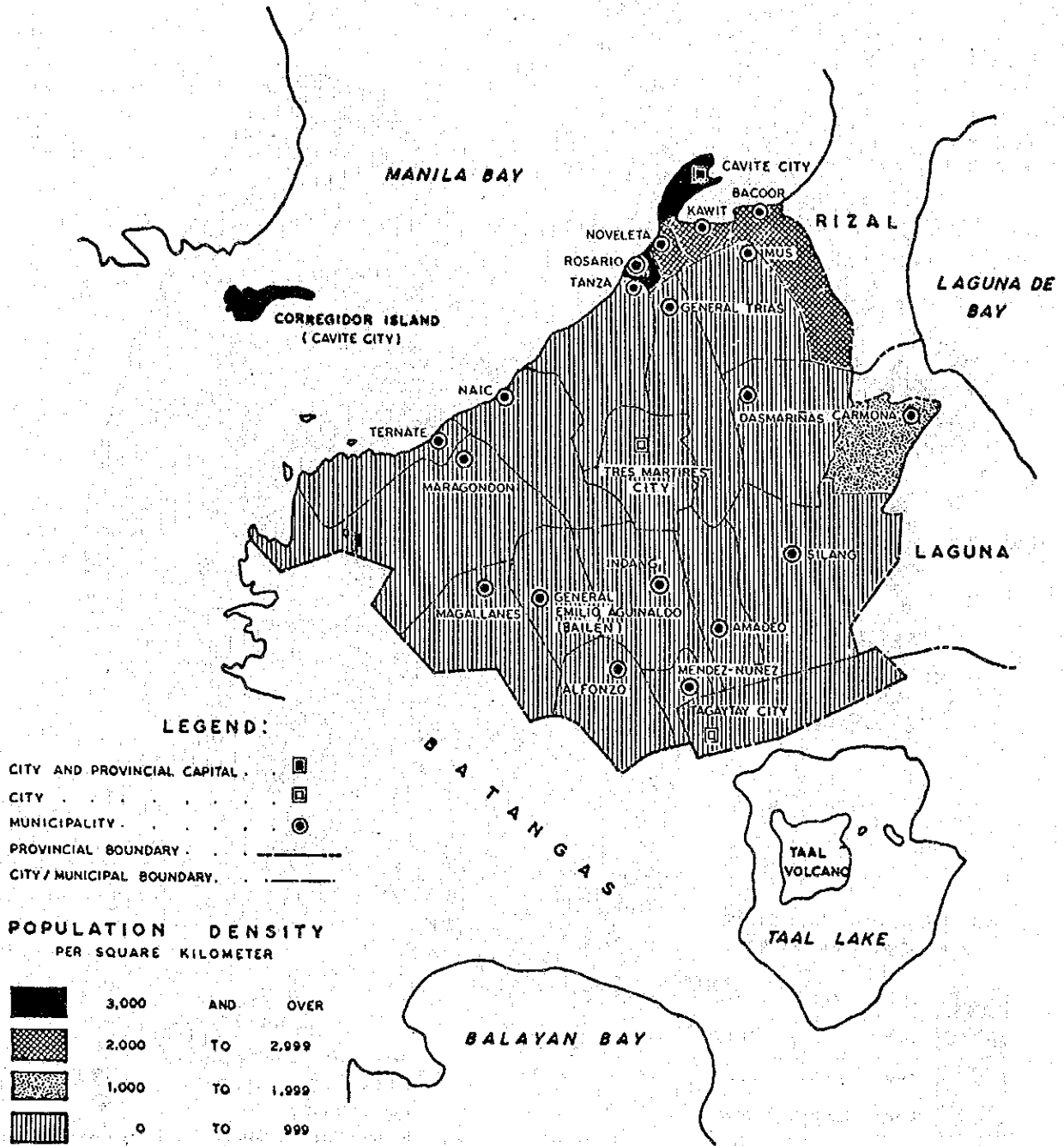
8. Population Density by Municipality



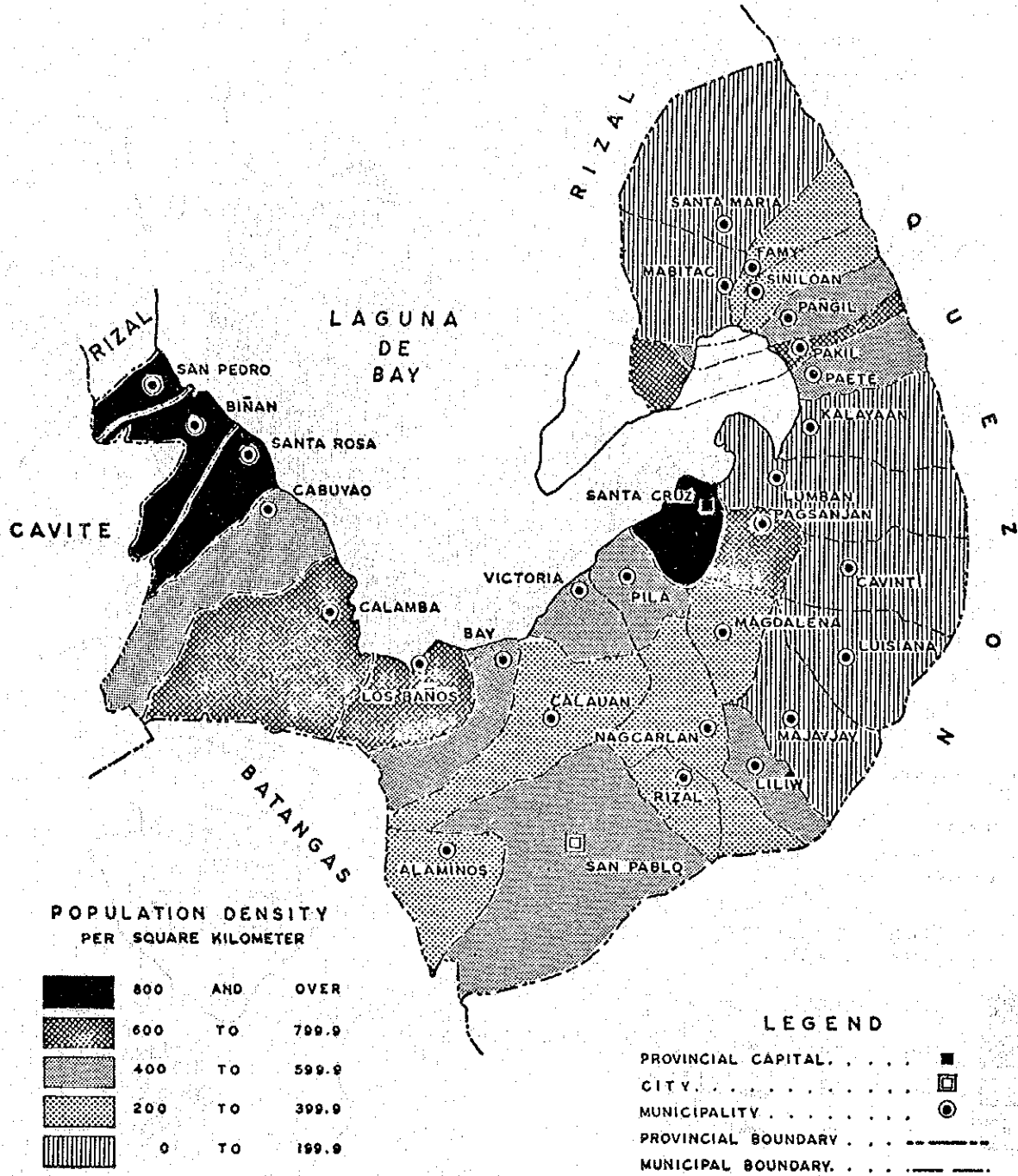
# POPULATION DENSITY BY MUNICIPALITY RIZAL: 1975



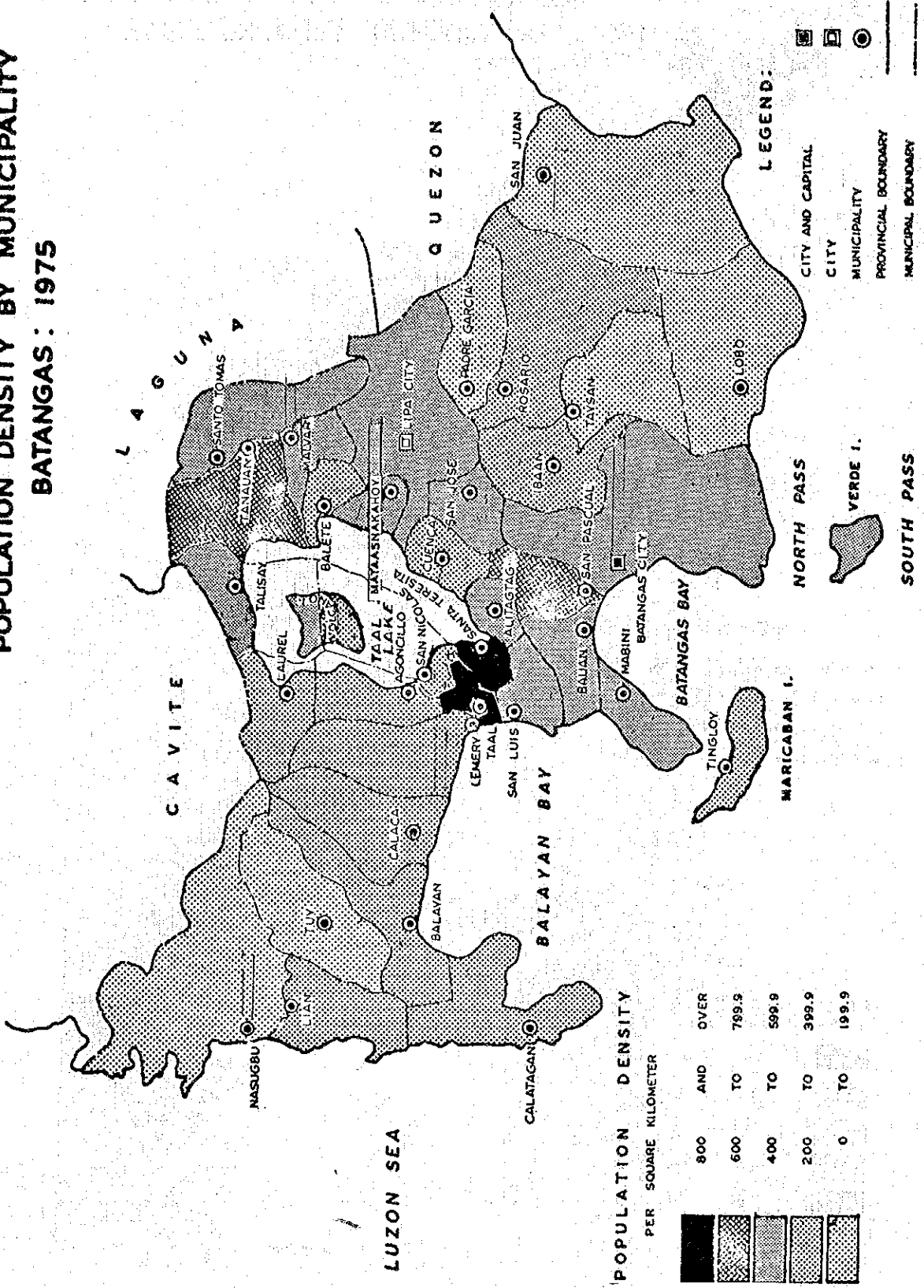
# POPULATION DENSITY BY MUNICIPALITY CAVITE: 1975



# POPULATION DENSITY BY MUNICIPALITY LAGUNA DE BAY : 1975

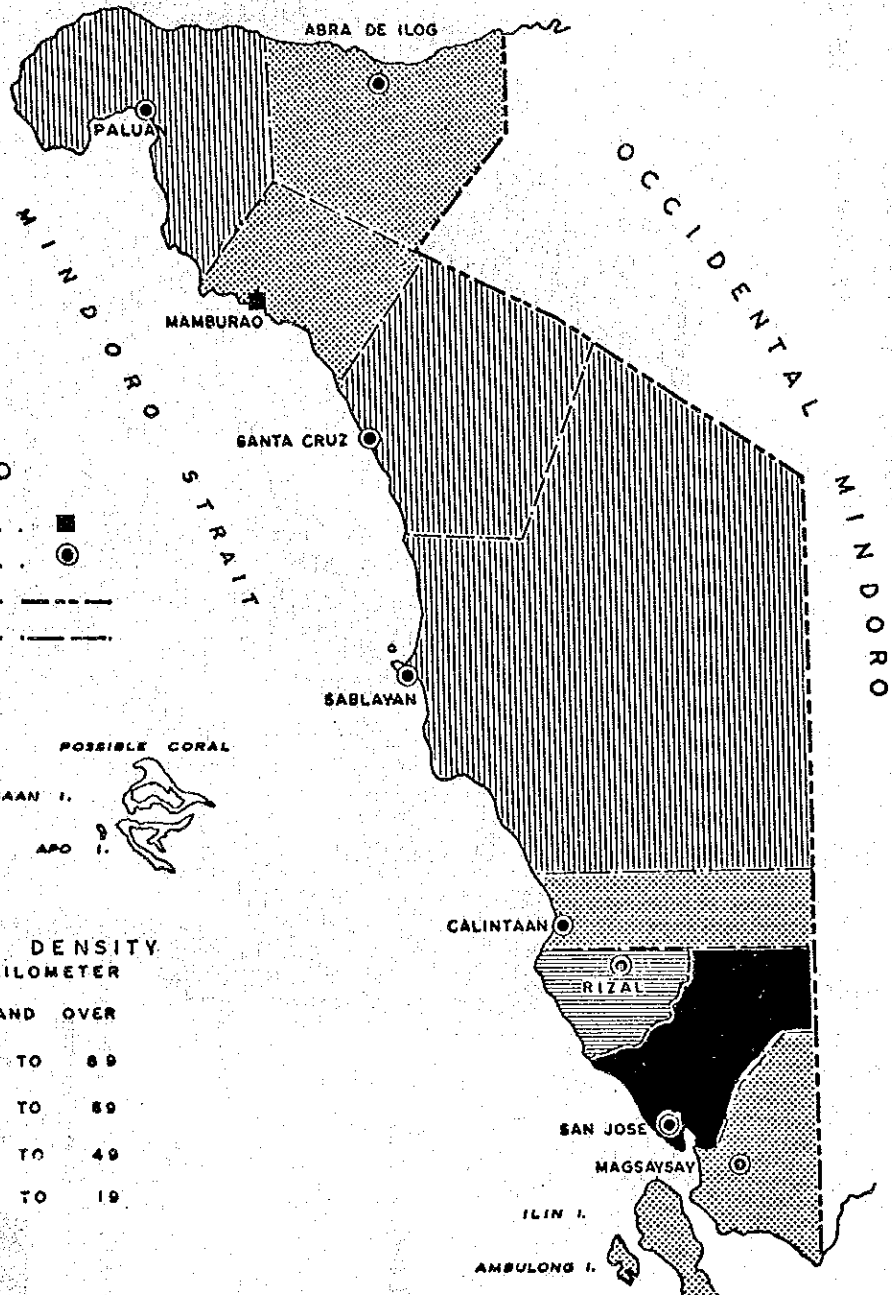
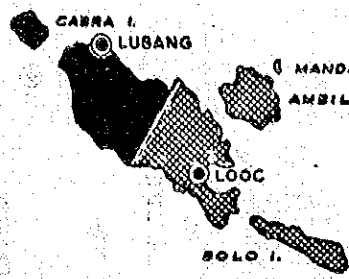


# POPULATION DENSITY BY MUNICIPALITY BATANGAS: 1975





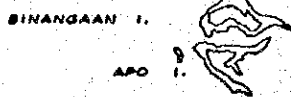
# POPULATION DENSITY BY MUNICIPALITY OCCIDENTAL MINDORO : 1975



## LEGEND

- PROVINCIAL CAPITAL . . . ■
- MUNICIPALITY . . . ●
- PROVINCIAL BOUNDARY . . . - - -
- MUNICIPAL BOUNDARY . . . - - -

POSSIBLE CORAL



## POPULATION DENSITY PER SQUARE KILOMETER

	90	AND OVER
	70	TO 89
	50	TO 69
	20	TO 49
	0	TO 19