

LAND SUITABILITY MAP

CACAO

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS

ZAMBOANGA CITY

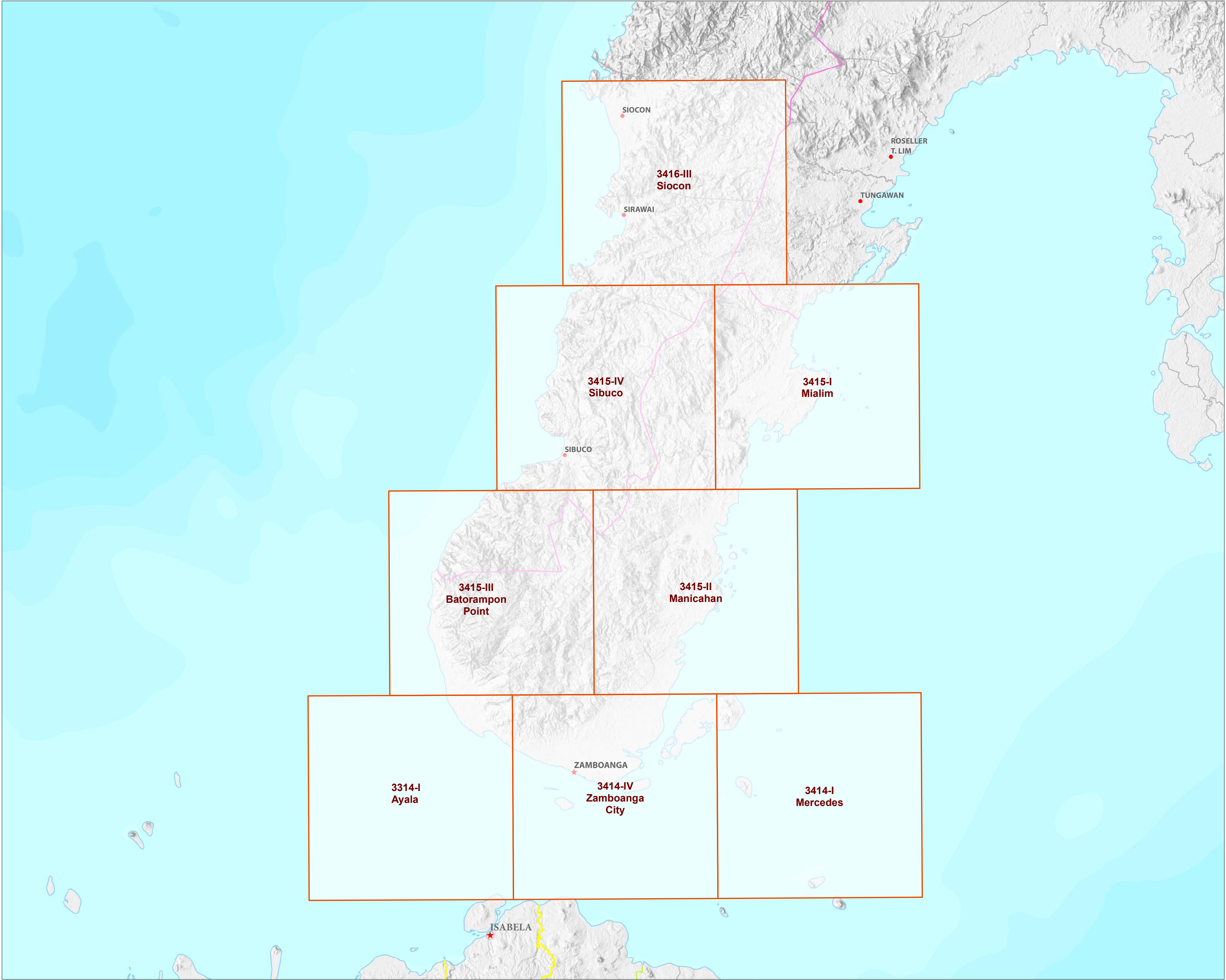


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DEPARTMENT OF AGRICULTURE
BUREAU OF SOILS AND WATER MANAGEMENT

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LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS ZAMBOANGA CITY



LEGEND

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- ★ City
- ⊙ Capital Town
- Town

Administrative Boundary

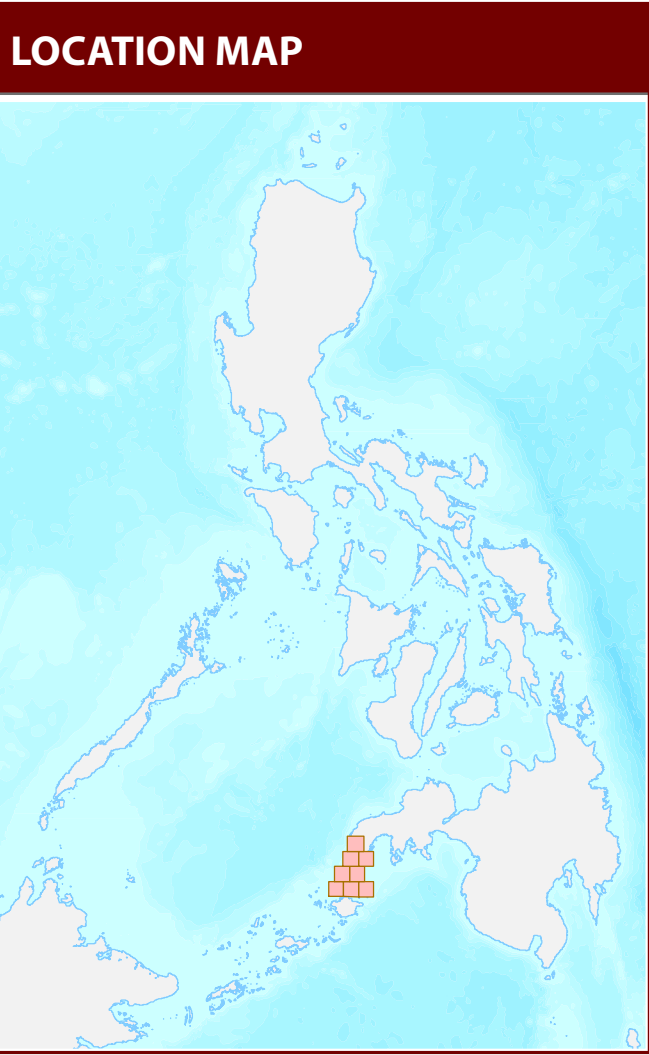
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- City
- Municipal

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Topographic Relief

Bathymetry



MISCELLANEOUS INFORMATION

Land suitability information produced by the Bureau of Soils and Water Management (BSWM) through the **Land Resources Evaluation and Suitability Assessment of Strategic Production Areas for Major Commodities Project** duly supported by the Philippine Council on Agriculture and Fisheries (PCAF) and funded by the Bureau of Agricultural Research (BAR).

Map produced by the Geomatics and Soil Information Technology Division, Bureau of Soils and Water Management (BSWM).

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LAND SUITABILITY MAP FOR CACAO

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS ZAMBOANGA CITY, REGION IX

EXTENT OF SUITABILITY FOR CACAO PRODUCTION BY MUNICIPALITY

| MUNICIPALITY | EXISTING CACAO (Ha) | | | TOTAL EXISTING AREA (Ha) | EXPANSION AREA (Ha) | | | | CONFLICT RESOLUTION AREA (Ha) | | | | | | TOTAL POTENTIAL EXPANSION AREA (Ha) | | |
|----------------|---------------------|----|----|--------------------------------|---------------------|-------|--------------------------|-----|-------------------------------|-------|-------|----|------------------------------|----|--|-------------|--------|
| | | | | | Coconut | | Shrubland, unmanaged* | | Grassland, unmanaged* | | Corn | | Paddy rice, non-irrigated | | | Other crops | |
| | S1 | S2 | S3 | | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | S1 | S2 | | | |
| ZAMBOANGA CITY | - | - | - | - | 17,783 | 2,221 | 3,742 | 702 | 10,589 | 1,677 | 3,208 | 20 | - | - | - | 8 | 39,949 |
| TOTAL | - | - | - | - | 17,783 | 2,221 | 3,742 | 702 | 10,589 | 1,677 | 3,208 | 20 | - | - | - | 8 | 39,949 |

Note: Delivery of cacao planting materials must be started on the onset of rainy season.
*establishment of shade trees prior to planting of cacao.

SUITABILITY CLASSES:

| | |
|--|--|
| <div></div> Highly Suitable (S1) Land having no significant limitation to sustained application of a given use, or only minor limitations that will not significantly reduce productivity or benefits and will not raise inputs above an acceptable level. | <div></div> Marginally Suitable (S3) Land having limitations which in aggregate are severe for sustained application of a given use and will so reduce productivity or benefits, or increase required inputs, that this expenditure will be only marginally justified. |
| <div></div> Moderately Suitable (S2) Land having limitation which in aggregate are moderately severe for sustained application of a given use; the limitation will reduce productivity or benefits and increase required inputs to the extent that the overall advantage to be gained from the use, although still attractive, will be appreciably inferior to that expected on class S1 land. | <div></div> Not Suitable / Not Relevant Land having limitations which may be surmountable in time but which cannot be corrected with existing knowledge at currently acceptable cost; the limitations are so severe as to preclude successful sustained use of the land in the given manner. Existing forest, shrubland greater than 18% slope, irrigated paddy rice and miscellaneous land types such as built up areas, roads, etc are considered as not relevant. |

AGRONOMIC REQUIREMENT OF CACAO PRODUCTION

| LAND UTILIZATION TYPE | SUITABILITY RATING | SLOPE (%) | SOIL DEPTH (cm) | SOIL TEXTURE | SOIL DRAINAGE | SOIL REACTION (pH) | INHERENT FERTILITY | FLOODING CLASS | EROSION CLASS | ROCK OUTCROPS | ELEVATION (masl) | ANNUAL RAINFALL (mm) | CLIMATIC TYPE |
|-----------------------|--------------------|-----------|-----------------|-------------------------------|---------------|------------------------|--------------------|----------------|---------------|---------------|------------------|----------------------|---------------|
| Cacao | S1 | <8 | >100 | CL, SiCL, SCL, SC, SiC, C, HC | WD,MWD | 5.6 -7.2 | high | none-slight | none-slight | none-few | <1000 | 2001-4500 | I, III, IV |
| | S2 | 8 - 30 | 50 - 100 | FSL, L, SIL | SPD,PD | 5.1 - 5.5 7.3 - 7.8 | medium | moderate | moderate | common | 1000-1500 | 1000-2000 | I, II |
| | S3 | >30 | <50 | S, LS, CSL, SL | VPD,ED | <5.0 - > 7.9 | low | severe | severe | many | >1500 | <1000 >4500 | |

| | | | | |
|--|---|--|---|---|
| SLOPE (%) 0 - 3 - level to gently sloping 3 - 8 - gently sloping to undulating 8 - 18 - undulating to rolling 18 - 30 - rolling to moderately steep 30 - 50 - steep > 50 - very steep | SOIL DRAINAGE ED - excessively drained WD - well drained MWD - moderately well drained SPD - somewhat poorly drained PD - poorly drained VPD - very poorly drained | SOIL REACTION (pH) < 4.5 - extremely acid 4.5 - 5.0 - very strongly acid 5.1 - 5.5 - strongly acid 5.6 - 6.0 - medium acid 6.1 - 6.5 - slightly acid 6.6 - 7.2 - neutral 7.3 - 7.8 - mildly alkaline 7.9 - 8.4 - moderately alkaline > 8.5 - strongly alkaline | SOIL TEXTURE Coarse S - sand LS - loamy sand CSL - coarse sandy loam SL - sandy loam Medium FSL - fine sandy loam L - loam SIL - silt loam CL - clay loam SiCL - silty clay loam SCL - sandy clay loam | Fine SC - sandy clay SiC - silty clay C - clay HC - heavy clay |
| SOIL DEPTH (cm) 0 - 30 - very shallow 30 - 50 - shallow 50 - 100 - moderately deep > 100 - deep to very deep | SURFACE IMPEDIMENT ROCK OUTCROPS < 10% - none - few 10 - 30% - common > 30% - many | | | |

LAND LIMITATIONS DESCRIPTION AND COMBINATIONS

| | | | |
|--|---|---|---|
| ELEVATION EI2 - 1000m - 1500m EI3 - > 1500m | SOIL DRAINAGE D2 - Somewhat poorly drained to poorly drained D3 - Very poorly drained or excessively drained | SOIL DEPTH Sh2 - Moderately deep (50 - 100cm) Sh3 - Very shallow to shallow (< 50cm) | SOIL EROSION E2 - Moderate erosion E3 - Severe erosion |
| SLOPE/TOPOGRAPHY T2 - Undulating to moderately steep T3 - Steep to very steep | SOIL TEXTURE Tc - Coarse texture | ROCK OUTCROPS Rc2 - Common Rc3 - Many | FLOODING F2 - Moderate seasonal flooding F3 - Severe seasonal flooding |

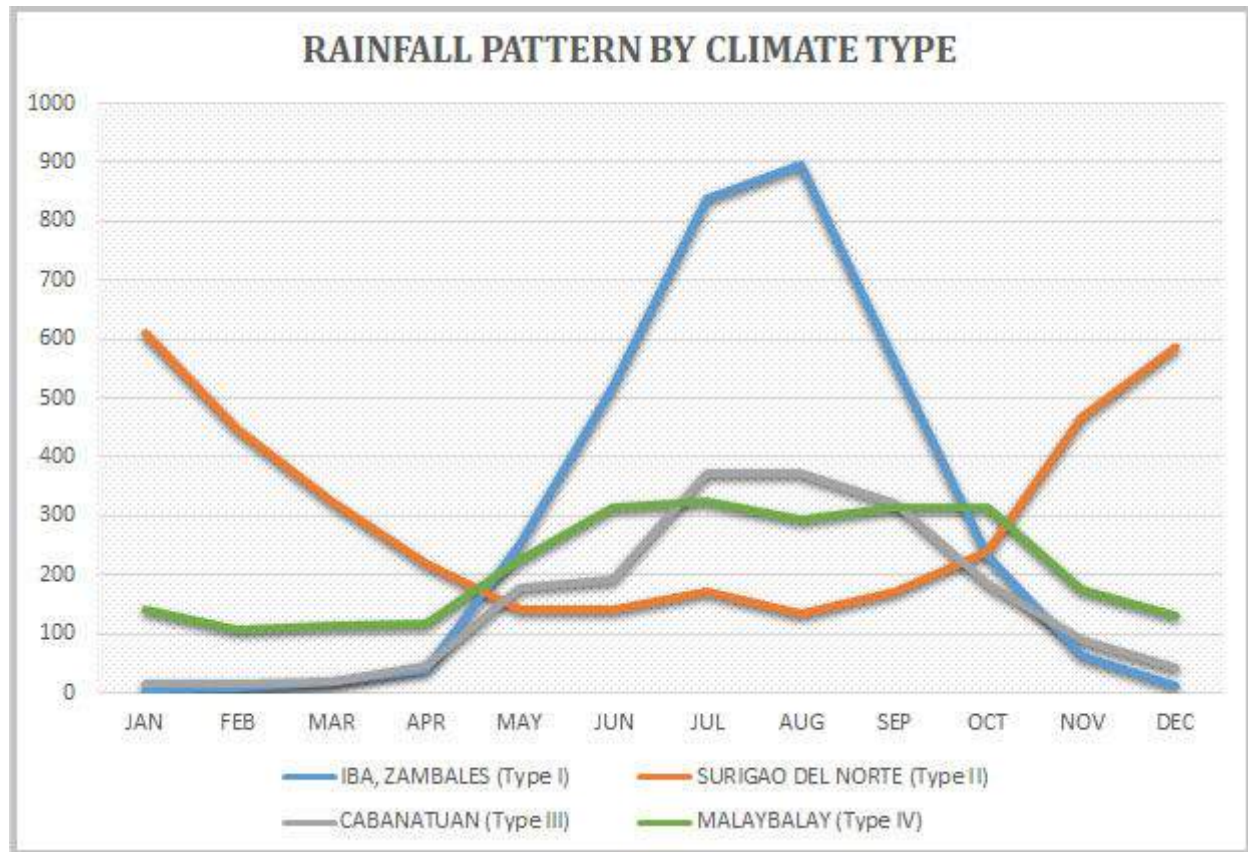
| CODE | LIMITATION | CODE | LIMITATION | CODE | LIMITATION | CODE | LIMITATION |
|------|-------------|------|-------------------|------|-------------------|------|-------------------|
| 1 | E2-Sh2-Rc2 | 11 | T2-E3 | 21 | T2-F3-D2 | 31 | T3-EI2-E3-Sh3-Rc3 |
| 2 | EI2 | 12 | T2-E3-Rc2 | 22 | T3 | 32 | T3-F3-D2 |
| 3 | EI2-E2-Rc3 | 13 | T2-E3-Rc3 | 23 | T3-E3 | 33 | T3 |
| 4 | EI2-E3-Rc3 | 14 | T2-E3-Sh2-Rc2 | 24 | T3-E3-Rc2 | 34 | T3-E3 |
| 5 | EI2-Sh2-Rc2 | 15 | T2-E3-Sh2-Rc3 | 25 | T3-E3-Sh2-Rc3 | 35 | T3-E3-Rc3 |
| 6 | EI2-Sh2-Rc3 | 16 | T2-EI2-E3 | 26 | T3-E3-Sh3-Rc2 | 36 | T3-E3-Sh3-Rc3 |
| 7 | F2-D2 | 17 | T2-EI2-E3-Rc3 | 27 | T3-E3-Sh3-Rc3 | 37 | T3-EI2-E3-Sh3-Rc3 |
| 8 | F3-D2 | 18 | T2-EI2-E3-Sh2-Rc2 | 28 | T3-EI2-E3 | 38 | T3-EI3 |
| 9 | Sh2-Rc2 | 19 | T2-EI2-E3-Sh2-Rc3 | 29 | T3-EI2-E3-Sh2-Rc3 | 39 | Tc |
| 10 | T2 | 20 | T2-F2-D2 | 30 | T3-EI2-E3-Sh3-Rc2 | | |

| CODE | LANDUSE |
|------|--------------------|
| 4 | Corn |
| 82 | Cacao |
| 105 | Fruit trees, mixed |
| 116 | Coconut |
| 126 | Grassland |
| 134 | Shrubs, unmanaged |
| 137 | Rubber |
| | |
| | |
| | |

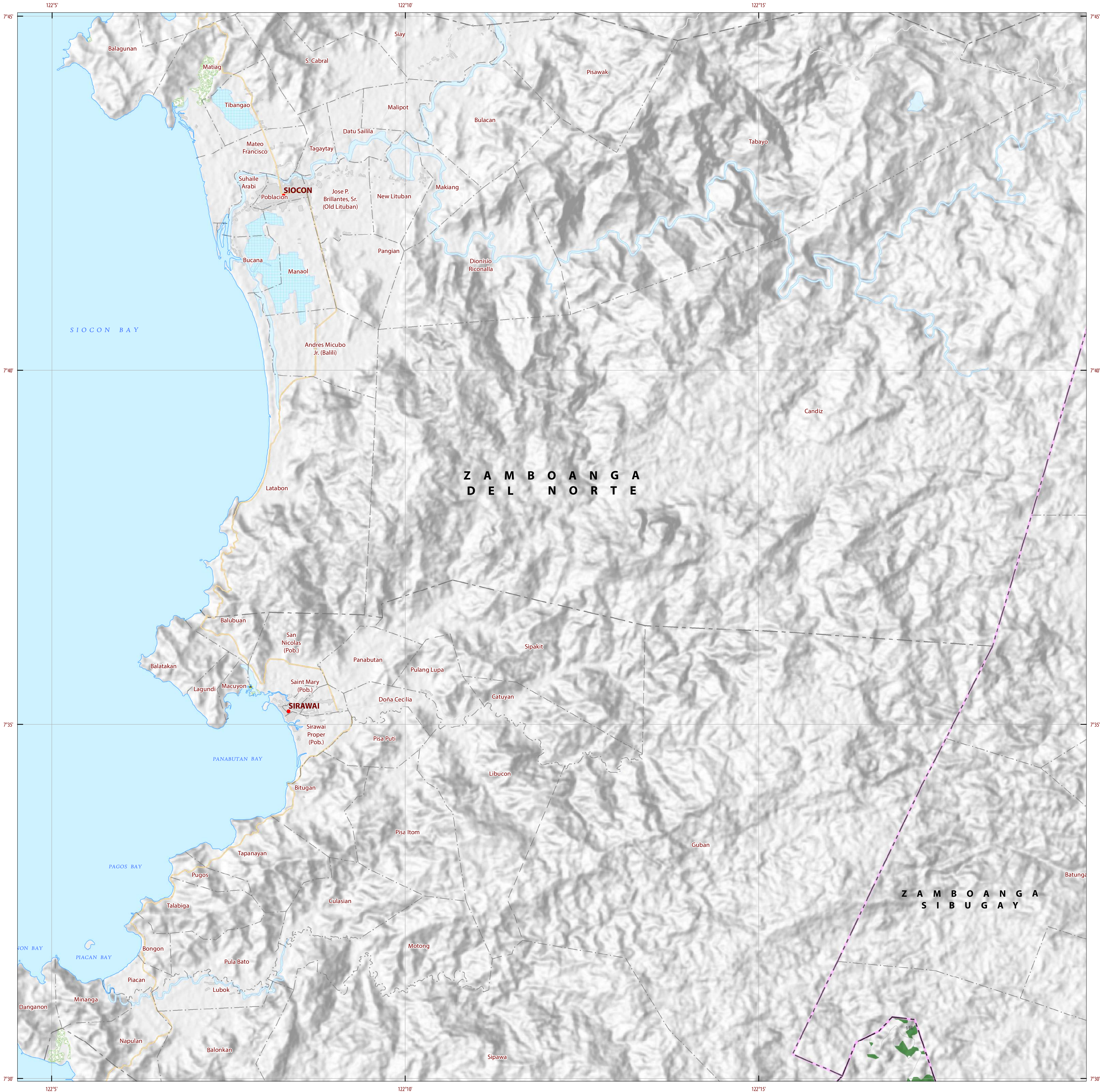
CLIMATE TYPE

| | |
|---|--|
| TYPE I : Two pronounced season, dry from November to April and wet during the rest of the year. Maximum rain period is from June to September | TYPE II : No dry season with a very pronounced maximum rain period from December to February. There is not a single dry month. Maximum monthly rainfall occurs during the period from March to May. |
| TYPE III : No very pronounced maximum rain period, with a dry season lasting only from one to three months, either during the period from December to February or from March to May. This type resembles Type I since it has a short dry season. | TYPE IV : Rainfall is more or less evenly distributed throughout the year. This type resembles Type II since it has no dry season. |

Whole part of Zamboanga City is classified as climatic Type III.

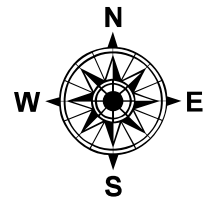


Source: PAGASA 2018, *Climatological Normals (Rainfall)*, Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), accessed 27 July 2018, <<https://www1.pagasa.dost.gov.ph/index.php/climate/climatological-normals>>.



LAND SUITABILITY MAP CACAO

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SCALE 1 : 50 000



Universal Transverse Mercator Zone 51 N, PRS 1992 Datum
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LEGEND

SUITABILITY CLASSES

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- S3 Marginally Suitable** - Land having limitations which in aggregate are severe for sustained application of a given use and will so reduce productivity or benefits, or increase required inputs, that this expenditure will be only marginally justified.

Not Suitable/ Not Relevant

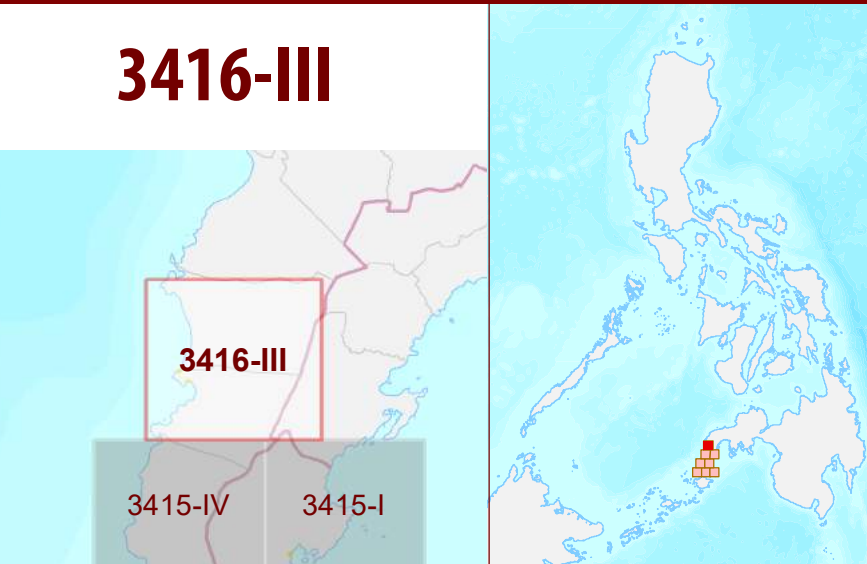
OTHER SIGNS

- NGP Areas
- Cacao
- Land limitation
- Land use

CONVENTIONAL SIGNS

- ROADS**
 - Expressway
 - Trunk line
 - Primary
 - Secondary
 - Tertiary
- BOUNDARY**
 - Region
 - Province
 - District
 - Municipality
 - Barangay
- HYDROLOGY**
 - Sea / Shoreline
 - Lakes / Rivers
- PLACES**
 - Capital City / City
 - Capital Town / Town
- LAND USE**
 - Built-up
 - Fishpond
 - Mangrove

ADJOINING SHEETS



INDEX MAP

MISCELLANEOUS INFORMATION

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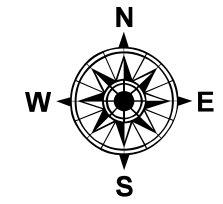
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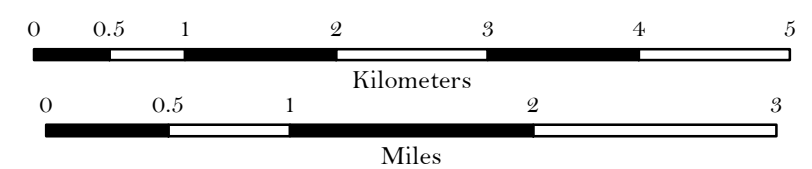
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SCALE 1 : 50 000



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SUITABILITY CLASSES

- | | |
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| S3 | Marginally Suitable - Land having limitations which in aggregate are severe for sustained application of a given use and will so reduce productivity or benefits, or increase required inputs, that this expenditure will be only marginally justified. |


☐ Not Suitable/ Not Relevant

OTHER SIGNS

- 
 NGP Areas
 Cacao
- 
 Land limitation
 Land use

CONVENTIONAL SIGNS



ROADS

- 
- Express
Trunk line
Primary
Secondary
Tertiary

BOUNDARY

-

PLACES

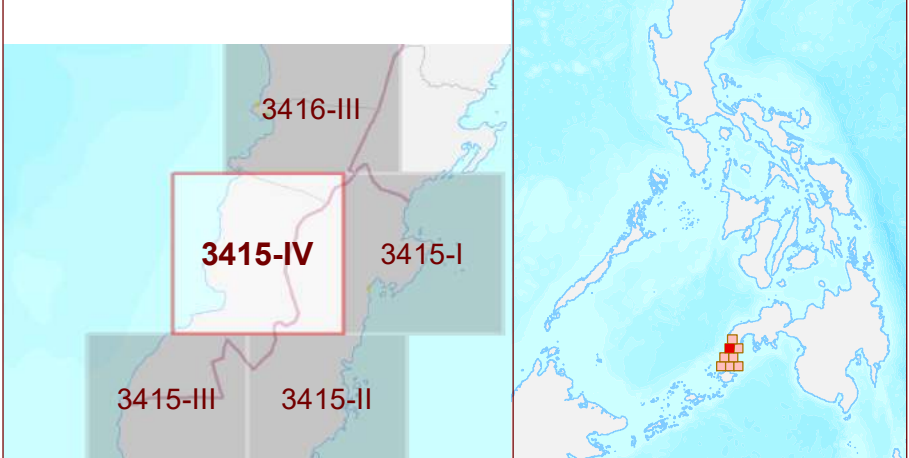
- Capital City / City
  Capital Town / Town

LAND USE

- Built-up Fishpond Mangrove

ADJOINING SHEETS

3415-IV



MISCELLANEOUS INFORMATION

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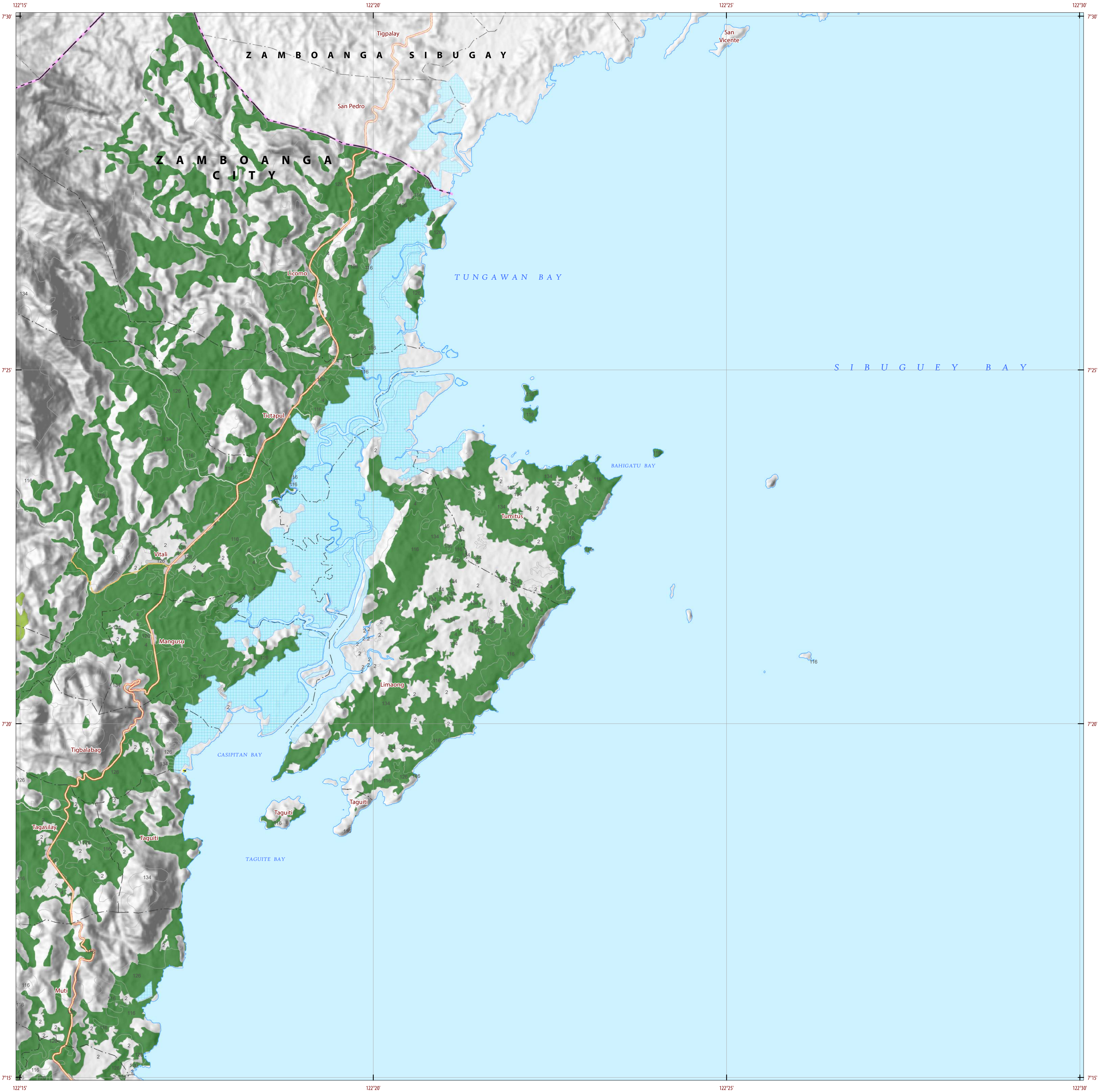
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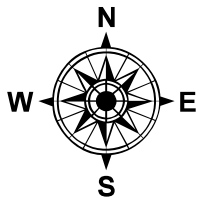
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LAND SUITABILITY MAP
CACAO

LAND RESOURCES EVALUATION AND SUITABILITY
ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SCALE 1 : 50 000



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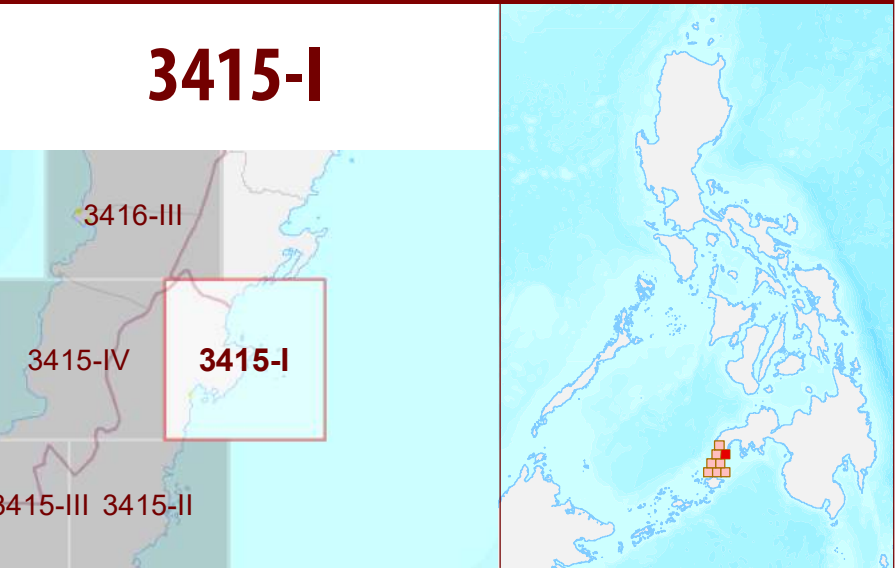
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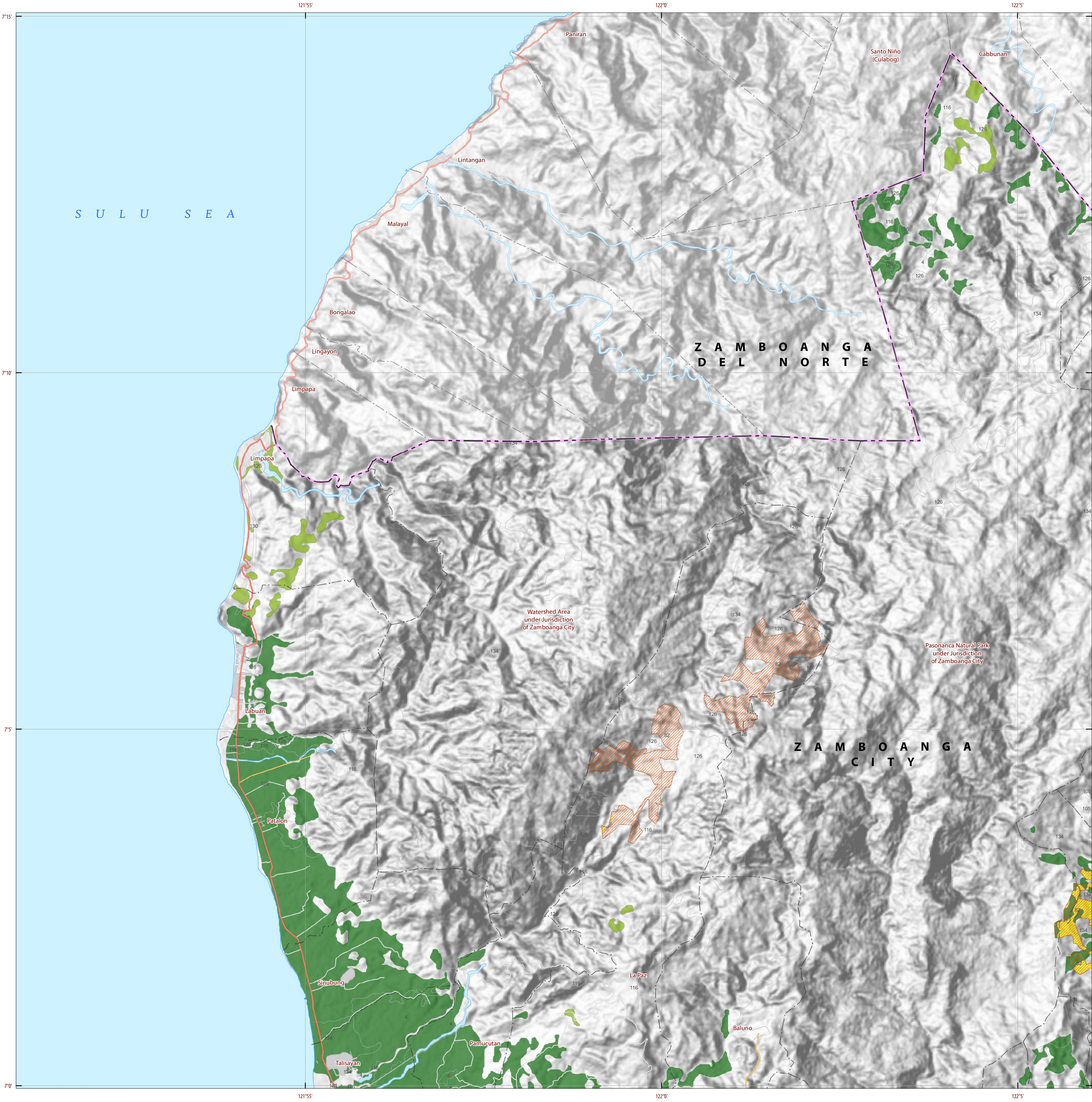
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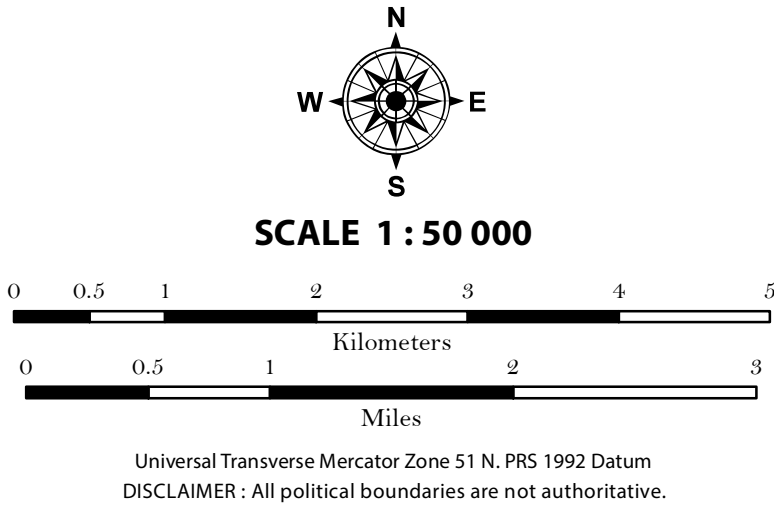
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OTHER SIGNS

- NGP Areas
- Cacao
- Land limitation
- Land use

CONVENTIONAL SIGNS

ROADS

- Expressway
- Trunk line
- Primary
- Secondary
- Tertiary

BOUNDARY

- Region
- Province
- District
- Municipality
- Barangay

HYDROLOGY

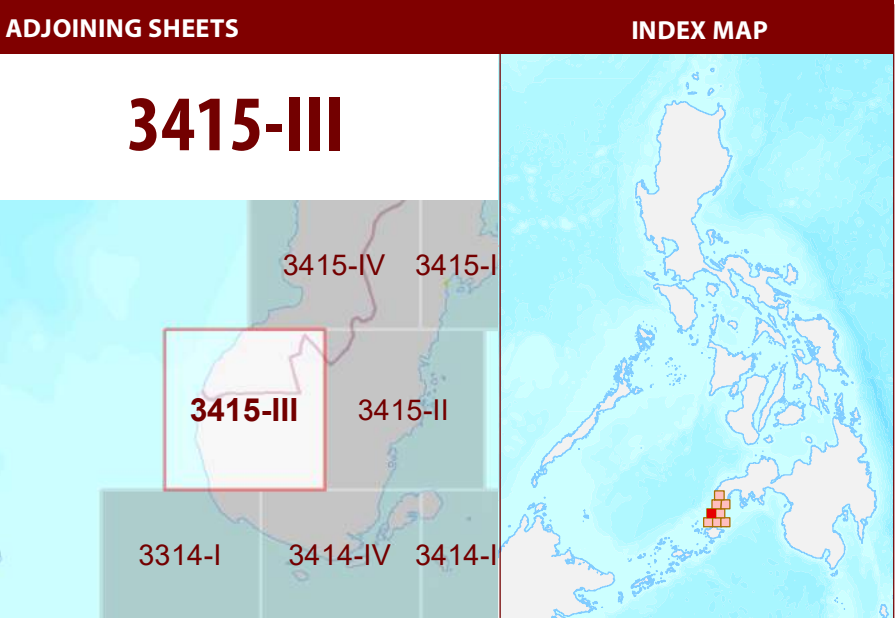
- Sea / Shoreline
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PLACES

- Capital City / City
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LAND USE

- Built-up
- Fishpond
- Mangrove



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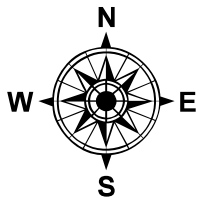
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- S3 Marginally Suitable** - Land having limitations which in aggregate are severe for sustained application of a given use and will so reduce productivity or benefits, or increase required inputs, that this expenditure will be only marginally justified.

Not Suitable/ Not Relevant

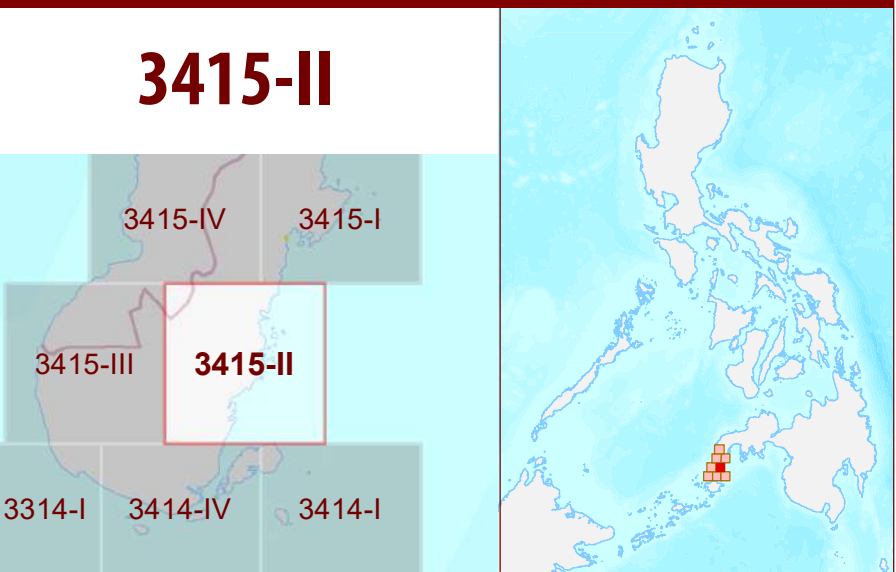
OTHER SIGNS

- NGP Areas
- Cacao
- Land limitation
- Land use

CONVENTIONAL SIGNS

- ROADS**: Expressway, Trunk line, Primary, Secondary, Tertiary
- BOUNDARY**: Region, Province, District, Municipality, Barangay
- HYDROLOGY**: Sea / Shoreline, Lakes / Rivers
- PLACES**: Capital City / City, Capital Town / Town
- LAND USE**: Built-up, Fishpond, Mangrove

ADJOINING SHEETS



MISCELLANEOUS INFORMATION

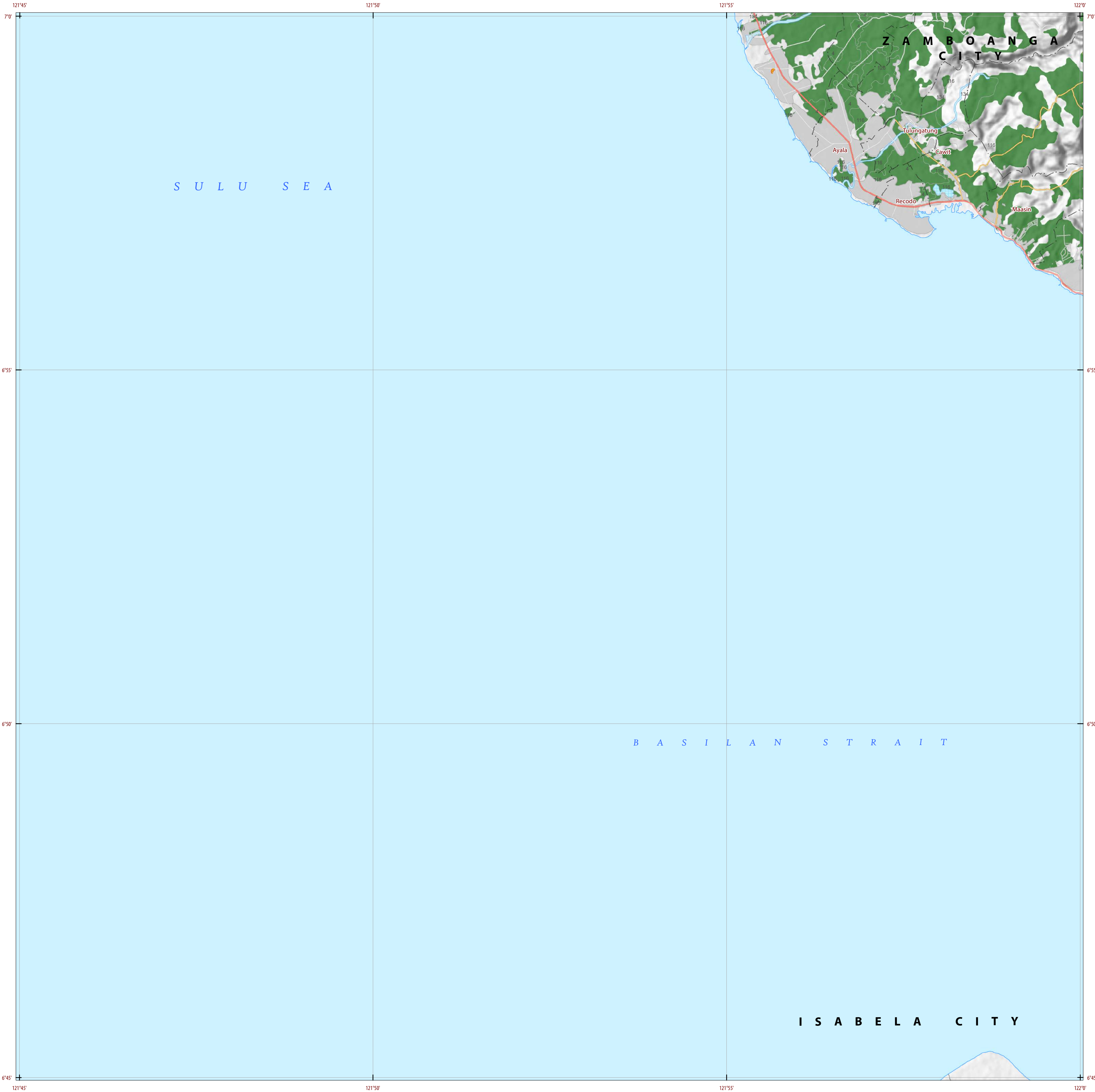
SOURCES OF INFORMATION : Topographic information taken from NAMRIA Topographic Map at 1:50,000 scale. Land resources information from the Agricultural Land Management and Evaluation Division (ALMED), Soils Survey Division (SSD) and Laboratory Services Division (LSD) of BSWM. Rice areas obtained from the Land Use System (FAO, 2015) and Philippine Rice Information System (PRISM) (IRRI, 2015). Data analysis and compilation through the **Land Resources Evaluation and Suitability Assessment of Strategic Production Areas for Major Commodities Project** implemented by BSWM (2017).

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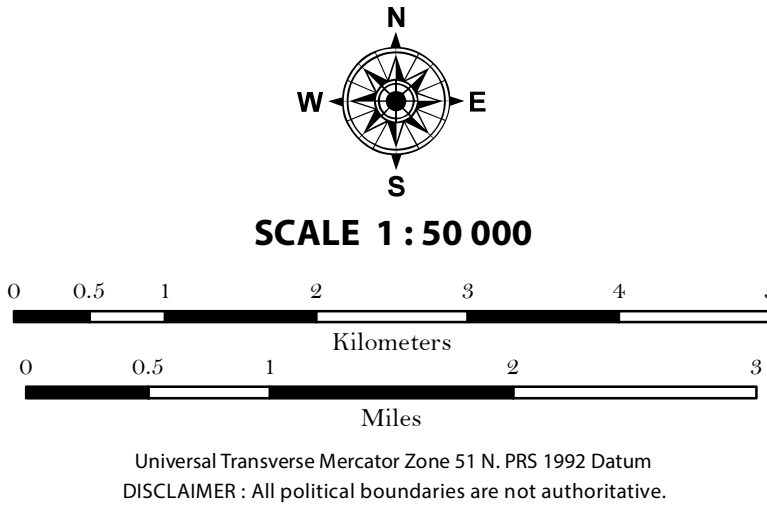
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LAND SUITABILITY MAP CACAO

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS



LEGEND

SUITABILITY CLASSES

S1

Highly Suitable - Land having no significant limitations to sustained application of a given use, or only minor limitations that will not significantly reduce productivity or benefits and will not raise inputs above an acceptable level.

S2

Moderately Suitable - Land having limitations which in aggregate are moderately severe for sustained application of a given use; the limitations will reduce productivity or benefits and increase required inputs to the extent that the overall advantage to be gained from the use, although still attractive, will be appreciably inferior to that expected on class S1 land.

S3

Marginally Suitable - Land having limitations which in aggregate are severe for sustained application of a given use and will so reduce productivity or benefits, or increase required inputs, that this expenditure will be only marginally justified.

Not Suitable/ Not Relevant

OTHER SIGNS

NGP Areas

Cacao

Land limitation

Land use

CONVENTIONAL SIGNS

ROADS

Expressway

Trunk line

Primary

Secondary

Tertiary

BOUNDARY

Region

Province

District

Municipality

Barangay

HYDROLOGY

Sea / Shoreline

Lakes / Rivers

PLACES

Capital City / City

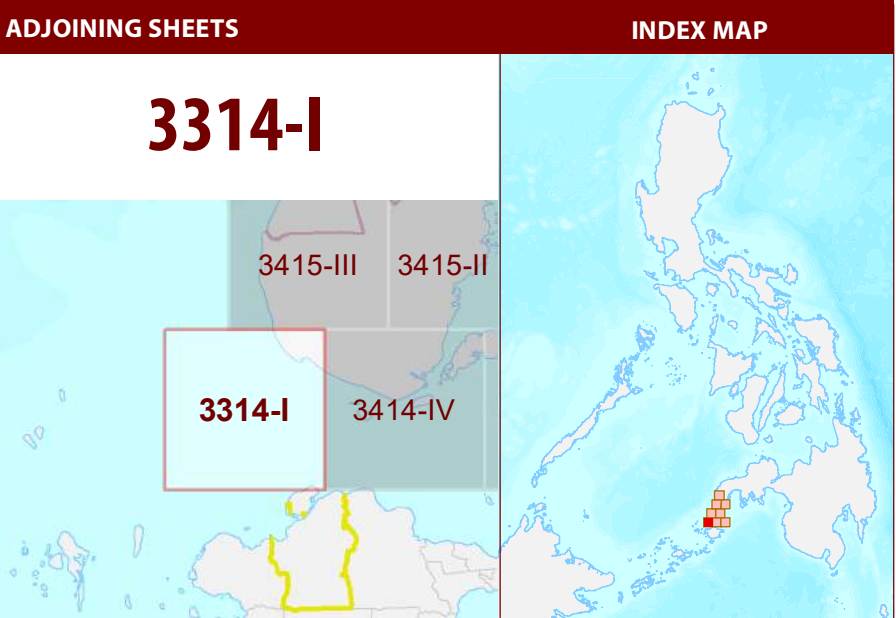
Capital Town / Town

LAND USE

Built-up

Fishpond

Mangrove



MISCELLANEOUS INFORMATION

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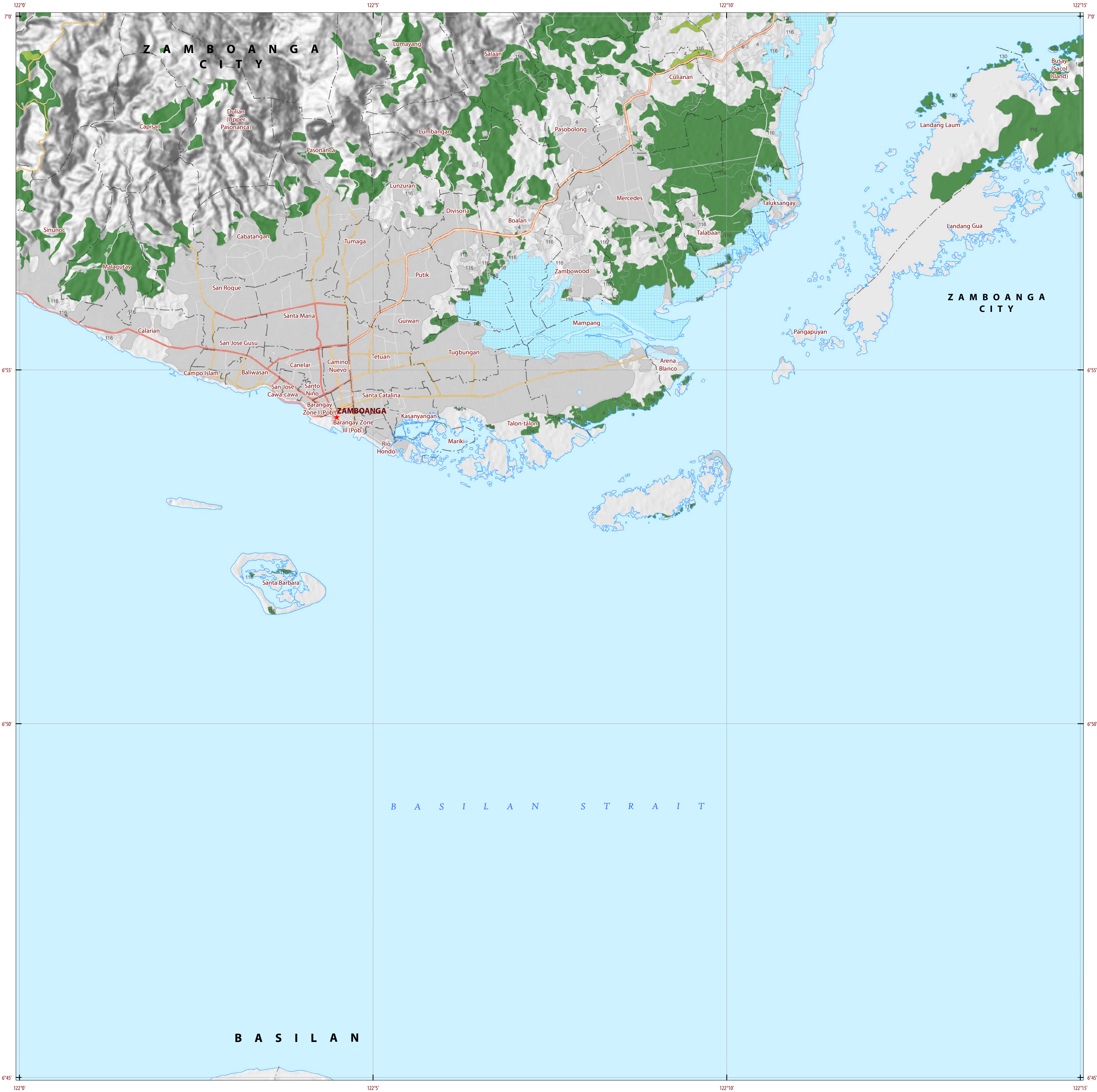
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3414-IV

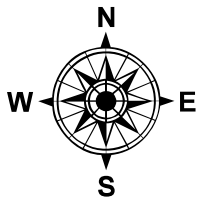
ZAMBOANGA CITY

Zamboanga City



LAND SUITABILITY MAP
CACAO

LAND RESOURCES EVALUATION AND SUITABILITY
ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SCALE 1 : 50 000



Universal Transverse Mercator Zone 51 N, PRS 1992 Datum
DISCLAIMER : All political boundaries are not authoritative.

LEGEND

SUITABILITY CLASSES

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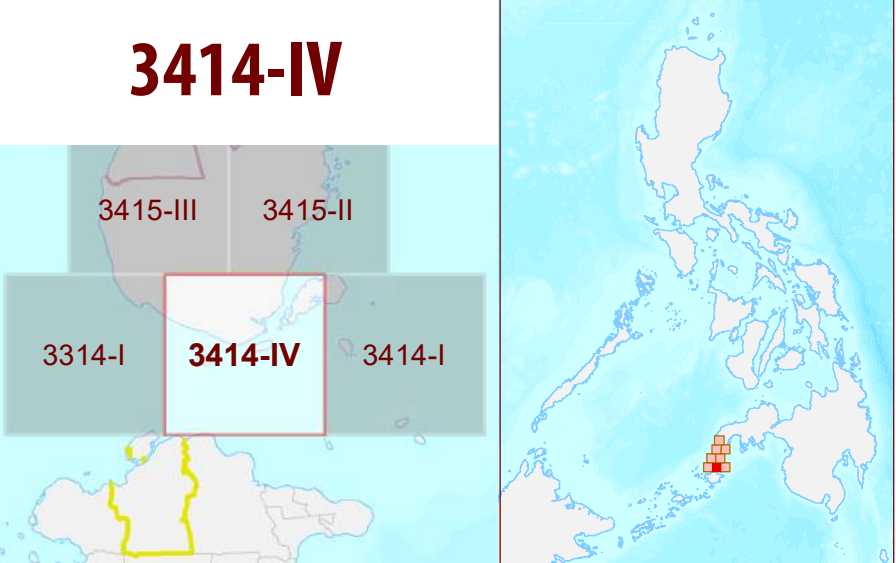
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- NGP Areas
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ADJOINING SHEETS



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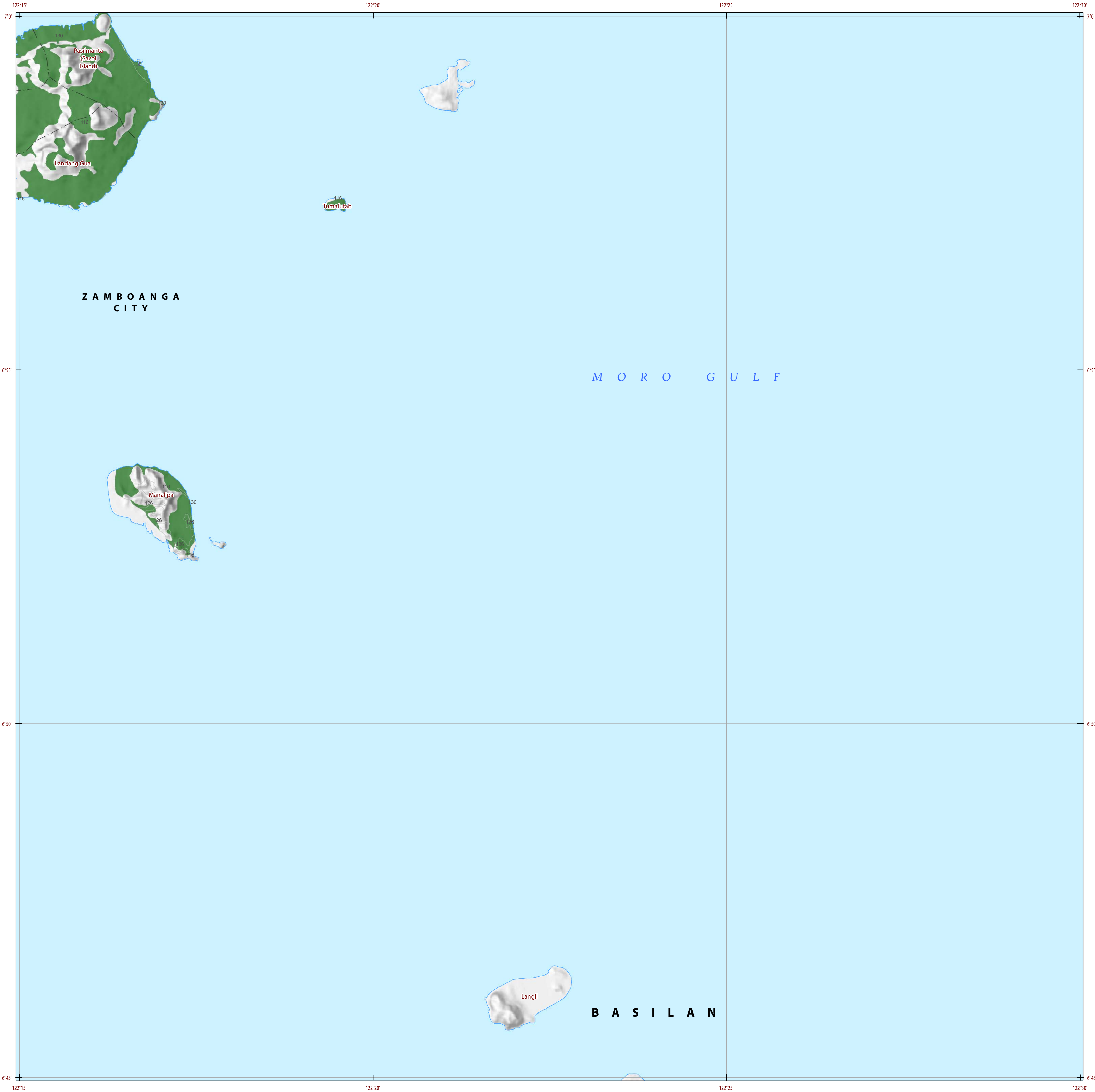
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ZAMBOANGA CITY

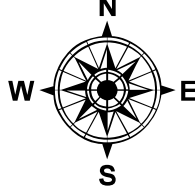
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LAND SUITABILITY MAP
CACAO

LAND RESOURCES EVALUATION AND SUITABILITY
ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SCALE 1 : 50 000



Universal Transverse Mercator Zone 51 N, PRS 1992 Datum
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LEGEND

SUITABILITY CLASSES

S1

Highly Suitable

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Marginally Suitable


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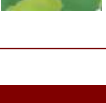
Not Suitable/ Not Relevant

OTHER SIGNS

NGP Areas

Cacao

Land limitation

Land use

CONVENTIONAL SIGNS

ROADS

Expressway

Trunk line

Primary

Secondary

Tertiary

BOUNDARY

Region

Province

District

Municipality

Barangay

HYDROLOGY

Sea / Shoreline

Lakes / Rivers

PLACES

Capital City / City

Capital Town / Town

LAND USE

Built-up

Fishpond

Mangrove

ADJOINING SHEETS

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MISCELLANEOUS INFORMATION

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ZAMBOANGA CITY

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