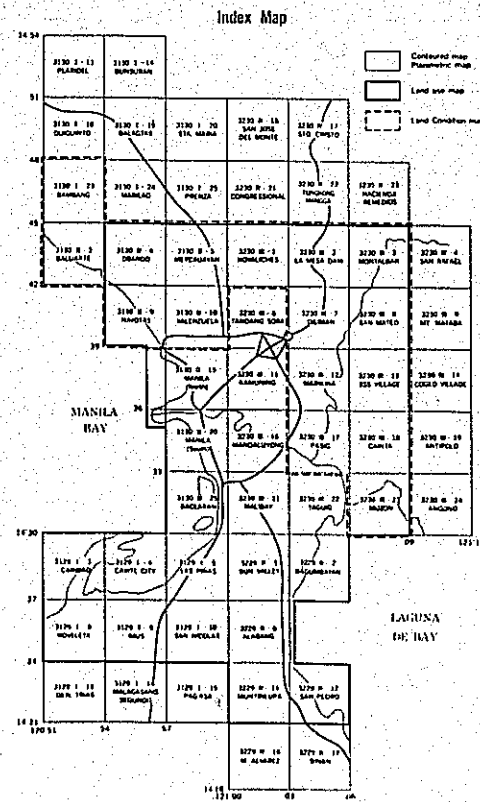


**METRO MANILA LAND USE MAP**  
SCALE 1 : 10,000

**INFORMATION AND USAGE OF  
THE LAND USE MAP**



**REPUBLIC OF THE PHILIPPINES**

**1. Background**

To cope with many urban problems prevailing in the National Capital Region, the Philippine Government requested the Japanese Government in March 1984 for technical cooperation in the preparation of urban base maps, which represent the existing conditions of the Region in detail, as basic materials for the implementation of various public works as well as the establishment of diverse plans concerning disaster prevention, land use, urban redevelopment, etc.

In response to the request for technical cooperation, the Japanese Government sent preliminary survey teams to Manila in January through March 1985 for discussions with the authorities concerned in the Philippine Government and for field survey and data collection in the Region. The Japanese Government consequently agreed on a 4-year technical cooperation program starting in 1985.

1-1 Outline of these maps is as follows:

Contoured map (Topographic map)	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Planimetric map	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Land use map	1 : 10,000	823km <sup>2</sup> (33 sheets)
Land condition map	1 : 10,000	476km <sup>2</sup> (16 sheets)

(see Index Map)

1-2 The contoured map was completed in 1987. The aerial photographs taken in 1982 were used for field identification and stereo plotting. As for the major changes after aerial photography, the results of field completion conducted in 1986 and the interpretation of the aerial photographs taken in the same year were integrated.

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**2. Utilization of Land Use Map**

This land use map is prepared using the 1:10,000 contoured map as the base on which the existing land use patterns are printed in 7 colors.

It is possible to recognize the existing land use together with various features (roads, railways, buildings, contour lines, coastal lines, annotations and others) shown on the base map.

It is expected that this land use map will be utilized as follows:

- 2-1 Administrative organizations can use this map for planning the re-development of built-up areas, development of suburban areas, improvement of transportation systems, housing development, disaster prevention, etc.
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- 2-4 It can be more effectively used, together with the land condition map, for verifying the suitability of the present land use as well as for planning of the proper land development.

**3. Classification of Land Use**

The land use is classified into the following three major categories:

- Built-up Area,
- Agricultural Land and Forest
- Others

These are then divided into 33 sub-classifications.

- 3-1 The category "Built-up Area" is classified into Residential, Commercial and Business, Industrial, Public and Government, Facilities, etc. on the basis of the main usage of the buildings.
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- 3-3 The category "Others" consists of "Water Related" and "Open Space" and the "Water Related" includes Marine Pond, Salt Bed and Water-related Vegetation.

**4. Land Use Survey**

- 4-1 The classification of land use patterns was mainly carried out by the interpretation of the aerial photographs taken in 1982 and by field identification conducted in 1985.
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**5. Criteria for Representation on the Land Use Map**

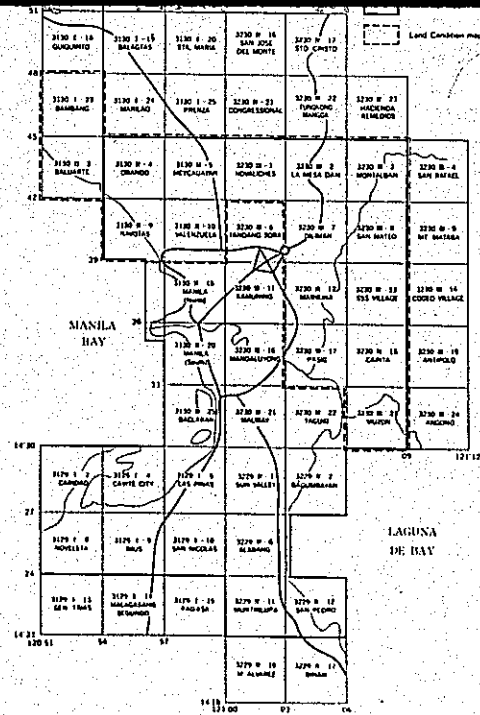
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  - Commercial and Residential,
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- 5-6 The land use boundaries are represented by red colored lines. In case these boundary lines coincide with roads, railways, rivers, etc., the latter prevail.

5-7 Printing was conducted with 7 color separation plates (red, orange, blue, yellow, green, brown and black) and their combinations to make the land use patterns easily identifiable.

Residential (Multi-story Housing, Residential, Temporary Housing, Mixed Commercial-Residential),	Red
Land Use Boundary:	Red
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Industrial (Large-scale Industrial, Small-scale Industrial, Mixed Industrial-Residential):	Blue-red
Mixed (Mixed Business-Commercial, Mixed Business-Residential):	Red-orange
Public and Government (Government and Quasi-public) and Facilities (Transportation, Service, Sports and Athletics):	Brown
Public and Government (Health and Welfare, Religious and Cemetery, Park and Recreational), Forest:	Green
Agricultural Land:	Yellow-brown
Water Related:	Blue
Base Map and Annotation:	Black

## INFORMATION AND USAGE OF THE LAND USE MAP



### REPUBLIC OF THE PHILIPPINES

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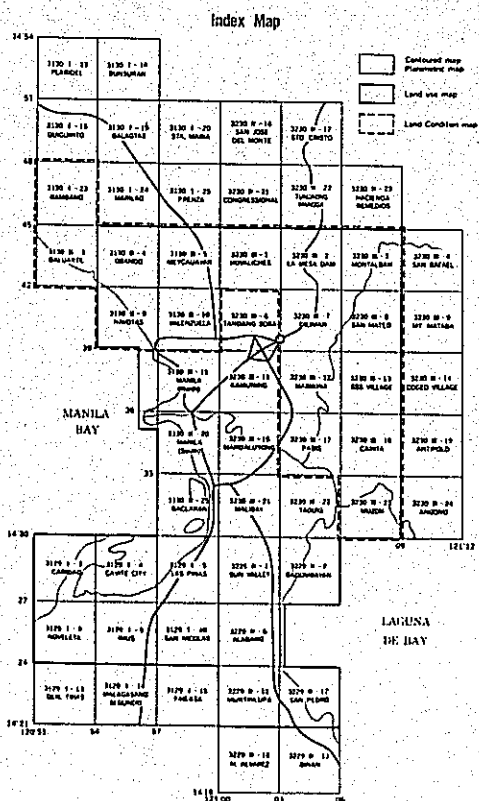




METRO MANILA LAND USE MAP  
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INFORMATION AND USAGE OF  
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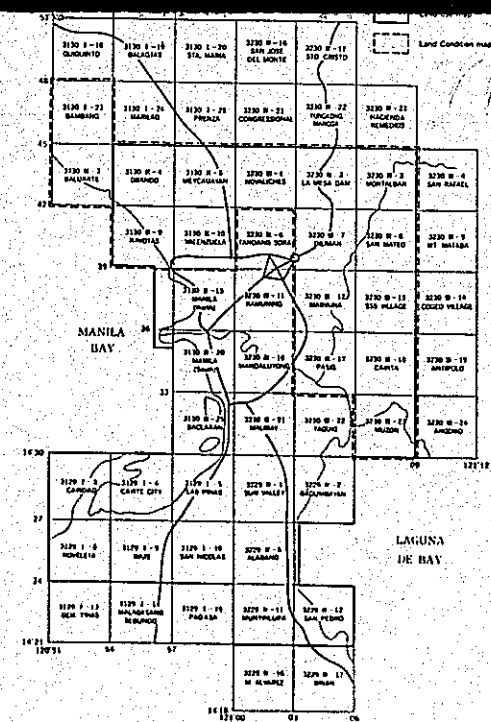
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## INFORMATION AND USAGE OF THE LAND USE MAP

### REPUBLIC OF THE PHILIPPINES

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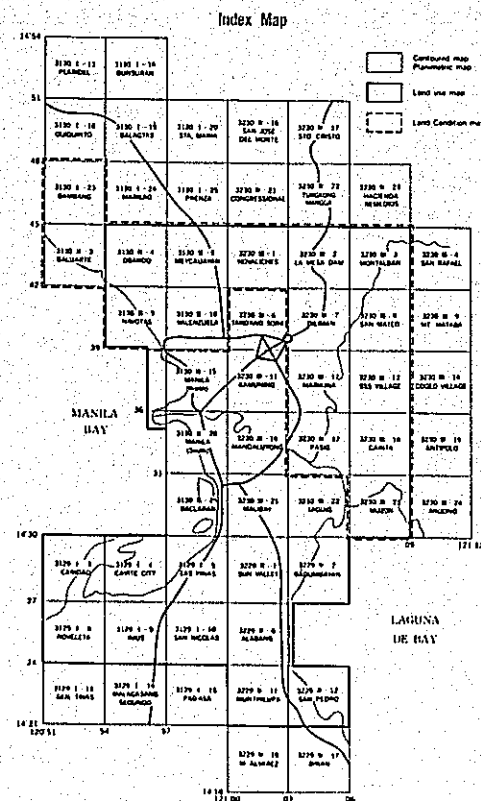








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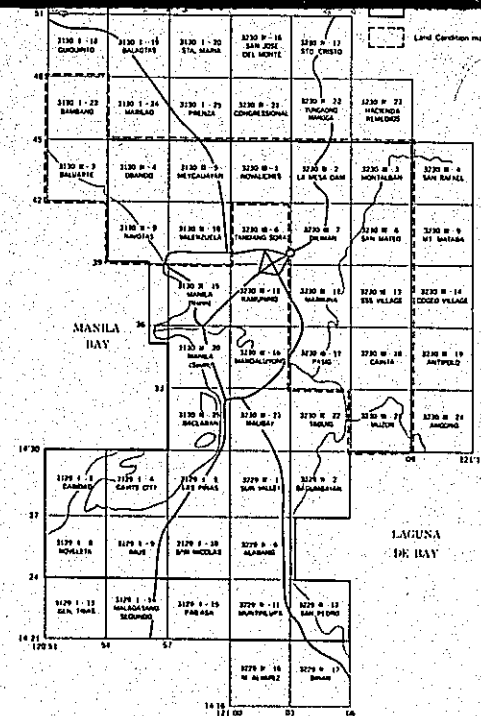
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## INFORMATION AND USAGE OF THE LAND USE MAP

### REPUBLIC OF THE PHILIPPINES

#### 1. Background

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This land use map is prepared using the 1:10,000 contoured map as the base on which the existing land use patterns are printed in 7 colors.

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It is expected that this land use map will be utilized as follows:

- 2-1 Administrative organizations can use this map for planning the re-development of built-up areas, development of suburban areas, improvement of transportation systems, housing development, disaster prevention, etc.
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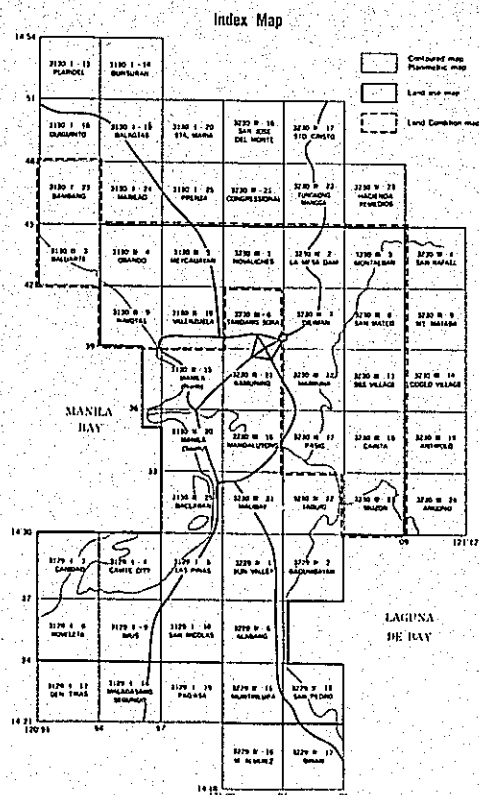
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METRO MANILA LAND USE MAP  
SCALE 1 : 10,000



INFORMATION AND USAGE OF  
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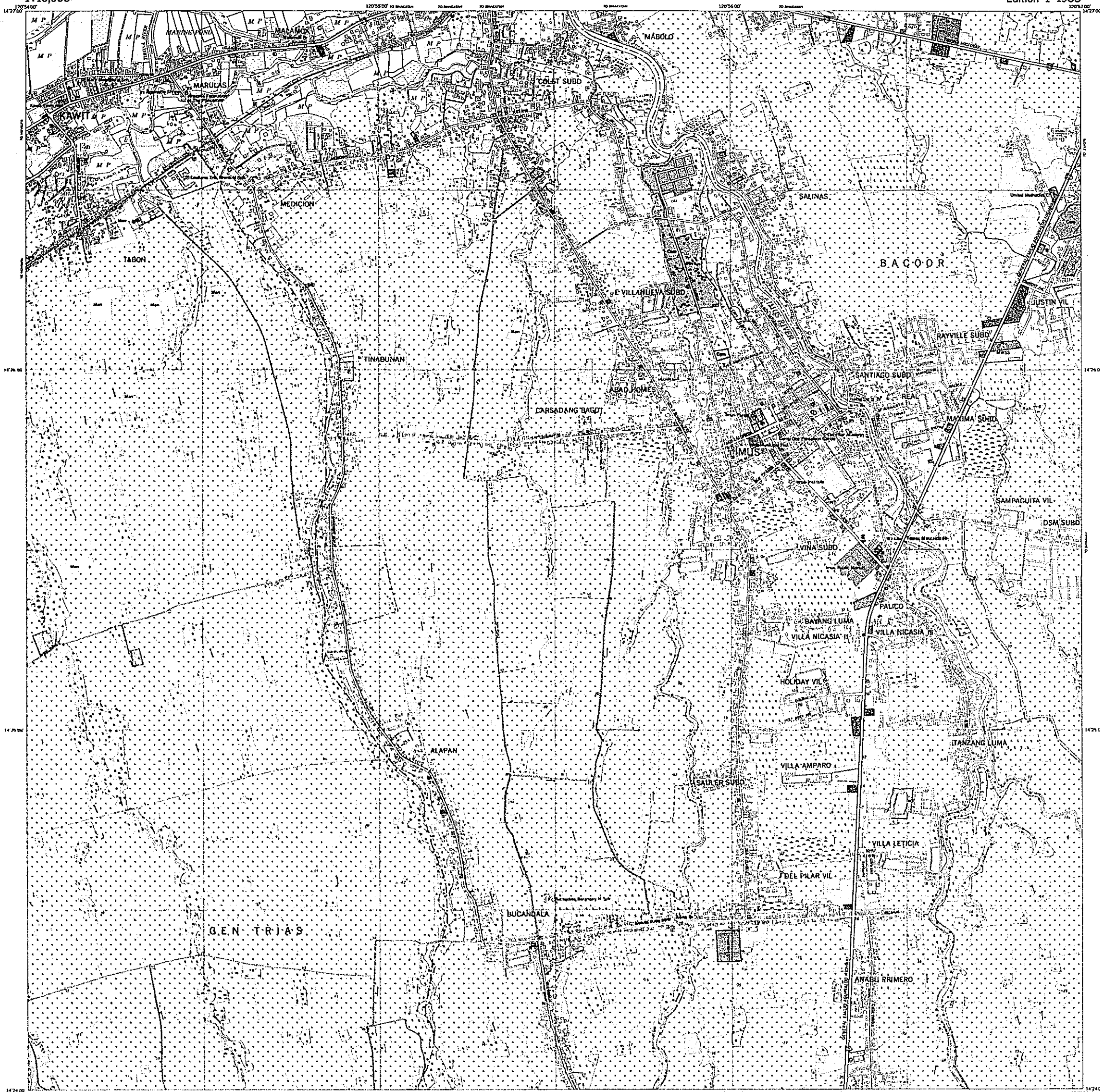
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LEGEND			
<b>1. BUILT-UP AREA</b>			
RESIDENTIAL	Multi-story Building	Residential and Semi-Public	Residential and Cultural
	Residential	Public and Industrial	Public and Industrial
	Temporary Housing	Public and Industrial	Public and Industrial
	Industrial	Public and Industrial	Public and Industrial
COMMERCIAL AND BUSINESS	Business	Public and Industrial	Public and Industrial
	Commercial	Public and Industrial	Public and Industrial
	Hotel/Commercial/Residential	Public and Industrial	Public and Industrial
	Hotel/Residential/Commercial	Public and Industrial	Public and Industrial
INDUSTRIAL	Light Industry	Public and Industrial	Public and Industrial
	Medium Industry	Public and Industrial	Public and Industrial
	Heavy Industry	Public and Industrial	Public and Industrial
	Public and Industrial	Public and Industrial	Public and Industrial
<b>2. AGRICULTURAL LAND AND FOREST</b>			
AGRICULTURAL LAND	Rice Paddy	Forest	Forest
	Cropland	Forest	Forest
	Plantation and Farmland	Forest	Forest
	Barren Land	Forest	Forest
<b>3. OTHERS</b>			
WATER RELATED	Water Course	Water-related Structures	Water-related Structures
	High Dam	Water-related Structures	Water-related Structures
	Low Dam	Water-related Structures	Water-related Structures
	Water Pond	Water-related Structures	Water-related Structures
<b>4. TOPOGRAPHIC FEATURES</b>			
BOUNDARY	Regional Boundary	Regional Boundary	Regional Boundary
	City and Municipal Boundary	Regional Boundary	Regional Boundary
	Fort	Regional Boundary	Regional Boundary
	Proposed Boundary	Regional Boundary	Regional Boundary
ROAD	Highway	Regional Boundary	Regional Boundary
	Expressway	Regional Boundary	Regional Boundary
	Interchange	Regional Boundary	Regional Boundary
	Overpass	Regional Boundary	Regional Boundary
TOPOGRAPHIC	Contour	Regional Boundary	Regional Boundary
	Spot Elevation	Regional Boundary	Regional Boundary
	Spot Elevation	Regional Boundary	Regional Boundary
	Spot Elevation	Regional Boundary	Regional Boundary



INDEX TO ADJOINING SHEETS		
3129 I 3	3129 I 4	3129 I 5
3129 I 8	3129 I 9	3129 I 10
3129 I 13	3129 I 14	3129 I 15

This map was produced under a cooperative arrangement between the Government of the Republic of the Philippines and the

SCALE 1:10,000  
500 400 300 200 100 0 500 1000 METERS

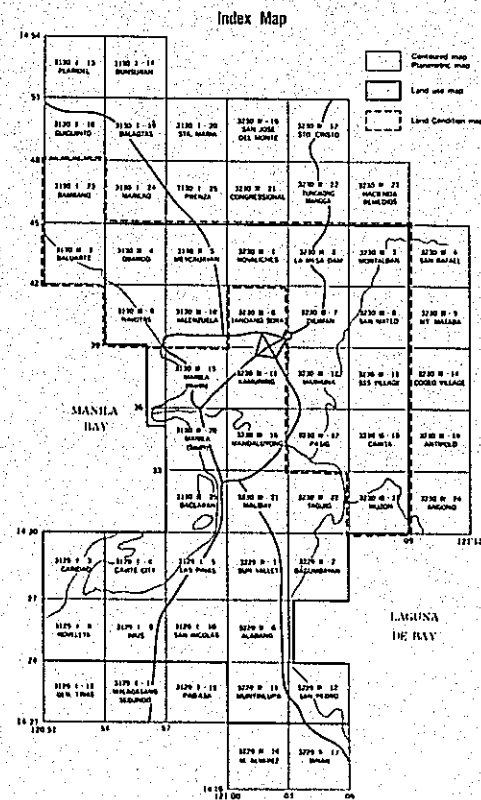




**METRO MANILA LAND USE MAP**  
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**INFORMATION AND USAGE OF  
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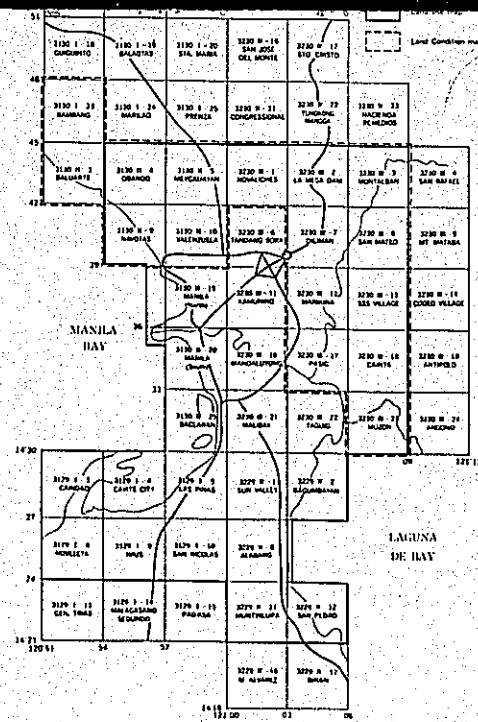
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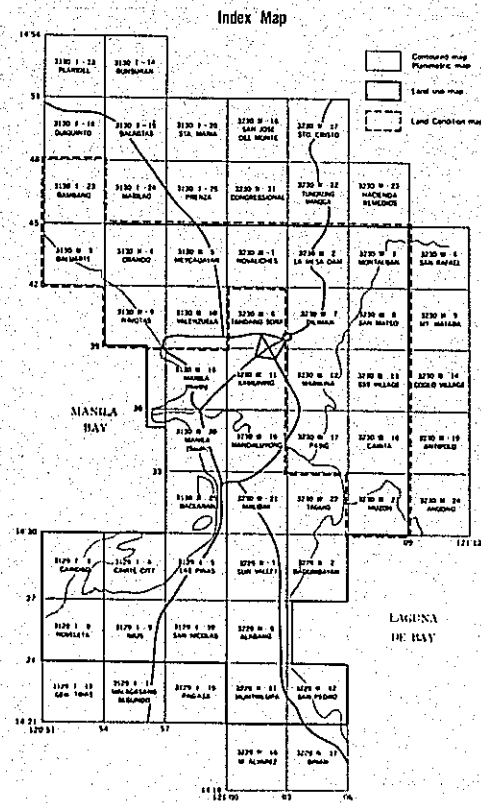




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The criteria for representing the land use classification on the 1:10,000 land use map are as follows:

- 5-1 Where buildings or facilities occupy a common compound, the land use classification is represented by the main usage of the compound.
- 5-2 The minimum area for representation in the Built-up Areas is generally 3mm×3mm on the maps. As for the Commercial and Mixed in the Built-up Areas, however, consideration is given to represent about 1.5mm×1.5mm areas on the maps because of their important functions.
- 5-3 The minimum area considered for the representation of the Military, Agricultural Land, Forest and Water Related is generally 5mm×5mm.
- 5-4 In 2-story buildings whose usages are both Residential and some other categories (Commercial, Industrial and Business), the classification is of the latter.
- 5-5 In buildings of 3-story or more whose usages are multipurpose, the classification is Mixed and falls under one of the following four categories according to the main usage of the buildings:
  - Commercial and Residential,
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**I. Background**

To cope with many urban problems prevailing in the National Capital Region, the Philippine Government requested the Japanese Government in March 1981 for technical cooperation in the preparation of urban base maps, which represent the existing conditions of the Region in detail, as basic materials for the implementation of various public works as well as the establishment of diverse plans concerning disaster prevention, land use, urban redevelopment, etc.

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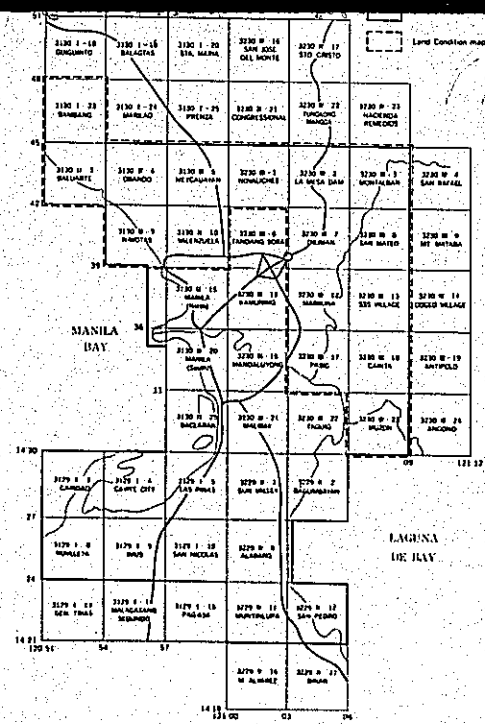
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- 5-7 Printing was conducted with 7 color separation plates (red, orange, blue, yellow, green, brown and black) and their combinations to make the land use patterns easily identifiable.

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Public and Government (Government and Quasi-public) and Facilities (Transportation, Service, Sports and Athletics):	Brown
Public and Government (Health and Welfare, Religious and Cemetery, Park and Recreational), Forest:	Green
Agricultural Land:	Yellow-brown
Water Related:	Blue
Base Map and Annotation:	Black



# INFORMATION AND USAGE OF THE LAND USE MAP

## REPUBLIC OF THE PHILIPPINES

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### 2. Utilization of Land Use Map

This land use map is prepared using the 1:10,000 contoured map as the base on which the existing land use patterns are printed in 7 colors.

It is possible to recognize the existing land use together with various features (roads, railways, buildings, contour lines, coastal lines, annotations and others) shown on the base map.

It is expected that this land use map will be utilized as follows:

- 2-1 Administrative organizations can use this map for planning the re-development of built-up areas, development of suburban areas, improvement of transportation systems, housing development, disaster prevention, etc.
- 2-2 Survey and research organizations (universities, institutes, etc.) can use it for academic researches on geography, regional planning, civil engineering, etc.
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- Agricultural Land and Forest
- Others

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### 4. Land Use Survey

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Land Use Boundary:	Red
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Mixed (Mixed Business-Commercial, Mixed Business-Residential):	Red-orange
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Agricultural Land:	Yellow-brown
Water Related:	Blue
Base Map and Annotation:	Black





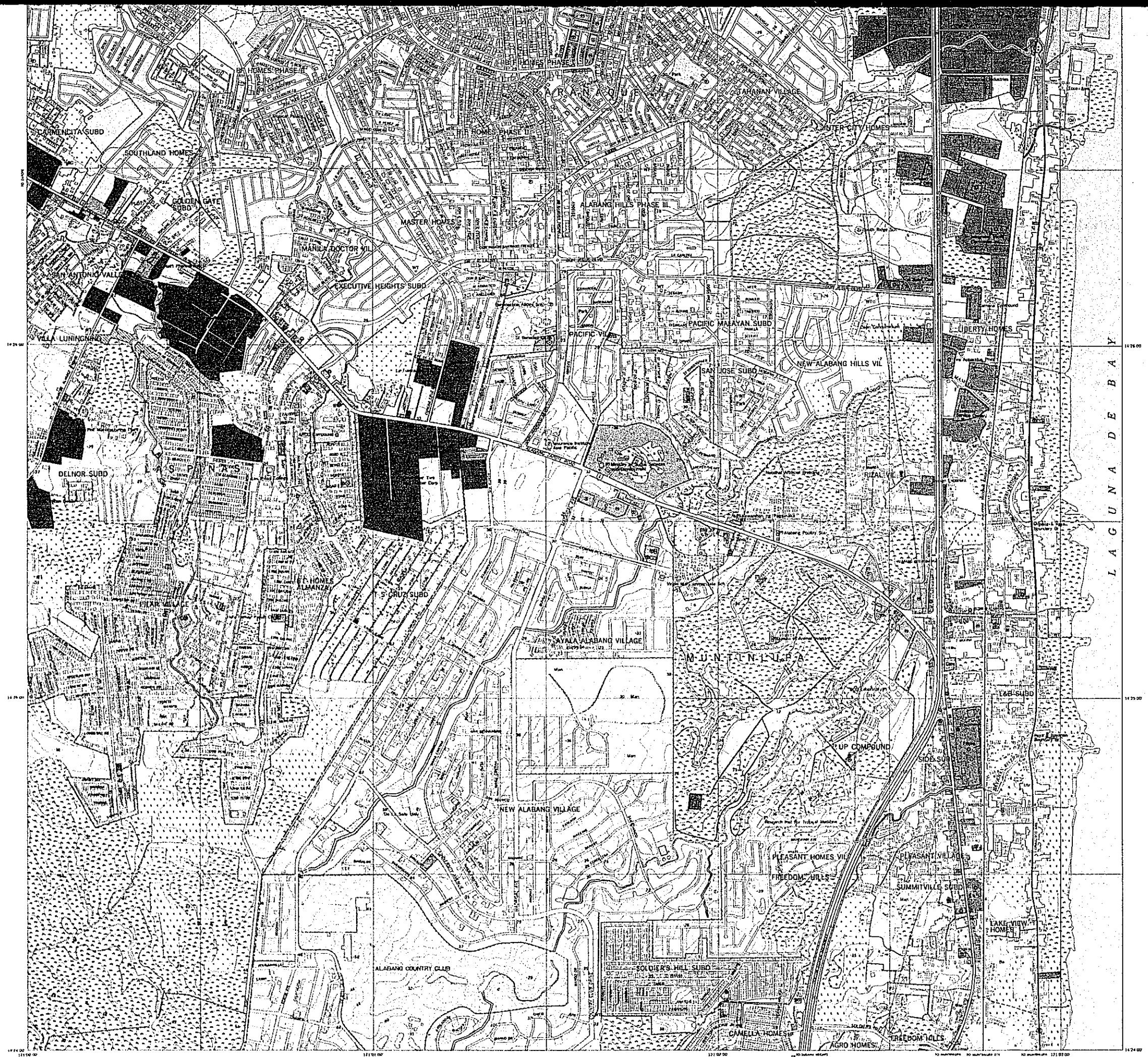
RESIDENTIAL	Multi-story Housing	Single-Family	Unimproved and Cultured
	Residential	Medium and Medium-Low	Park and Recreational
	Temporary Housing	Medium and Low	Wildlife and Country
COMMERCIAL AND BUSINESS	Business	Medium Commercial Residential	Transportation
	Commercial	Medium Business-Commercial	Service
	Medium Commercial Residential	Medium Business-Residential	Sports and Amusement
	Large-scale Industrial	Small-scale Industrial	Military
INDUSTRIAL	Medium Industrial Residential		
2. AGRICULTURAL LAND AND FOREST			
AGRICULTURAL LAND	Rice Paddy	Forest	Barren
	Orchard	Barren	Barren
	Plantation and Forest	Barren	Barren
INDUSTRIAL LAND	Barren	Barren	Barren
	Barren	Barren	Barren
3. OTHERS			
WATER WAYS	Waterway	Waterway	Waterway
	Waterway	Waterway	Waterway
WATER WAYS	Waterway	Waterway	Waterway
	Waterway	Waterway	Waterway
4. TOPOGRAPHIC FEATURES			
TOPOGRAPHIC FEATURES	Contour	Contour	Contour
	Contour	Contour	Contour
TOPOGRAPHIC FEATURES	Contour	Contour	Contour
	Contour	Contour	Contour

**BOUNDARY DIAGRAM**

Scale 1:10,000  
 1. Main Road  
 2. Sub Road  
 3. Canal

**INDEX TO NEIGHBORING SHEETS**

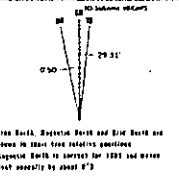
1:10,000	1:10,000	1:10,000
1:10,000	1:10,000	1:10,000
1:10,000	1:10,000	1:10,000



SCALE 1:10,000

0 100 200 300 400 500 600 700 800 900 1000 Meters

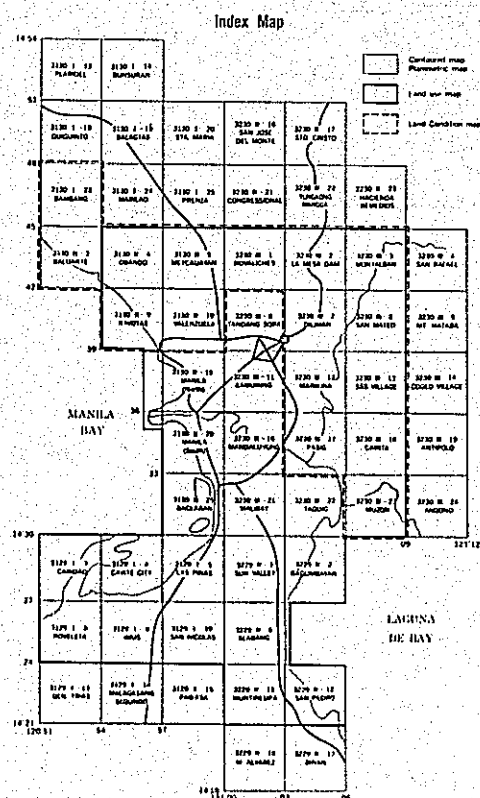
UNIVERSAL TRANSVERSE MERCATOR PROJECTION  
 ZONE 51 CLARKE SPHEROID 1866 LUZON DATUM  
 VERTICAL DATUM: MSL FOR HEIGHTS MLW FOR DEPTHS  
 CONTOUR INTERVAL 4 METERS



This map was produced under a cooperative undertaking between the Government of the Republic of the Philippines and the Government of Japan.  
 Base Map Contoured was 1:50,000 scale aerial photographs, 1982 & 1988.  
 Data contributed by PCRR & 1988 1989.  
 Data completed by RMC & 1988 1989.  
 Distributed by National Mapping and Research Information Center (NAMRIC).  
 Scale: 1:10,000. Manila, Metro Manila.  
 © COPYRIGHT 1989/90

**ALABANG**  
 Sheet No. 3229-IV-6

**METRO MANILA LAND USE MAP**  
SCALE 1 : 10,000



**INFORMATION AND USAGE OF THE LAND USE MAP**

**REPUBLIC OF THE PHILIPPINES**

**1. Background**

To cope with many urban problems prevailing in the National Capital Region, the Philippine Government requested the Japanese Government in March 1981 for technical cooperation in the preparation of urban base maps, which represent the existing conditions of the Region in detail, as basic materials for the implementation of various public works as well as the establishment of diverse plans concerning disaster prevention, land use, urban redevelopment, etc.

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This land use map is prepared using the 1:10,000 contoured map as the base on which the existing land use patterns are printed in 7 colors.

It is possible to recognize the existing land use together with various features (roads, railways, buildings, contour lines, coastal lines, annotations and others) shown on the base map.

It is expected that this land use map will be utilized as follows:

- 2-1 Administrative organizations can use this map for planning the redevelopment of built-up areas, development of suburban areas, improvement of transportation systems, housing development, disaster prevention, etc.
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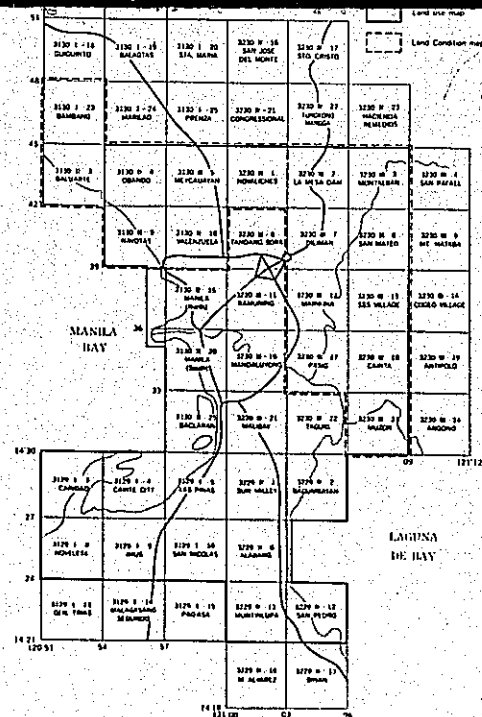
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## INFORMATION AND USAGE OF THE LAND USE MAP

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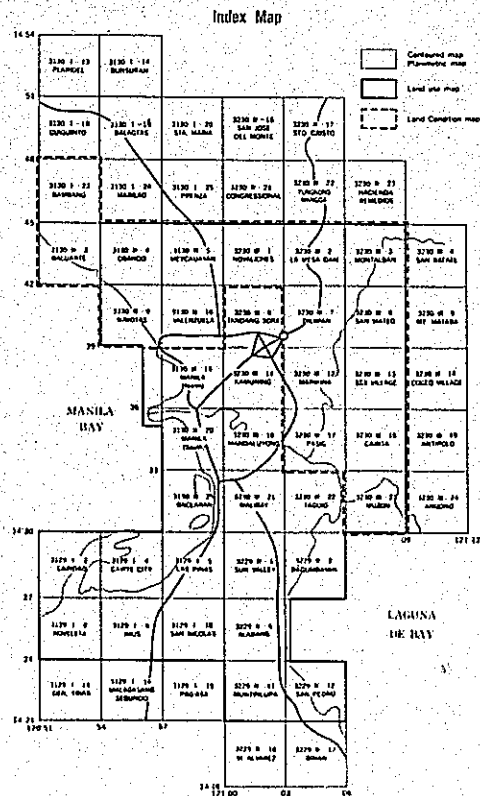








METRO MANILA LAND USE MAP  
SCALE 1 : 10,000



INFORMATION AND USAGE OF  
THE LAND USE MAP

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REPUBLIC OF THE PHILIPPINES

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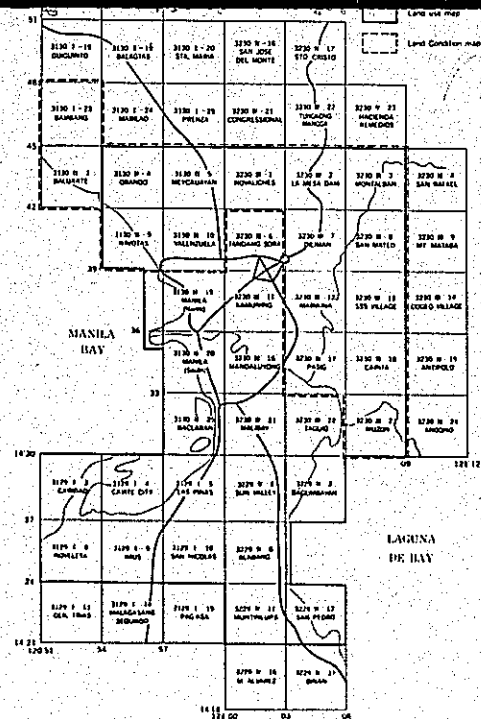
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- 5-7 Printing was conducted with 7 color separation plates (red, orange, blue, yellow, green, brown and black) and their combinations to make the land use patterns easily identifiable.

Residential (Multi-story Housing, Residential, Temporary Housing, Mixed Commercial-Residential), Land Use Boundary:	Red
Business, Commercial, Public (Educational and Cultural):	Orange
Industrial (Large-scale Industrial, Small-scale Industrial, Mixed Industrial-Residential):	Blue-red
Mixed (Mixed Business-Commercial, Mixed Business-Residential):	Red-orange
Public and Government (Government and Quasi-public) and Facilities (Transportation, Service, Sports and Athletics):	Brown
Public and Government (Health and Welfare, Religious and Cemetery, Park and Recreational), Forest:	Green
Agricultural Land:	Yellow-brown
Water Related:	Blue
Base Map and Annotation:	Black



## INFORMATION AND USAGE OF THE LAND USE MAP



- 5-1 Where buildings or facilities occupy a common compound, the land use classification is represented by the main usage of the compound.
- 5-2 The minimum area for representation in the Built-up Areas is generally 3mm×3mm on the maps. As for the Commercial and Mixed in the Built-up Areas, however, consideration is given to represent about 1.5mm×1.5mm areas on the maps because of their important functions.
- 5-3 The minimum area considered for the representation of the Military, Agricultural Land, Forest and Water Related is generally 5mm×5mm.
- 5-4 In 2-story buildings whose usages are both Residential and some other categories (Commercial, Industrial and Business), the classification is of the latter.
- 5-5 In buildings of 3-story or more whose usages are multipurpose, the classification is Mixed and falls under one of the following four categories according to the main usage of the buildings:
  - Commercial and Residential,
  - Business and Commercial,
  - Industrial and Residential,
  - Business and Residential.
- 5-6 The land use boundaries are represented by red colored lines. In case these boundary lines coincide with roads, railways, rivers, etc., the latter prevail.

## REPUBLIC OF THE PHILIPPINES

### 2. Utilization of Land Use Map

This land use map is prepared using the 1:10,000 contoured map as the base on which the existing land use patterns are printed in 7 colors.

It is possible to recognize the existing land use together with various features (roads, railways, buildings, contour lines, coastal lines, annotations and others) shown on the base map.

It is expected that this land use map will be utilized as follows:

- 2-1 Administrative organizations can use this map for planning the re-development of built-up areas, development of suburban areas, improvement of transportation systems, housing development, disaster prevention, etc.
- 2-2 Survey and research organizations (universities, institutes, etc.) can use it for academic researches on geography, regional planning, civil engineering, etc.
- 2-3 Public organizations and private enterprises can use it for the proper selection and development of sites for their activities.
- 2-4 It can be more effectively used, together with the land condition map, for verifying the suitability of the present land use as well as for planning of the proper land development.

### 3. Classification of Land Use

The land use is classified into the following three major categories:

- Built-up Area,
- Agricultural Land and Forest
- Others

These are then divided into 33 sub-classifications.

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- 4-1 The classification of land use patterns was mainly carried out by the interpretation of the aerial photographs taken in 1982 and by field identification conducted in 1985.
- 4-2 As for the major changes of land use patterns brought about after 1985, the interpretation of the aerial photographs taken in 1986 and the field completion conducted in 1987 were integrated.

#### 1. Background

To cope with many urban problems prevailing in the National Capital Region, the Philippine Government requested the Japanese Government in March 1981 for technical cooperation in the preparation of urban base maps, which represent the existing conditions of the Region in detail, as basic materials for the implementation of various public works as well as the establishment of diverse plans concerning disaster prevention, land use, urban redevelopment, etc.

In response to the request for technical cooperation, the Japanese Government sent preliminary survey teams to Manila in January through March 1985 for discussions with the authorities concerned in the Philippine Government and for field survey and data collection in the Region. The Japanese Government consequently agreed on a 4-year technical cooperation program starting in 1985.

1-1 Outline of those maps is as follows:

Contoured map (Topographic map)	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Planimetric map	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Land use map	1 : 10,000	823km <sup>2</sup> (33 sheets)
Land condition map	1 : 10,000	476km <sup>2</sup> (16 sheets)

(see Index Map)

1-2 The contoured map was completed in 1987. The aerial photographs taken in 1982 were used for field identification and stereo plotting. As for the major changes after aerial photography, the results of field completion conducted in 1986 and the interpretation of the aerial photographs taken in the same year were integrated.

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1-5 The land condition map was completed in 1989 to represent landform classification, ground elevation, organization and facilities using the contoured map as the base. The representation was made mainly on the basis of the interpretation of the aerial photographs taken in 1982 and 1986, the field identification conducted in 1985 and the data provided by the agencies concerned in the Philippines.

5-7 Printing was conducted with 7 color separation plates (red, orange, blue, yellow, green, brown and black) and their combinations to make the land use patterns easily identifiable.

Residential (Multi-story Housing, Residential, Temporary Housing, Mixed Commercial-Residential), Land Use Boundary:	Red
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Base Map and Annotation:	Black

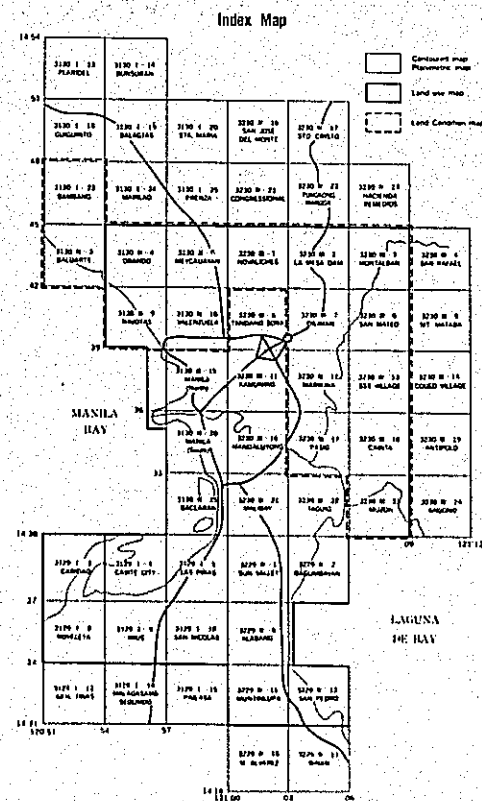






METRO MANILA LAND USE MAP  
SCALE 1 : 10,000

INFORMATION AND USAGE OF  
THE LAND USE MAP



REPUBLIC OF THE PHILIPPINES

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2. Utilization of Land Use Map

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4-2 As for the major changes of land use patterns brought about after

5. Criteria for Representation on the Land Use Map

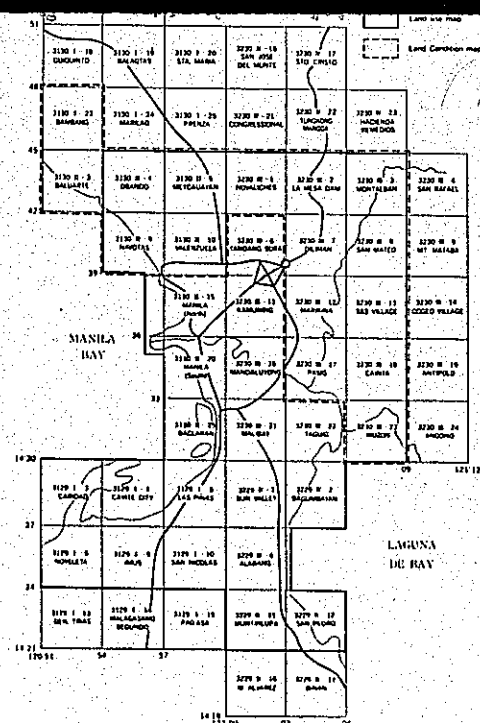
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## INFORMATION AND USAGE OF THE LAND USE MAP



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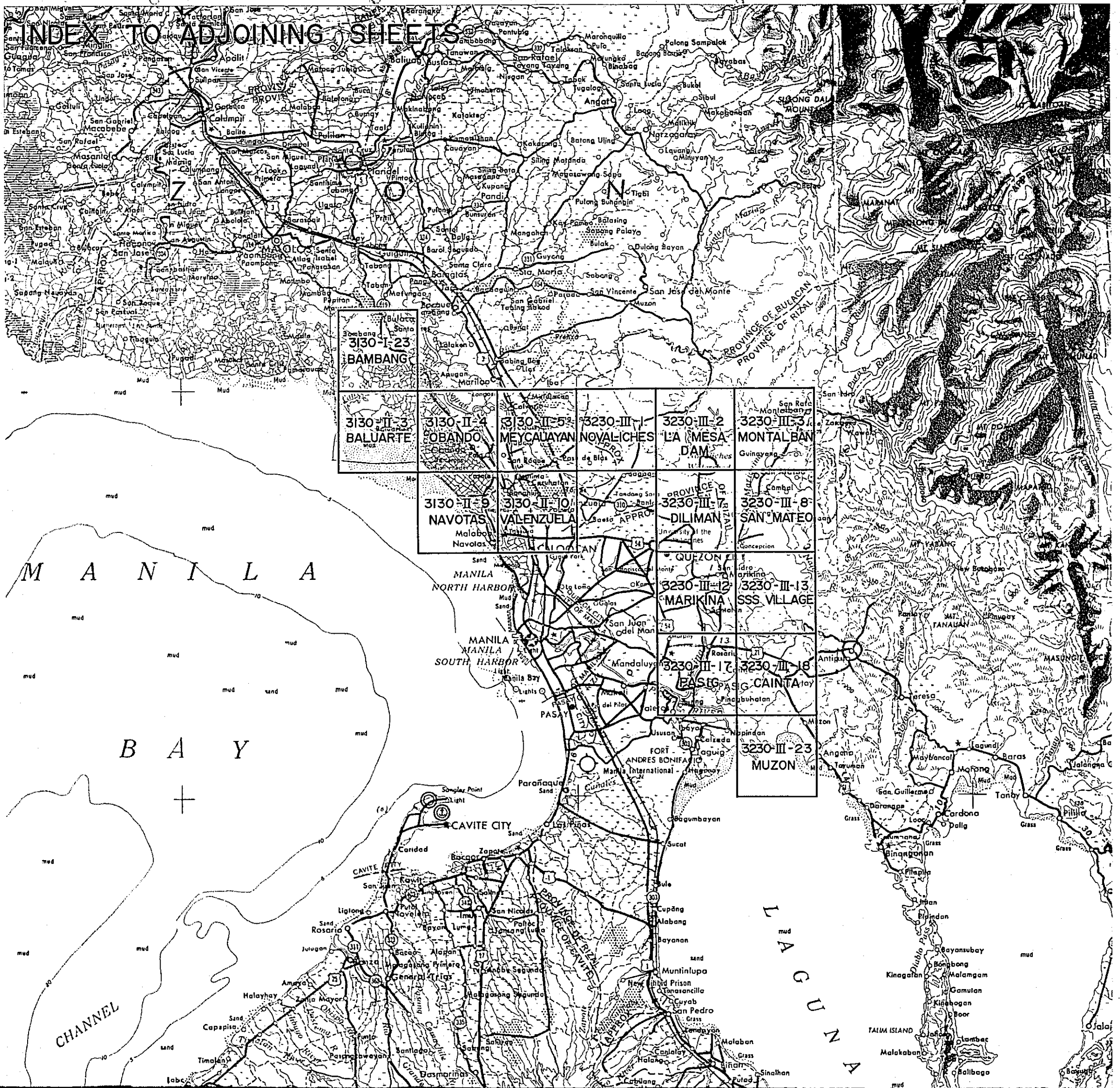
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3130-II-3 <b>BALUARTE</b>	3130-II-4 <b>OBANDO</b>	3130-II-5 <b>MEYCAUAYAN</b>	3230-III-1 <b>NOVALICHES</b>	3230-III-2 <b>LA MESA DAM</b>	3230-III-3 <b>MONTALBAN</b>
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MANILA  
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CAVITE CITY

FORT ANDRES BONIFATIO  
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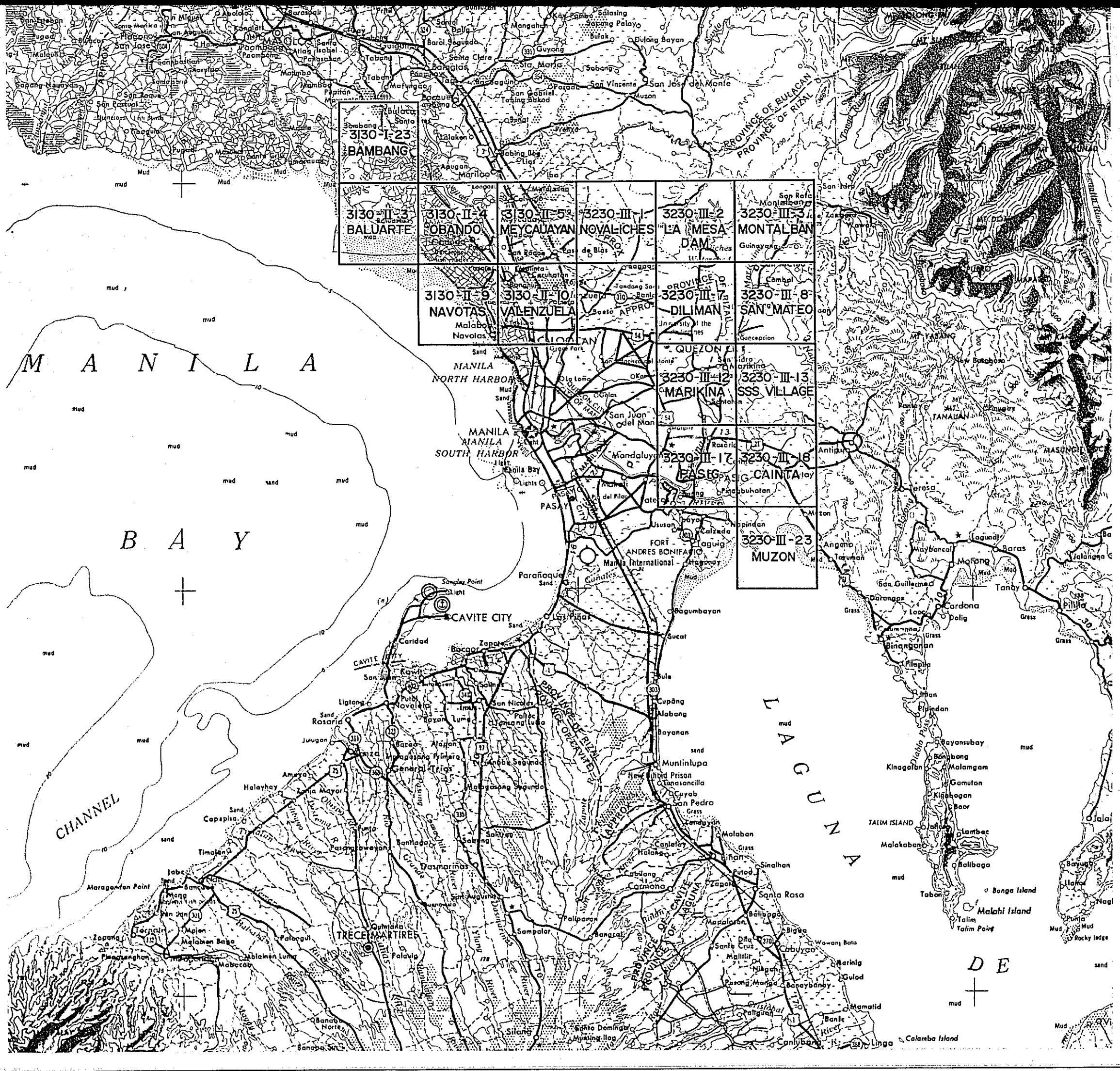
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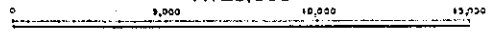
SSS VILLAGE





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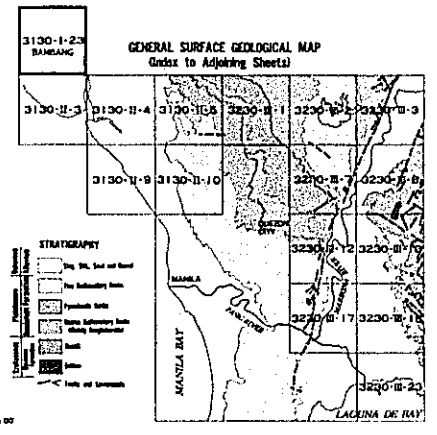
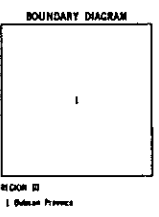




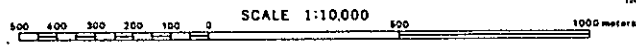
1. LANDFORM CLASSIFICATION	
<b>MOUNTAIN</b>	<ul style="list-style-type: none"> <li>Top Tilt and Ridge Flat</li> <li>Gentle and Moderate Slope (Less Than About 30°)</li> <li>Steep Slope (More Than About 30°)</li> </ul>
<b>PREMOUNTAIN LANDFORM</b>	<ul style="list-style-type: none"> <li>Black Line</li> <li>Talus</li> <li>Coluvial Slope</li> <li>Small Alluvial Fan</li> </ul>
<b>HILL AND PLATEAU</b>	<ul style="list-style-type: none"> <li>Top Flat</li> <li>Gentle Slope (Less Than About 5°)</li> <li>Moderate Slope (Between About 5° and 20°)</li> <li>Steep Slope (More Than About 20°)</li> <li>Valley Flat</li> </ul>
<b>TERRACE</b>	<ul style="list-style-type: none"> <li>Low Terrace</li> <li>Lower Terrace</li> <li>Cliff and Shallow Valley</li> </ul>
<b>ALLUVIAL FAN</b>	<ul style="list-style-type: none"> <li>General Surface of Alluvial Fan</li> <li>Former River Bed</li> </ul>
<b>FLOOD PLAIN AND VALLEY FLOOR</b>	<ul style="list-style-type: none"> <li>Natural Level</li> <li>Backwash</li> <li>Sewage and Marsh</li> <li>Dry River Bed</li> </ul>
<b>COASTAL PLAIN AND DELTA</b>	<ul style="list-style-type: none"> <li>Former River Bed</li> <li>Natural Level</li> <li>Upper Sand Bar</li> <li>Lower Sand Bar</li> <li>Backwash</li> </ul>
<b>URBANE SLOPE</b>	<ul style="list-style-type: none"> <li>Cliff</li> <li>Landslide Scar</li> <li>Cliff and Rubbed Surface</li> <li>Banked Up Surface</li> <li>Cliff Claps</li> <li>Banked Up Slope</li> <li>Filled Up Surface</li> <li>Under Construction Area</li> </ul>
<b>ARTIFICIALLY DEFORMED LAND</b>	<ul style="list-style-type: none"> <li>Main Watershed</li> <li>Drainage</li> <li>Water Surface</li> <li>Landscape Boundary</li> <li>Industrial Landform Boundary</li> </ul>
<b>MARINE AREA</b>	<ul style="list-style-type: none"> <li>Bar</li> <li>Tidal Flat</li> <li>Bathymetric Line</li> </ul>

2. GROUND ELEVATION	
<b>GROUND ELEVATION</b>	<ul style="list-style-type: none"> <li>Bench Mark (0.00)</li> <li>Ground Elevation Point (0.00)</li> </ul>
<b>CONTOUR LINE</b>	<ul style="list-style-type: none"> <li>Microcontour Line</li> <li>Contour Line</li> </ul>

3. ORGANIZATION AND PUBLIC FACILITIES	
<b>ADMINISTRATIVE BOUNDARY</b>	<ul style="list-style-type: none"> <li>Regional Boundary</li> <li>Provincial Boundary</li> <li>City and Municipal Boundary</li> <li>Main Road</li> <li>Railway</li> <li>Sea Terminal</li> <li>Government Building</li> <li>Police Station</li> <li>Tra Station</li> <li>Hospital</li> <li>Youth Center</li> <li>Church</li> <li>School</li> <li>Recreation Center</li> </ul>
<b>ROADS AND COASTAL STRUCTURE</b>	<ul style="list-style-type: none"> <li>Embankment</li> <li>Dam</li> <li>Wharf</li> <li>Revetment</li> <li>Bridge</li> <li>Breakwater, Jetty and Causeway</li> <li>Flood Gate</li> <li>Drainage Station</li> <li>Wharf and Pier</li> <li>Lighthouse</li> <li>Port and Harbor</li> <li>Fishery Port</li> <li>Pipe Line and Cable on Sea Bottom</li> <li>Fish Pen</li> <li>Rock Breaker or Reef</li> <li>Stranded Wreck</li> <li>Marine Pond and Salt Bed</li> <li>Restricted Area</li> <li>Dumping Area</li> </ul>
<b>FACILITIES FOR RECREATION AND RELIEF</b>	<ul style="list-style-type: none"> <li>Recreation Center</li> <li>Storage Tank</li> <li>Tidal Station</li> <li>Water Level Gauge Station</li> <li>Rain Gauge Station</li> <li>Earthquake Observatory</li> <li>Power Plant and Sub-Station</li> <li>Water Treatment Plant</li> <li>River Pumping Station</li> <li>Well</li> </ul>
<b>FACILITIES FOR SUPPLY AND MAINTENANCE</b>	<ul style="list-style-type: none"> <li>Well</li> </ul>



This map was produced under a cooperative undertaking between the Government of the Republic of the Philippines and the Government of Japan.

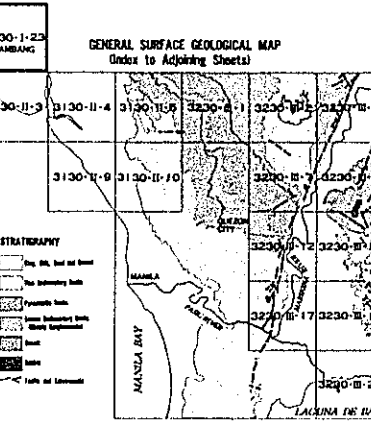
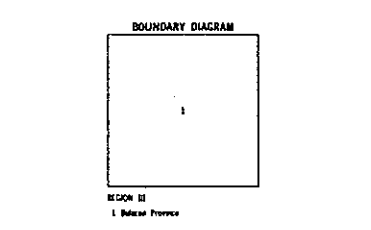




<b>GROUND ELEVATION</b>	Top Flat and Ridge Flat Gentle Slope Steep Slope Very Steep Slope Vertical Cliff	Ground Elevation Spot Elevation Contour Line Spot Elevation Contour Line	Ground Elevation Spot Elevation Contour Line Spot Elevation Contour Line
<b>COASTAL PLAIN AND DELTA</b>	Former River Bed Natural Level Upper Sand Bar Lower Sand Bar Backmarsh	Former River Bed Natural Level Upper Sand Bar Lower Sand Bar Backmarsh	Former River Bed Natural Level Upper Sand Bar Lower Sand Bar Backmarsh
<b>UNSTABLE SLOPE</b>	Top Flat Gentle Slope Steep Slope Very Steep Slope Vertical Cliff	Top Flat Gentle Slope Steep Slope Very Steep Slope Vertical Cliff	Top Flat Gentle Slope Steep Slope Very Steep Slope Vertical Cliff
<b>ARTIFICIALLY DEFORMED LAND</b>	Low Terrace Level Terrace Dent and Shallow Valley	Low Terrace Level Terrace Dent and Shallow Valley	Low Terrace Level Terrace Dent and Shallow Valley
<b>OTHERS</b>	General Surface of Alluvial Fan Former River Bed Bound Surface of Flood Plain Former River Bed Natural Level Backmarsh Swamp and Marsh Dry River Bed	General Surface of Alluvial Fan Former River Bed Bound Surface of Flood Plain Former River Bed Natural Level Backmarsh Swamp and Marsh Dry River Bed	General Surface of Alluvial Fan Former River Bed Bound Surface of Flood Plain Former River Bed Natural Level Backmarsh Swamp and Marsh Dry River Bed

<b>GROUND ELEVATION</b>	Beach Mark Ground Elevation Point	Microrelief Line Contour Line
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<b>ORGANIZATION AND PUBLIC FACILITIES</b>	Regional Boundary Provincial Boundary City and Municipal Boundary Main Road Railway Bus Terminal Government Building Public Station Fire Station Hospital Health Center Church School Rescue Center Storage Tank Tidal Station Water Level Gauge Station Rain Gauge Station Earthquake Observatory Power Plant and Sub-Station Water Treatment Plant River Pumping Station Well	Embankment Dam Weir Revetment Bridge Breakwater, Jetty and Causeway Pond Gate Drainage Station Wharf and Pier Lighthouse Port and Harbor Fishery Port Pier Line and Cable on Sea Bottom Tide Gauge Rock Awash or Reef Stranded Wreck Marine Pond and Salt Bed Restricted Area Dumping Area
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This map was prepared under a cooperative undertaking between the Government of the Republic of the Philippines and the Government of Japan.  
 Date Map: December 1981  
 Date of Publication: 1980-1981, 1982 & 1983  
 Field coverage by 1:50,000 scale maps  
 Date of information: 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025

SCALE 1:10,000  
 UNIVERSAL TRANSVERSE MERCATOR PROJECTION  
 ZONE 51 CLARKE SPHEROID 1866 LUZON DATUM  
 VERTICAL DATUM: MSL FOR HEIGHTS MLW FOR DEPTHS  
 CONTOUR INTERVAL 4 METERS



**BAMBANG**  
 Sheet No. 3130-I-23

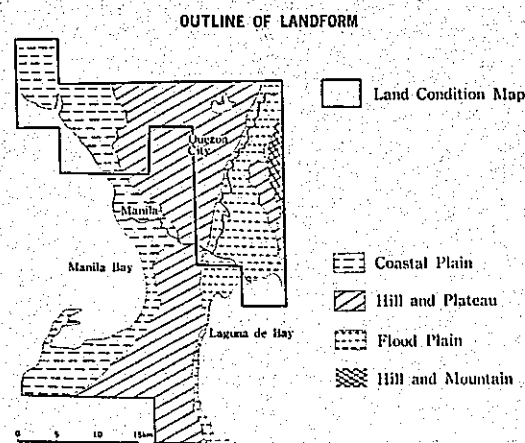
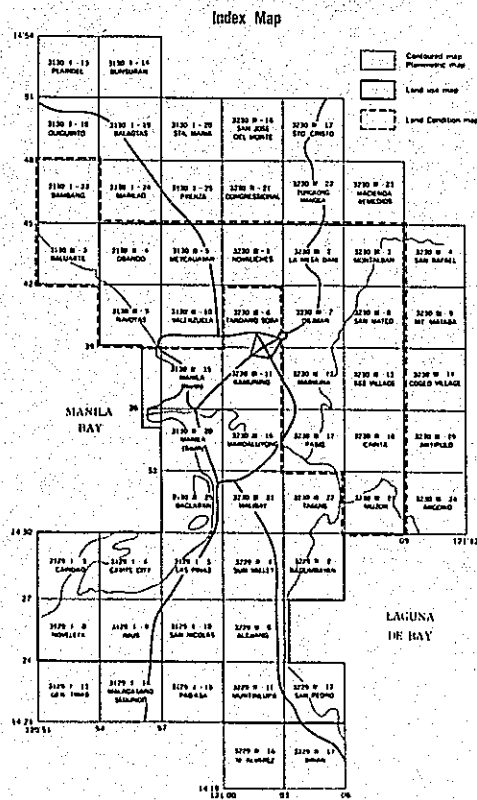


# METRO MANILA LAND CONDITION MAP

SCALE 1 : 10,000

## INFORMATION AND USAGE OF THE LAND CONDITION MAP

### REPUBLIC OF THE PHILIPPINES



#### 4. Components of the Land Condition Map

The land condition map is composed of the following three major categories:

- Landform Classification,
- Ground Elevation,
- Organization and Facilities

These categories are then divided into 91 sub-classifications.

##### 4-1 Landform Classification

As for the landform classification, various types of landform are classified into mountain, hill and plateau, lowland (flood plain, delta and others), etc. according to the form, formative processes and surface materials. In the detailed classification, the safety or susceptibility to disasters is also taken into account.

##### 4-2 Ground Elevation

In the lowland area the ground elevation points and microrelief lines are shown in order to clarify its susceptibility to flooding and high tides.

##### 4-3 Organization and Facilities

Regarding organization and facilities, emphasis is placed on those closely related to disaster prevention and land development. The facilities for disaster prevention and development, facilities for rescue and relief, observatory, facilities for supply and processing, river and coastal structure, etc. are represented.

#### 5. Land Condition Survey

##### 5-1 Landform Classification

(1) The landform classification was made mainly on the basis of the photo-interpretation of the aerial photographs taken in 1982 and 1986. Field identification was also conducted at the main sites in 1987.

(2) With regard to artificially deformed land (mainly banked up) in lowland (flood plain, delta, coastal plain, etc.) which is susceptible to natural disasters, the landform before deformation is also represented on the basis of the comparative interpretation of aerial photographs taken in 1968, 1982 and 1986.

##### 5-2 Ground Elevation

In the lowland area the ground elevation points are represented by minor order leveling. On the basis of those leveling points, the spot heights and microrelief lines measured by photogrammetry are also represented.

##### 5-3 Organization and Facilities

The organization and facilities are represented on the basis of the features shown on the 1:10,000 contoured maps and the data provided by BCGS and other agencies. Field survey was also conducted by BCGS and JICA.

#### 6. Criteria for Representation on the Land Condition Map

##### 6-1 Landform Classification

(1) The minimum size for the representation of landform classification is generally 2mm x 2mm on the maps and that for the linear symbols is about 5mm on the maps.

(2) The boundaries of the areas where the landform classification not clearly defined are delineated by broken lines.

#### 2. Utilization of Land Condition Map

This land condition map is prepared using the 1:10,000 contoured maps as the base on which the landform classification, ground elevation, organizations and facilities are printed in 12 colors.

It is possible to find out the following areas by reading the land condition map:

- 2-1 Areas affected by flood or high tide such as low or marshy land.
- 2-2 Areas where earthquake damage is expected due to unfavourable conditions of the surface layer.
- 2-3 Areas where ground subsidence is likely to take place such as coastal plain, delta and flood plain areas.
- 2-4 Artificially deformed land and unstable slopes in mountainous or hilly areas where disasters are expected.
- 2-5 Plateaus and gentle hilly areas being comparatively safe from flood or landslide damage, etc.

Therefore, the land condition map can provide basic information not only for disaster prevention but also for land development, and can be utilized more effectively together with the land use map.

#### 3. Outline of Landform

The classes of landforms in the survey area are generally located as follows:

- 3-1 Coastal Plain  
Coastal plain with elevation of less than 3m extending north to south along Manila Bay.
- 3-2 Hill and Plateau  
The hills and plateaus, where Quezon City Mandaluyong and Makati are located, extending north to south on the eastern side of the coastal plain. Elevations of the hills and plateaus around Pasig River are 20m~30m and gradually increase northward to 80m~100m.
- 3-3 Flood Plain  
Around the Marikina River and Laguna de Bay, the flat lowland with an elevation of 1m~10m covers wide area of floodplain.
- 3-4 Hill and Mountain  
The mountain area has an elevation of 200m~300m. The western side of the mountain area which is hilly, has an elevation of 50m~100m. In the mountains where top flats still remain, gentle slopes are generally prevailing although there are steep slopes along the river valleys.

#### 6-2 Ground Elevation

- (1) The minor order leveling points and the spot heights measured by photogrammetry are represented by vertical and slant lettering, respectively. The values of both points are shown in meters, to the first decimal place.
- (2) The microrelief lines are represented at 1m intervals.

#### 6-3 Organization and Facilities

- (1) The river and coastal structures constructed across rivers of more than 4m in width or those with more than 50m in length are represented.
- (2) Regarding transportation, main roads of more than 1km in length are represented.
- (3) For facilities in coastal area, the ports, harbors and fishery ports are represented, and their symbol sizes vary according to their scale.
- (4) The facilities for rescue and relief, facilities for dangerous materials, observatory, facilities for supply and processing are represented without exception.
- (5) The organization and facilities other than the above, are represented according to the criteria for the 1:10,000 contoured maps.

#### 6-4 Color Scheme

Printing was conducted with 12 color separation plates (brown, violet, green, yellow, orange, light green, blue, sky blue, silver gray, red, black, dark gray) and their combinations to make the various land conditions easily identifiable.

Mountain:	Brown
Piedmont Landform:	Yellow
Hill and Plateau, Terrace:	Orange-brown
Flood Plain and Valley Plain:	Light green
Coastal Plain and Delta:	Blue-green
Artificially Deformed Land, Unstable Slope (Landslide Scar):	Red
Landform in Marine Area:	Silver gray
Water Surface:	Sky blue
Microrelief Line:	Brown
Organization and Facilities:	Black, Red
Ground Elevation, Annotation:	Black
Boundary Line, Unstable Slope (Cliff):	Violet
Base Map:	Dark gray

#### 1. Background

To cope with many urban problems prevailing in the National Capital Region, the Philippine Government requested the Japanese Government in March 1981 for technical cooperation in the preparation of urban base maps, which represent the existing conditions of the Region in detail, as basic materials for the implementation of various public works as well as the establishment of diverse plans concerning disaster prevention, land use, urban redevelopment, etc.

In response to the request for technical cooperation, the Japanese Government sent preliminary survey teams to Manila in January through March 1985 for discussions with the authorities concerned in the Philippine Government and for field survey and data collection in the Region. The Japanese Government consequently agreed on a 4-year technical cooperation program starting in 1985.

##### 1-1 Outline of those maps is as follows:

Contoured map (Topographic map)	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Planimetric map	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Land use map	1 : 10,000	823km <sup>2</sup> (31 sheets)
Land condition map	1 : 10,000	476km <sup>2</sup> (16 sheets)

(see Index Map)

1-2 The contoured map was completed in 1987. The aerial photographs taken in 1982 were used for field identification and stereo plotting. As for the major changes after aerial photography, the results of field completion conducted in 1986 and the interpretation of the aerial photographs taken in the same year were integrated.

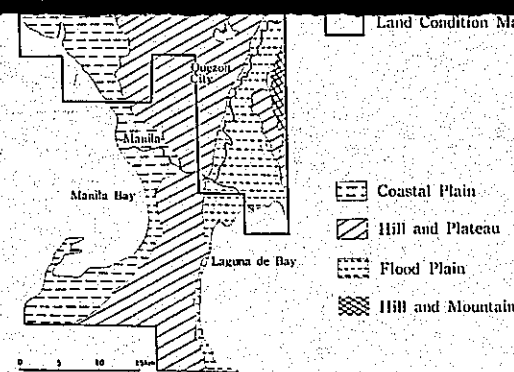
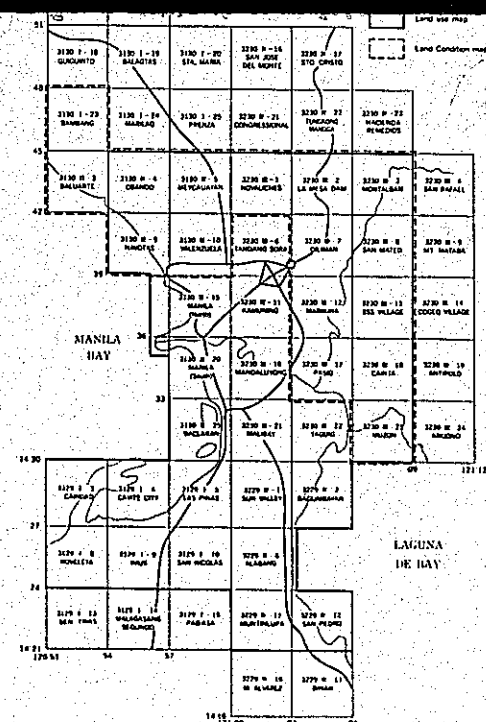
1-3 The planimetric map was completed in 1987 by the combination of color separation plates of the contoured map.

1-4 The land use map was completed in 1989 using the contoured map as the base and integrating mainly the interpretation of the aerial photographs taken in 1982 and the results of field identification conducted in 1985.

1-5 The land condition map was completed in 1989 to represent landform classification, ground elevation, organization and facilities using the contoured map as the base. The representation was made mainly on the basis of the interpretation of the aerial photographs taken in 1982

#### 7. Definition of Selected Technical Terms.

- 1) Knick Line ... Lines passing points on slopes of mountain-sides, which divide upper gentle slopes and lower steep slopes.
- 2) Talus ... Relatively steep depositional surfaces formed at lower parts of mountain-slopes by rain wash or land slide and consisting of larger grains of debris.
- 3) Colluvial Slope ... Depositional landforms with relatively gentle slopes, formed by debris and weathered material transported and sedimented by effects of rain wash and soil creep.
- 4) Small Alluvial ... Small depositional landforms with relatively gentle slopes, starting at the end of valleys and fanning into lowland where the river transportation force diminishes.
- 5) Valley Flat ... Flat surfaces located along river tributaries, where bed rock is partially covered by shallow fluvial deposits.
- 6) Dent and Shallow Valley ... Shallow depressions on the surface of terraces.
- 7) Natural Levee ... Strip microrelief located along or around rivers which is composed of sand and silt deposits made during floods.
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(see Index Map)

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##### 6-1 Landform Classification

- (1) The minimum size for the representation of landform classification is generally 2mm x 2mm on the maps and that for the linear symbols is about 5mm on the maps.
- (2) The boundaries of the areas where the landform classification not clearly defined are delineated by broken lines.
- (3) The bars, tidal flats and bathymetric lines in marine areas are represented on the basis of the data provided by BCGS.

respectively. The values of both points are shown in meters, to the first decimal place.

(2) The microrelief lines are represented at 1m intervals.

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- (1) The river and coastal structures constructed across rivers of more than 4m in width or those with more than 50m in length are represented.
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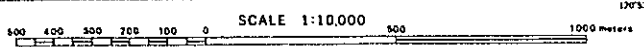
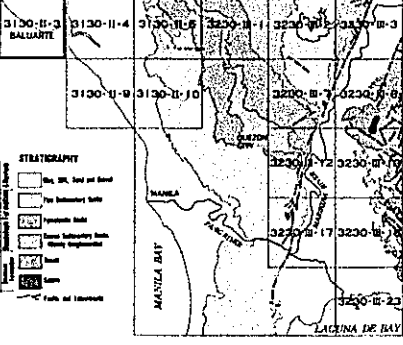


1. LANDFORM CLASSIFICATION	
<b>MOUNTAIN</b>	<ul style="list-style-type: none"> <li>Top Flat and Ridge Flat</li> <li>Steep and Moderate Slope (Less Than About 20°)</li> <li>Steep Slope (More Than About 20°)</li> <li>Thin Line</li> </ul>
<b>PIEDMONT</b>	<ul style="list-style-type: none"> <li>Small Alluvial Fan</li> <li>Top Flat</li> <li>Gentle Slope (Less Than About 5°)</li> <li>Moderate Slope (Between About 5° and 20°)</li> <li>Steep Slope (More Than About 20°)</li> <li>Valley Flat</li> </ul>
<b>HILL AND PLATEAU</b>	<ul style="list-style-type: none"> <li>Low Terrace</li> <li>Lower Terrace</li> <li>Shoal and Shallow Valley</li> <li>General Surface of Alluvial Fan</li> <li>Former River Bed</li> </ul>
<b>ALLUVIAL FAN</b>	<ul style="list-style-type: none"> <li>General Surface of Alluvial Fan</li> <li>Former River Bed</li> </ul>
<b>FLOOD PLAIN AND VALLEY FLOOR</b>	<ul style="list-style-type: none"> <li>Natural Levee</li> <li>Backmarsh</li> <li>Swamp and Marsh</li> <li>Dry River Bed</li> </ul>
<b>CRISTAL PLAIN AND DELTA</b>	<ul style="list-style-type: none"> <li>Natural Levee</li> <li>Upper Sand Bar</li> <li>Lower Sand Bar</li> <li>Backmarsh</li> <li>Can</li> <li>Wastebank Scar</li> <li>Cut and Raised Surface</li> <li>Banked Up Surface</li> <li>Cut Slope</li> <li>Banked Up Slope</li> <li>Flashed Up Surface</li> <li>Under Construction Area</li> <li>Main Watercourse</li> <li>Drainage</li> <li>Water Surface</li> <li>Landform Boundary</li> <li>Industrial Landform Boundary</li> <li>Bar</li> <li>Tidal Flat</li> <li>Bathymetric Line</li> </ul>
<b>VARIABLE SLOPE</b>	<ul style="list-style-type: none"> <li>Wastebank Scar</li> <li>Cut and Raised Surface</li> <li>Banked Up Surface</li> <li>Cut Slope</li> <li>Banked Up Slope</li> <li>Flashed Up Surface</li> <li>Under Construction Area</li> <li>Main Watercourse</li> <li>Drainage</li> <li>Water Surface</li> <li>Landform Boundary</li> <li>Industrial Landform Boundary</li> <li>Bar</li> <li>Tidal Flat</li> <li>Bathymetric Line</li> </ul>
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<b>OTHERS</b>	<ul style="list-style-type: none"> <li>Under Construction Area</li> <li>Main Watercourse</li> <li>Drainage</li> <li>Water Surface</li> <li>Landform Boundary</li> <li>Industrial Landform Boundary</li> <li>Bar</li> <li>Tidal Flat</li> <li>Bathymetric Line</li> </ul>
<b>2. GROUND ELEVATION</b>	
<b>GROUND POINT</b>	<ul style="list-style-type: none"> <li>Benchmark 0.3.21</li> <li>Ground Elevation Point -1.2</li> <li>-8.8</li> </ul>
<b>LINE</b>	<ul style="list-style-type: none"> <li>Microrelief Line</li> <li>Contour Line</li> </ul>
<b>3. ORGANIZATION AND PUBLIC FACILITIES</b>	
<b>ADMINISTRATIVE BOUNDARY</b>	<ul style="list-style-type: none"> <li>Regional Boundary</li> <li>Provincial Boundary</li> <li>City and Municipal Boundary</li> <li>Main Road</li> <li>Railway</li> <li>Bus Terminal</li> <li>Government Building</li> <li>Police Station</li> <li>Fire Station</li> <li>Hospital</li> <li>Health Center</li> <li>Church</li> <li>School</li> <li>Recreation Center</li> <li>Manufacturing Shop and Working Toolshed of Indigenous Workshop</li> <li>Storage Tank</li> <li>Tidal Station</li> <li>Water Level Gauge Station</li> <li>Rain Gauge Station</li> <li>Earthquake Observatory</li> <li>Power Plant and Sub-Station</li> <li>Water Treatment Plant</li> <li>Raw Pumping Station</li> <li>Well</li> </ul>
<b>BOUNDARY AND RELIEF</b>	<ul style="list-style-type: none"> <li>Embankment</li> <li>Dam</li> <li>Wall</li> <li>Revetment</li> <li>Bridge</li> <li>Breakwater, Jetty and Causeway</li> <li>Flood Gate</li> <li>Drainage Station</li> <li>Wharf and Pier</li> <li>Lighthouse</li> <li>Port and Harbor</li> <li>Fishery Port</li> <li>Pipe Line and Caisson on Sea Bottom</li> <li>Fish Pen</li> <li>Rock Anvil or Reef</li> <li>Stranded Wreck</li> <li>Marine Pond and Salt Bed</li> <li>Restricted Area</li> <li>Dumping Area</li> </ul>
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BOUNDARY DIAGRAM

3130-1-23 GENERAL SURFACE GEOLOGICAL MAP (Index to Adjoining Sheets)

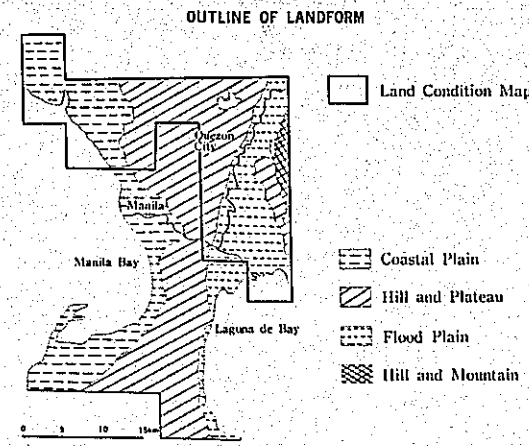
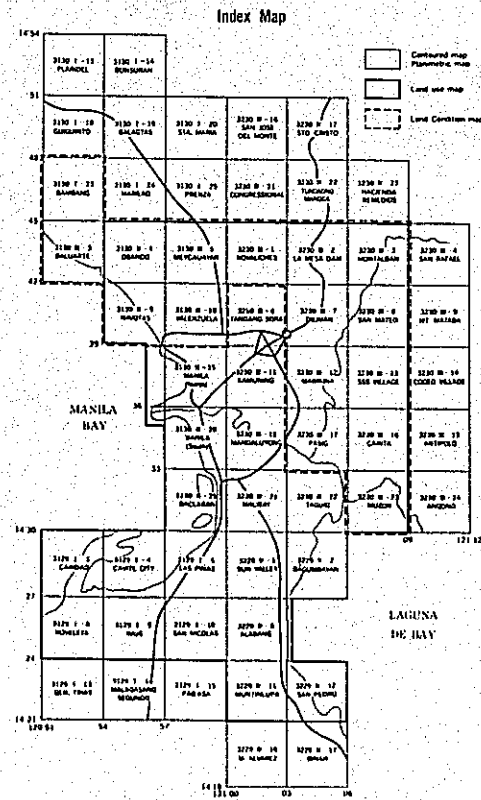


This map was produced under a cooperative agreement between the Government of the Republic of the Philippines and the Department of State.





METRO MANILA LAND CONDITION MAP  
SCALE 1 : 10,000



INFORMATION AND USAGE OF  
THE LAND CONDITION MAP

REPUBLIC OF THE PHILIPPINES

1. Background

To cope with many urban problems prevailing in the National Capital Region, the Philippine Government requested the Japanese Government in March 1984 for technical cooperation in the preparation of urban base maps, which represent the existing conditions of the Region in detail, as basic materials for the implementation of various public works as well as the establishment of diverse plans concerning disaster prevention, land use, urban redevelopment, etc.

In response to the request for technical cooperation, the Japanese Government sent preliminary survey teams to Manila in January through March 1985 for discussions with the authorities concerned in the Philippine Government and for field survey and data collection in the Region. The Japanese Government consequently agreed on a 4-year technical cooperation program starting in 1985.

1-1 Outline of these maps is as follows:

Contoured map (Topographic map)	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Planimetric map	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Land use map	1 : 10,000	823km <sup>2</sup> (33 sheets)
Land condition map	1 : 10,000	176km <sup>2</sup> (16 sheets)

(see Index Map)

1-2 The contoured map was completed in 1987. The aerial photographs taken in 1982 were used for field identification and stereo plotting. As for the major changes after aerial photography, the results of field completion conducted in 1986 and the interpretation of the aerial photographs taken in the same year were integrated.

1-3 The planimetric map was completed in 1987 by the combination of color separation plates of the contoured map.

1-4 The land use map was completed in 1989 using the contoured map as the base and integrating mainly the interpretation of the aerial photographs taken in 1982 and the results of field identification conducted in 1985.

1-5 The land condition map was completed in 1989 to represent landform classification, ground elevation, organization and facilities using the contoured map as the base. The representation was made mainly on the basis of the interpretation of the aerial photographs taken in 1982

2. Utilization of Land Condition Map

This land condition map is prepared using the 1:10,000 contoured map as the base on which the landform classification, ground elevation, organizations and facilities are printed in 12 colors.

It is possible to find out the following areas by reading the land condition map:

- 2-1 Areas affected by flood or high tide such as low or marshy land.
- 2-2 Areas where earthquake damage is expected due to unfavourable conditions of the surface layer.
- 2-3 Areas where ground subsidence is likely to take place such as coastal plain, delta and flood plain areas.
- 2-4 Artificially deformed land and unstable slopes in mountainous or hilly areas where disasters are expected.
- 2-5 Plateaus and gentle hilly areas being comparatively safe from flood or landslide damage, etc.

Therefore, the land condition map can provide basic information not only for disaster prevention but also for land development, and can be utilized more effectively together with the land use map.

3. Outline of Landform

The classes of landforms in the survey area are generally located as follows:

- 3-1 Coastal Plain  
Coastal plain with elevation of less than 3m extending north to south along Manila Bay.
- 3-2 Hill and Plateau  
The hills and plateaus, where Quezon City, Mandaluyong and Makati are located, extending north to south on the eastern side of the coastal plain. Elevations of the hills and plateaus around Pasig River are 20m-30m and gradually increase northward to 80m-100m.
- 3-3 Flood Plain  
Around the Marikina River and Laguna de Bay, the flat lowland with an elevation of 1m-10m covers wide area of floodplain.
- 3-4 Hill and Mountain  
The mountain area has an elevation of 200m-300m. The western side of the mountain area which is hilly, has an elevation of 50m-100m. In the mountains where top flats still remain, gentle slopes are generally prevailing although there are steep slopes along the river valleys.

4. Components of the Land Condition Map

The land condition map is composed of the following three major categories:

- Landform Classification,
- Ground Elevation,
- Organization and Facilities

These categories are then divided into 91 sub-classifications.

4-1 Landform Classification

As for the landform classification, various types of landform are classified into mountain, hill and plateau, lowland (flood plain, delta and others), etc. according to the form, formative processes and surface materials. In the detailed classification, the safety or susceptibility to disasters is also taken into account.

4-2 Ground Elevation

In the lowland area the ground elevation points and microrelief lines are shown in order to clarify its susceptibility to flooding and high tides.

4-3 Organization and Facilities

Regarding organization and facilities, emphasis is placed on those closely related to disaster prevention and land development. The facilities for disaster prevention and development, facilities for rescue and relief, observatory, facilities for supply and processing, river and coastal structure, etc. are represented.

5. Land Condition Survey

5-1 Landform Classification

(1) The landform classification was made mainly on the basis of the photo-interpretation of the aerial photographs taken in 1982 and 1986. Field identification was also conducted at the main sites in 1987.

(2) With regard to artificially deformed land (mainly banked up) in lowland (flood plain, delta, coastal plain, etc.) which is susceptible to natural disasters, the landform before deformation is also represented on the basis of the comparative interpretation of aerial photographs taken in 1968, 1982 and 1986.

5-2 Ground Elevation

In the lowland area the ground elevation points are represented by minor order leveling. On the basis of those leveling points, the spot heights and microrelief lines measured by photogrammetry are also represented.

5-3 Organization and Facilities

The organization and facilities are represented on the basis of the features shown on the 1:10,000 contoured maps and the data provided by BCGS and other agencies. Field survey was also conducted by BCGS and JICA.

6. Criteria for Representation on the Land Condition Map

6-1 Landform Classification

(1) The minimum size for the representation of landform classification is generally 2mm x 2mm on the maps and that for the linear symbols is about 5mm on the maps.

(2) The boundaries of the areas where the landform classification not clearly defined are delineated by broken lines.

6-2 Ground Elevation

(1) The minor order leveling points and the spot heights measured by photogrammetry are represented by vertical and slant lettering, respectively. The values of both points are shown in meters, to the first decimal place.

(2) The microrelief lines are represented at 1m intervals.

6-3 Organization and Facilities

(1) The river and coastal structures constructed across rivers of more than 4m in width or those with more than 50m in length are represented.

(2) Regarding transportation, main roads of more than 1km in length are represented.

(3) For facilities in coastal area, the ports, harbors and fishery ports are represented, and their symbol sizes vary according to their scale.

(4) The facilities for rescue and relief, facilities for dangerous materials, observatory, facilities for supply and processing are represented without exception.

(5) The organization and facilities other than the above are represented according to the criteria for the 1:10,000 contoured maps.

6-4 Color Scheme

Printing was conducted with 12 color separation plates (brown, violet, green, yellow, orange, light green, blue, sky blue, silver gray, red, black, dark gray) and their combinations to make the various land conditions easily identifiable.

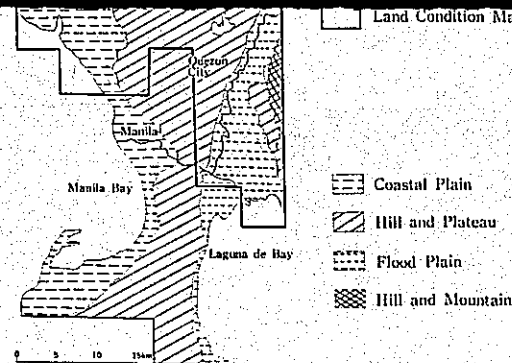
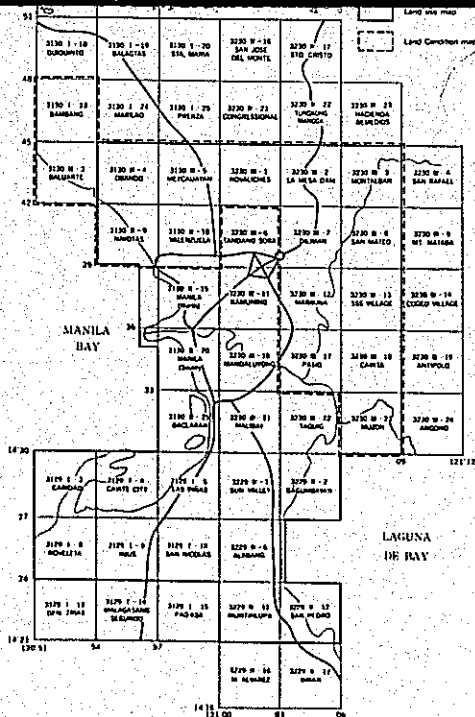
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Piedmont Landform:	Yellow
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Flood Plain and Valley Plain:	Light green
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Artificially Deformed Land, Unstable Slope (Landslide Scar):	Red
Landform in Marine Area:	Silver gray
Water Surface:	Sky blue
Microrelief Line:	Brown
Organization and Facilities:	Black, Red
Ground Elevation, Annotation:	Black
Boundary Line, Unstable Slope (Cliff):	Violet
Base Map:	Dark gray

7. Definition of Selected Technical Terms

- 1) Knick Line ... Lines passing points on slopes of mountain-sides, which divide upper gentle slopes and lower steep slopes.
- 2) Talus ... Relatively steep depositional surfaces formed at lower parts of mountain-slopes by rain wash or hind slide and consisting of larger grains of debris.
- 3) Colluvial Slope ... Depositional landforms with relatively gentle slopes, formed by debris and weathered material transported and sedimented by effects of rain wash and soil creep.
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# INFORMATION AND USAGE OF THE LAND CONDITION MAP

REPUBLIC OF THE PHILIPPINES



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Around the Marikina River and Laguna de Bay, the flat lowland with an elevation of 1m ~ 10m covers wide area of floodplain.
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The mountain area has an elevation of 200m ~ 300m. The western side of the mountain area which is hilly, has an elevation of 50m ~ 100m. In the mountains where top flats still remain, gentle slopes are generally prevailing although there are steep slopes along the river valleys.

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In the lowland area the ground elevation points and microrelief lines are shown in order to clarify its susceptibility to flooding and high tides.

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The organization and facilities are represented on the basis of the features shown on the 1:10,000 contoured maps and the data provided by BCGS and other agencies. Field survey was also conducted by BCGS and JICA.

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(2) The boundaries of the areas where the landform classification not clearly defined are delineated by broken lines.

(3) The bars, tidal flats and bathymetric lines in marine areas are represented on the basis of the data provided by BCGS.

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## 6-3 Organization and Facilities

- (1) The river and coastal structures constructed across rivers of more than 4m in width or those with more than 50m in length are represented.
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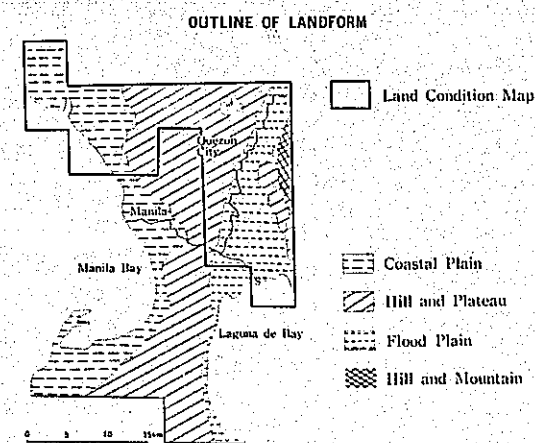
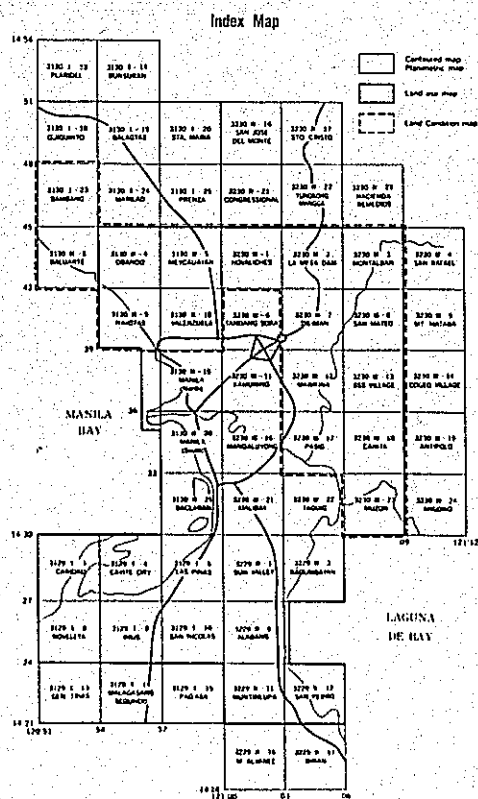




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These categories are then divided into 91 sub-classifications.

4-1 Landform Classification

As for the landform classification, various types of landform are classified into mountain, hill and plateau, lowland (flood plain, delta and others), etc. according to the form, formative processes and surface materials. In the detailed classification, the safety or susceptibility to disasters is also taken into account.

4-2 Ground Elevation

In the lowland area the ground elevation points and microrelief lines are shown in order to clarify its susceptibility to flooding and high tides.

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Regarding organization and facilities, emphasis is placed on those closely related to disaster prevention and land development. The facilities for disaster prevention and development, facilities for rescue and relief, observatory, facilities for supply and processing, river and coastal structure, etc. are represented.

5. Land Condition Survey

5-1 Landform Classification

- (1) The landform classification was made mainly on the basis of the photo-interpretation of the aerial photographs taken in 1982 and 1986. Field identification was also conducted at the main sites in 1987.
- (2) With regard to artificially deformed land (mainly banked up) in lowland (flood plain, delta, coastal plain, etc.) which is susceptible to natural disasters, the landform before deformation is also represented on the basis of the comparative interpretation of aerial photographs taken in 1968, 1982 and 1986.

5-2 Ground Elevation

In the lowland area the ground elevation points are represented by minor order leveling. On the basis of those leveling points, the spot heights and microrelief lines measured by photogrammetry are also represented.

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The organization and facilities are represented on the basis of the features shown on the 1:10,000 contoured maps and the data provided by BCGS and other agencies. Field survey was also conducted by BCGS and JICA.

6. Criteria for Representation on the Land Condition Map

6-1 Landform Classification

- (1) The minimum size for the representation of landform classification is generally 2mm x 2mm on the maps and that for the linear symbols is about 5mm on the maps.
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- (1) The minor order leveling points and the spot heights measured by photogrammetry are represented by vertical and slant lettering, respectively. The values of both points are shown in meters, to the first decimal place.
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- (5) The organization and facilities other than the above are represented according to the criteria for the 1:10,000 contoured maps.

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Printing was conducted with 12 color separation plates (brown, violet, green, yellow, orange, light green, blue, sky blue, silver gray, red, black, dark gray) and their combinations to make the various land conditions easily identifiable.

Mountain:	Brown
Piedmont Landform:	Yellow
Hill and Plateau, Terrace:	Orange-brown
Flood Plain and Valley Plain:	Light green
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Microrelief Line:	Brown
Organization and Facilities:	Black, Red
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Boundary Line, Unstable Slope (Cliff):	Violet
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7. Definition of Selected Technical Terms

- 1) Knick Line ... Lines passing points on slopes of mountain-sides, which divide upper gentle slopes and lower steep slopes.
- 2) Talus ... Relatively steep depositional surfaces formed at lower parts of mountain-slopes by rain wash or land slide and consisting of larger grains of debris.
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1. Background

To cope with many urban problems prevailing in the National Capital Region, the Philippine Government requested the Japanese Government in March 1984 for technical cooperation in the preparation of urban base maps, which represent the existing conditions of the Region in detail, as basic materials for the implementation of various public works as well as the establishment of diverse plans concerning disaster prevention, land use, urban redevelopment, etc.

In response to the request for technical cooperation, the Japanese Government sent preliminary survey teams to Manila in January through March 1985 for discussions with the authorities concerned in the Philippine Government and for field survey and data collection in the Region. The Japanese Government consequently agreed on a 4-year technical cooperation program starting in 1985.

1-1 Outline of those maps is as follows:

Contoured map (Topographic map) 1 : 10,000	1,300km <sup>2</sup> (57 sheets)
Planimetric map 1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Land use map 1 : 10,000	823km <sup>2</sup> (33 sheets)
Land condition map 1 : 10,000	476km <sup>2</sup> (16 sheets)

(see Index Map)

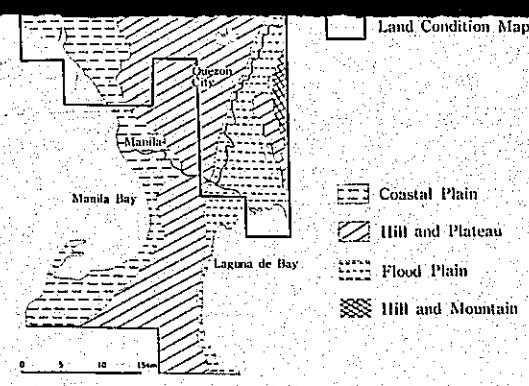
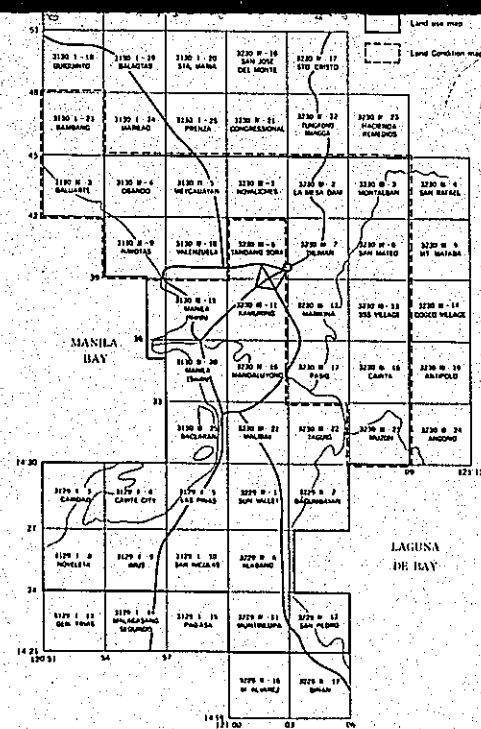
1-2 The contoured map was completed in 1987. The aerial photographs taken in 1982 were used for field identification and stereo plotting. As for the major changes after aerial photography, the results of field completion conducted in 1986 and the interpretation of the aerial photographs taken in the same year were integrated.

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## INFORMATION AND USAGE OF THE LAND CONDITION MAP

### REPUBLIC OF THE PHILIPPINES

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#### 2. Utilization of Land Condition Map

This land condition map is prepared using the 1:10,000 contoured map as the base on which the landform classification, ground elevation, organizations and facilities are printed in 12 colors.

It is possible to find out the following areas by reading the land condition map:

- 2-1 Areas affected by flood or high tide such as low or marshy land.
- 2-2 Areas where earthquake damage is expected due to unfavourable conditions of the surface layer.
- 2-3 Areas where ground subsidence is likely to take place such as coastal plain, delta and flood plain areas.
- 2-4 Artificially deformed land and unstable slopes in mountainous or hilly areas where disasters are expected.
- 2-5 Plateaus and gentle hilly areas being comparatively safe from flood or landslide damage, etc.

Therefore, the land condition map can provide basic information not only for disaster prevention but also for land development, and can be utilized more effectively together with the land use map.

#### 3. Outline of Landform

The classes of landforms in the survey area are generally located as follows:

- 3-1 Coastal Plain  
Coastal plain with elevation of less than 3m extending north to south along Manila Bay.
- 3-2 Hill and Plateau  
The hills and plateaus, where Quezon City, Mandaluyong and Makati are located, extending north to south on the eastern side of the coastal plain. Elevations of the hills and plateaus around Pasig River are 20m ~ 30m and gradually increase northward to 80m ~ 100m.
- 3-3 Flood Plain  
Around the Marikina River and Laguna de Bay, the flat lowland with an elevation of 1m ~ 10m covers wide area of floodplain.
- 3-4 Hill and Mountain  
The mountain area has an elevation of 200m ~ 300m. The western side of the mountain area which is hilly, has an elevation of 50m ~ 100m. In the mountains where top flats still remain, gentle slopes are generally prevailing although there are steep slopes along the river valleys.

#### 4. Components of the Land Condition Map

The land condition map is composed of the following three major categories:

- Landform Classification,
- Ground Elevation,
- Organization and Facilities

These categories are then divided into 91 sub-classifications.

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As for the landform classification, various types of landform are classified into mountain, hill and plateau, lowland (flood plain, delta and others), etc. according to the form, formative processes and surface materials. In the detailed classification, the safety or susceptibility to disasters is also taken into account.

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In the lowland area the ground elevation points and microrelief lines are shown in order to clarify its susceptibility to flooding and high tides.

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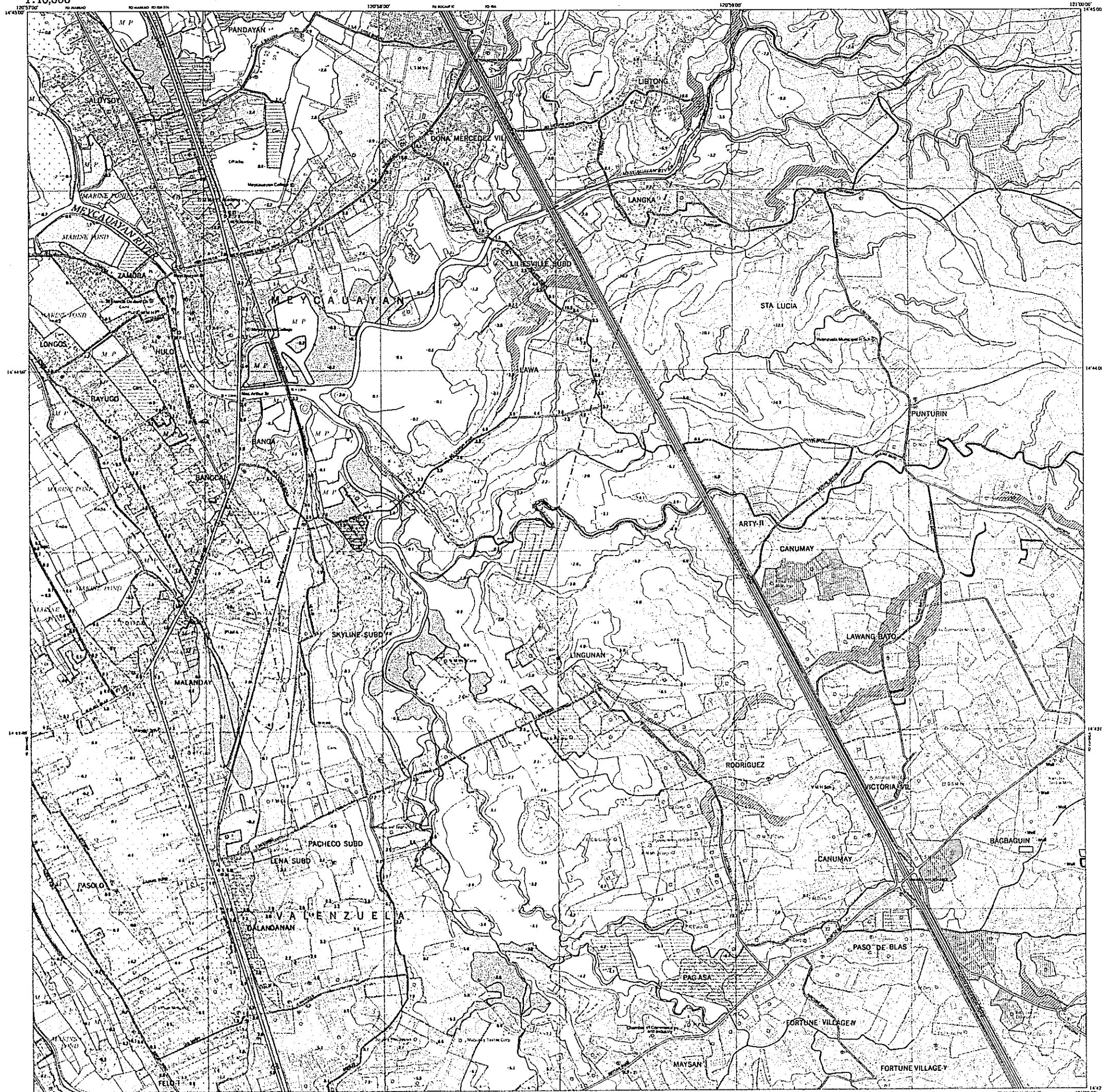
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1. LANDFORM CLASSIFICATION	
<b>ACQUINAIN</b>	Top Flat and Ridge Flat Gentle and Moderate Slope (Less Than About 20°) Steep Slope (More Than About 20°) Thick Lava
<b>PIDMOUNT LANDFORM</b>	Table Conoidal Slope Small Aherial Fan
<b>HILL AND PLATEAU</b>	Top Flat Gentle Slope (Less Than About 5°) Moderate Slope (Between About 5° and 20°) Steep Slope (More Than About 20°) Valley Flat
<b>TERRACE</b>	Low Terrace Lower Terrace Dent and Shallow Valley
<b>ALLUVIAL FAN</b>	General Surface of Aherial Fan Former River Bed
<b>FLOOD PLAIN AND VALLEY FLAT</b>	General Surface of Flood Plain and Valley Flat Former River Bed Natural Levee Backmarsh Swamp and Marsh Dry River Bed
<b>COASTAL PLAIN AND DELTA</b>	General Surface of Coastal Plain and Delta Former River Bed Natural Levee Tidal Flat Subaqueous Line
<b>UNSTABLE SLOPE</b>	Landslide Scar Cut and Rolled Surface Banked Up Surface Cut Slope Banked Up Slope Filled Up Surface Under Construction Area
<b>ARTIFICIALLY DEFORMED LAND</b>	Main Watershed Drainage Water Surface Landform Boundary Industrial Location Boundary Bar Tidal Flat Anthropogenic Line
<b>MAKING AREA</b>	

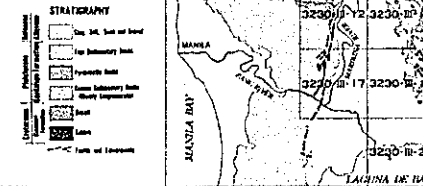
2. GROUND ELEVATION	
<b>ELEVATION POINT</b>	Beach Mark Ground Elevation Point
<b>BOUNDARY LINE</b>	Microrelief Line Contour Line

3. ORGANIZATION AND PUBLIC FACILITIES	
<b>ADMINISTRATIVE BOUNDARY</b>	Regional Boundary Provincial Boundary City and Municipal Boundary
<b>TRANSPORTATION</b>	Main Road Railway Bus Terminal Government Building Police Station Tiv Station Hospital Health Center Church School Rescue Center
<b>MEASUREMENT RELIEF LINE</b>	
<b>FACILITIES FOR RESCUE AND RELIEF</b>	
<b>INDUSTRIAL</b>	Manufacturing Storage and Loading Facility at Deepwater Wharf Storage Tank Tidal Station Water Level Gauge Station Rain Gauge Station Earthquake Observatory Power Plant and Sub-Station Water Treatment Plant River Pumping Station Well
<b>BOUNDARY DIAGRAM</b>	
<b>REGION III</b>	1 Bureau Province
<b>REGION IV</b>	2 Navy Islands
<b>3130-I-23</b>	GENERAL SURFACE GEOLOGICAL MAP (Index to Adjoining Sheets)
<b>3130-II-3</b>	3130-II-4
<b>3130-II-9</b>	3130-II-10
<b>3130-II-17</b>	3130-II-18
<b>3130-II-23</b>	3130-II-24
<b>3130-II-25</b>	3130-II-26
<b>3130-II-27</b>	3130-II-28
<b>3130-II-29</b>	3130-II-30
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<b>3130-II-95</b>	3130-II-96
<b>3130-II-97</b>	3130-II-98
<b>3130-II-99</b>	3130-II-100

This map was produced under a cooperative arrangement between the Government of the Republic of the Philippines and the Government of Japan.

SCALE 1:10,000  
500 400 300 200 100 0 500 1000 meters





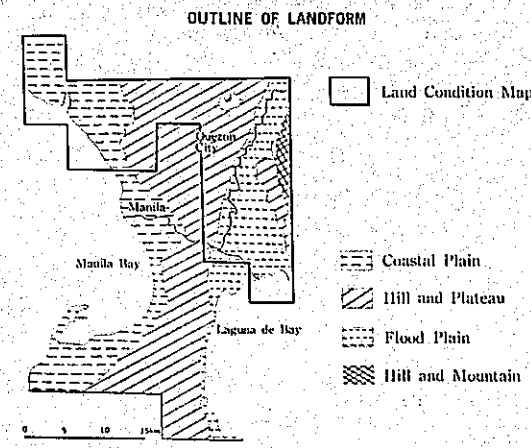
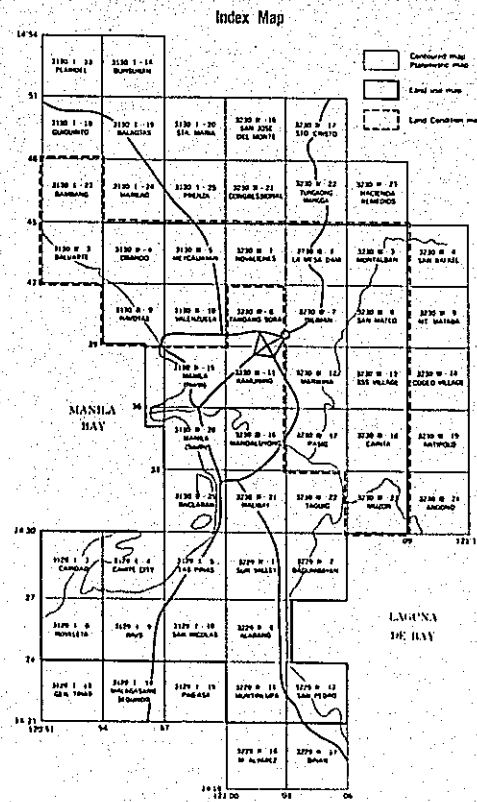




METRO MANILA LAND CONDITION MAP  
SCALE 1 : 10,000

INFORMATION AND USAGE OF  
THE LAND CONDITION MAP

REPUBLIC OF THE PHILIPPINES



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1. Background

To cope with many urban problems prevailing in the National Capital Region, the Philippine Government requested the Japanese Government in March 1984 for technical cooperation in the preparation of urban base maps, which represent the existing conditions of the Region in detail, as basic materials for the implementation of various public works as well as the establishment of diverse plans concerning disaster prevention, land use, urban redevelopment, etc.

In response to the request for technical cooperation, the Japanese Government sent preliminary survey teams to Manila in January through March 1985 for discussions with the authorities concerned in the Philippine Government and for field survey and data collection in the Region. The Japanese Government consequently agreed on a 4-year technical cooperation program starting in 1985.

1-1 Outline of those maps is as follows:

Contoured map (Topographic map)	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Planimetric map	1 : 10,000	1,500km <sup>2</sup> (57 sheets)
Land use map	1 : 10,000	823km <sup>2</sup> (33 sheets)
Land condition map	1 : 10,000	476km <sup>2</sup> (16 sheets)

(see Index Map)

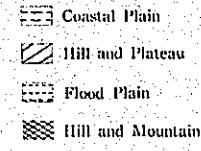
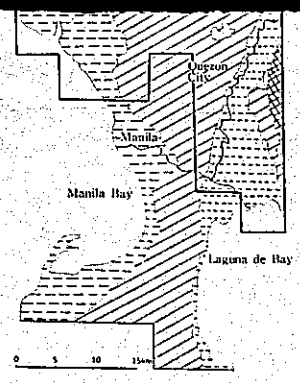
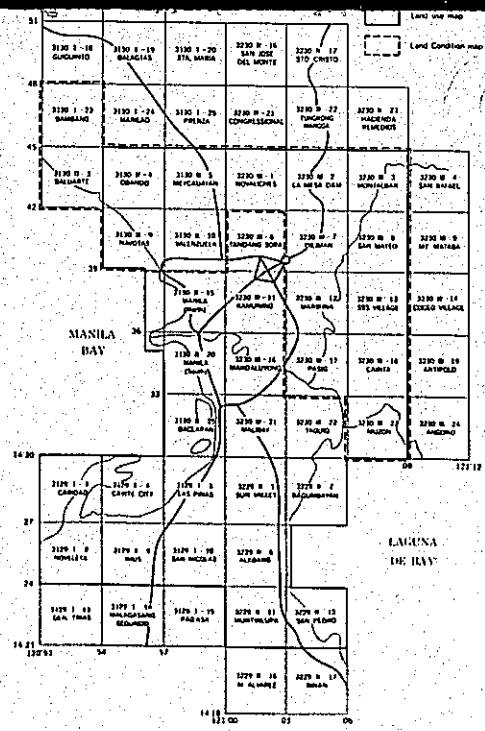
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1-5 The land condition map was completed in 1989 to represent landform classification, ground elevation, organization and facilities using the contoured map as the base. The representation was made mainly on the basis of the interpretation of the aerial photographs taken in 1982

INFORMATION AND USAGE OF THE LAND CONDITION MAP



REPUBLIC OF THE PHILIPPINES

2. Utilization of Land Condition Map

This land condition map is prepared using the 1:10,000 contoured maps as the base on which the landform classification, ground elevation, organizations and facilities are printed in 12 colors. It is possible to find out the following areas by reading the land condition map:

- 2-1 Areas affected by flood or high tide such as low or marshy land.
- 2-2 Areas where earthquake damage is expected due to unfavourable conditions of the surface layer.
- 2-3 Areas where ground subsidence is likely to take place such as coastal plain, delta and flood plain areas.
- 2-4 Artificially deformed land and unstable slopes in mountainous or hilly areas where disasters are expected.
- 2-5 Plateaus and gentle hilly areas being comparatively safe from flood or landslide damage, etc.

Therefore, the land condition map can provide basic information not only for disaster prevention but also for land development, and can be utilized more effectively together with the land use map.

3. Outline of Landform

The classes of landforms in the survey area are generally located as follows:

- 3-1 Coastal Plain  
Coastal plain with elevation of less than 3m extending north to south along Manila Bay.
- 3-2 Hill and Plateau  
The hills and plateaus, where Quezon City Mandaluyong and Makati are located, extending north to south on the eastern side of the coastal plain. Elevations of the hills and plateaus around Pasig River are 20m ~30m and gradually increase northward to 80m ~100m.
- 3-3 Flood Plain  
Around the Marikina River and Laguna de Bay, the flat lowland with an elevation of 1m ~10m covers wide area of floodplain.
- 3-4 Hill and Mountain  
The mountain area has an elevation of 200m ~300m. The western side of the mountain area which is hilly, has an elevation of 50m ~100m. In the mountains where top flats still remain, gentle slopes are generally prevailing although there are steep slopes along the river valleys.

4. Components of the Land Condition Map

The land condition map is composed of the following three major categories:

- Landform Classification.
- Ground Elevation.
- Organization and Facilities

These categories are then divided into 91 sub-classifications.

4-1 Landform Classification

As for the landform classification, various types of landform are classified into mountain, hill and plateau, lowland (flood plain, delta and others), etc. according to the form, formative processes and surface materials. In the detailed classification, the safety or susceptibility to disasters is also taken into account.

4-2 Ground Elevation

In the lowland area the ground elevation points and microrelief lines are shown in order to clarify its susceptibility to flooding and high tides.

4-3 Organization and Facilities

Regarding organization and facilities, emphasis is placed on those closely related to disaster prevention and land development. The facilities for disaster prevention and development, facilities for rescue and relief, observatory, facilities for supply and processing, river and coastal structure, etc. are represented.

5. Land Condition Survey

5-1 Landform Classification

(1) The landform classification was made mainly on the basis of the photo-interpretation of the aerial photographs taken in 1982 and 1986. Field identification was also conducted at the main sites in 1987.

(2) With regard to artificially deformed land (mainly banked up) in lowland (flood plain, delta, coastal plain, etc.) which is susceptible to natural disasters, the landform before deformation is also represented on the basis of the comparative interpretation of aerial photographs taken in 1968, 1982 and 1986.

5-2 Ground Elevation

In the lowland area the ground elevation points are represented by minor order leveling. On the basis of those leveling points, the spot heights and microrelief lines measured by photogrammetry are also represented.

5-3 Organization and Facilities

The organization and facilities are represented on the basis of the features shown on the 1:10,000 contoured maps and the data provided by BCGS and other agencies. Field survey was also conducted by BCGS and JICA.

6. Criteria for Representation on the Land Condition Map

6-1 Landform Classification

- (1) The minimum size for the representation of landform classification is generally 2mm x 2mm on the maps and that for the linear symbols is about 5mm on the maps.
- (2) The boundaries of the areas where the landform classification not clearly defined are delineated by broken lines.
- (3) The bars, tidal flats and bathymetric lines in marine areas are represented on the basis of the data provided by BCGS.

respectively. The values of both points are shown in meters, to the first decimal place.

(2) The microrelief lines are represented at 1m intervals.

6-3 Organization and Facilities

- (1) The river and coastal structures constructed across rivers of more than 4m in width or those with more than 50m in length are represented.
- (2) Regarding transportation, main roads of more than 1km in length are represented.
- (3) For facilities in coastal area, the ports, harbors, and fishery ports are represented, and their symbol sizes vary according to their scale.
- (4) The facilities for rescue and relief, facilities for dangerous materials, observatory, facilities for supply and processing are represented without exception.
- (5) The organization and facilities other than the above, are represented according to the criteria for the 1:10,000 contoured maps.

6-4 Color Scheme

Printing was conducted with 12 color separation plates (brown, violet, green, yellow, orange, light green, blue, sky blue, silver gray, red, black, dark gray) and their combinations to make the various land conditions easily identifiable.

Mountain:	Brown
Piedmont Landform:	Yellow
Hill and Plateau, Terrace:	Orange-brown
Flood Plain and Valley Plain:	Light green
Coastal Plain and Delta:	Blue-green
Artificially Deformed Land, Unstable Slope (Landslide Scar):	Red
Landform in Marine Area:	Silver gray
Water Surface:	Sky blue
Microrelief Line:	Brown
Organization and Facilities:	Black, Red
Ground Elevation, Annotation:	Black
Boundary Line, Unstable Slope (Cliff):	Violet
Base Map:	Dark gray

7. Definition of Selected Technical Terms

- 1) Knick Line ... Lines passing points on slopes of mountain-sides, which divide upper gentle slopes and lower steep slopes.
- 2) Talus ... Relatively steep depositional surfaces formed at lower parts of mountain-slopes by rain wash or land slide and consisting of larger grains of debris.
- 3) Colluvial Slope ... Depositional landforms with relatively gentle slopes, formed by debris and weathered material transported and sedimented by effects of rain wash and soil creep.
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