

# **LAND SUITABILITY MAP**

## **ARABICA COFFEE**

### **LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS**

### **PROVINCE OF BASILAN**



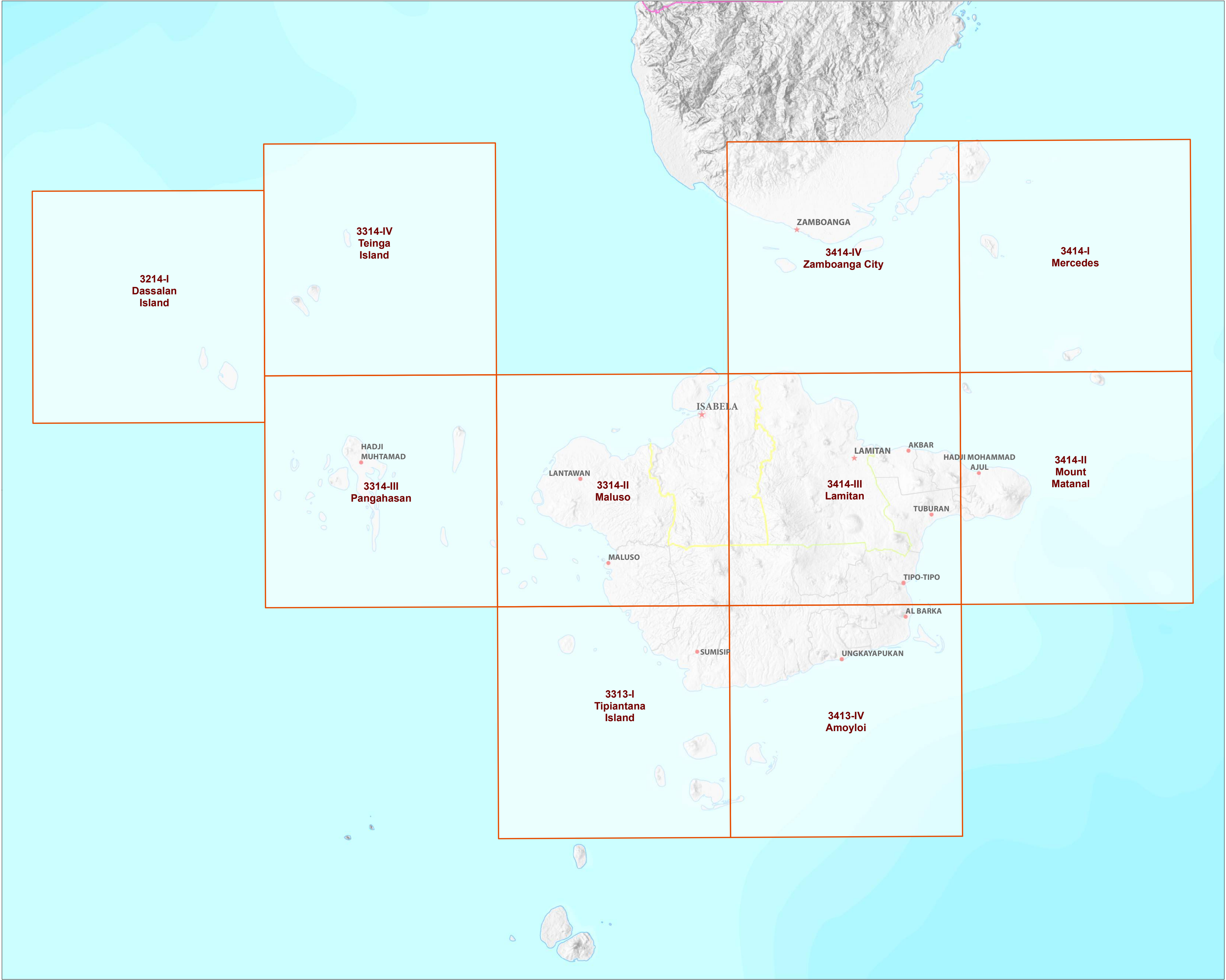
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## LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS PROVINCE OF BASILAN



**LEGEND**

**Places**

- ★ Capital City
- ★ City
- Capital Town
- Town

**Administrative Boundary**

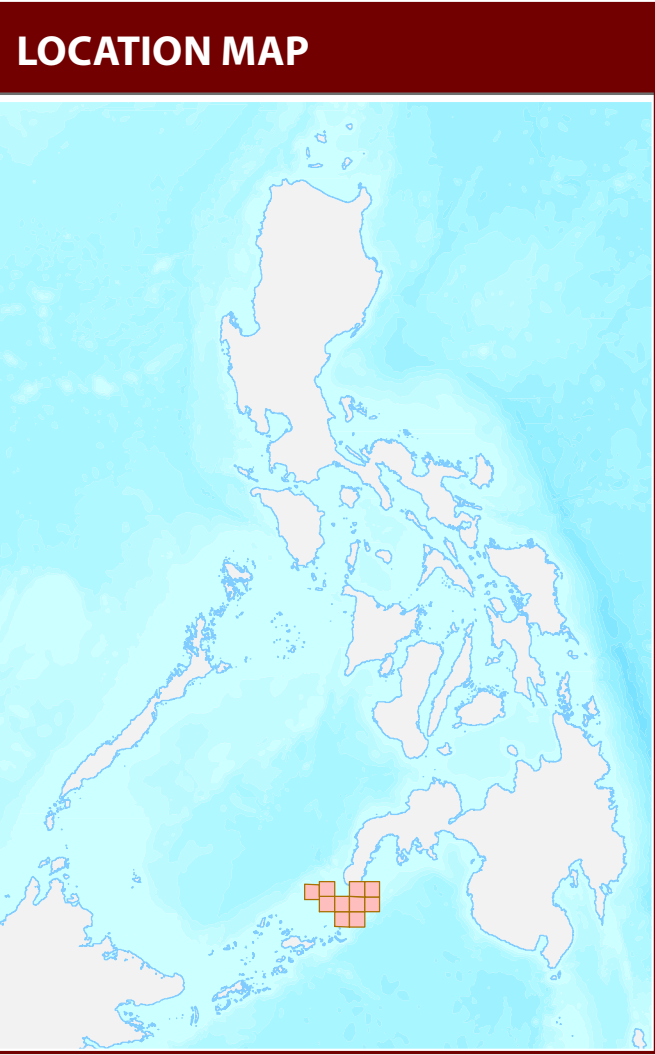
- Regional
- Provincial
- City
- Municipal

**Map Index**

- Index grid

**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 ARABICA COFFEE

## LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS PROVINCE OF BASILAN, ARMM

### EXTENT OF SUITABILITY FOR ARABICA COFFEE PRODUCTION BY MUNICIPALITY

MUNICIPALITY	EXISTING COFFEE (Ha)			TOTAL EXISTING AREA (Ha)	EXPANSION AREA (Ha)						CONFLICT RESOLUTION (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	S1	S2	
AKBAR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
AL-BARKA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
CITY OF LAMITAN	-	-	-	-	-	397	-	11	-	-	-	-	-	-	-	408	
HADI MOHAMMAD AJUL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
HADI MUHTAMAD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
LANTAWAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
MALUSO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
SUMISIP	-	-	-	-	-	696	-	6	-	-	-	-	-	-	-	702	
TABUAN-LASA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TIPO-TIPO	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TUBURAN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
UNGKAYA PUKAN	-	-	-	-	-	13	-	-	-	-	-	-	-	-	-	13	
Total Area (Ha)	-	-	-	-	-	1,105	-	17	-	-	-	-	-	-	-	1,123	

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

### SUITABILITY CLASSES:

<div></div> <b>Highly Suitable (S1)</b> 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> <b>Marginally Suitable (S3)</b> 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> <b>Moderately Suitable (S2)</b> 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> <b>Not Suitable / Not Relevant</b> 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 ARABICA COFFEE 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
Coffee (Arabica )	S1	<8	>100	CL, SiCL, SCL, SC, SiC, C, HC	WD,MWD	5.6 -7.2	high	none-slight	none-slight	none-few	1000-2000	2001-4500	I, III, IV
	S2	8 - 30	30 - 100	FSL, L, SiL	SPD,PD	5.1 - 5.5 7.3 - 7.8	medium	moderate	moderate	common	500-1000 2000-2500	1000-2000	I, II
	S3	>30	<30	S, LS, CSL, SL	VPD,ED	<5.0 - > 7.9	low	severe	severe	many	<500 >2500	<1000 >4500	

<b>SLOPE (%)</b> 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	<b>SOIL DRAINAGE</b> ED - excessively drained WD - well drained MWD - moderately well drained SPD - somewhat poorly drained PD - poorly drained VPD - very poorly drained	<b>SOIL REACTION (pH)</b> < 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	<b>SOIL TEXTURE</b> <b>Coarse</b> S - sand LS - loamy sand CSL - coarse sandy loam SL - sandy loam <b>Medium</b> FSL - fine sandy loam L - loam SiL - silt loam CL - clay loam SiCL - silty clay loam SCL - sandy clay loam	<b>Fine</b> SC - sandy clay SiC - silty clay C - clay HC - heavy clay
<b>SOIL DEPTH (cm)</b> 0 - 30 - very shallow 30 - 50 - shallow 50 - 100 - moderately deep > 100 - deep to very deep	<b>SURFACE IMPEDIMENT</b> ROCK OUTCROPS < 10% - none - few 10 - 30% - common > 30% - many			

### LAND LIMITATIONS DESCRIPTION AND COMBINATIONS

<b>ELEVATION</b> EI2 - 500 - 1000m or 2000 - 2500m EI3 - < 500m or > 2500m	<b>SOIL DRAINAGE</b> D2 - Somewhat poorly drained to poorly drained D3 - Very poorly drained or excessively drained	<b>SOIL DEPTH</b> Sh2 - Shallow to moderately deep (30 - 100cm) Sh3 - Very shallow (< 30cm)	<b>SOIL EROSION</b> E2 - Moderate erosion E3 - Severe erosion
<b>SLOPE/TOPOGRAPHY</b> T2 - Undulating to moderately steep T3 - Steep to very steep	<b>SOIL TEXTURE</b> Tc - Coarse texture	<b>ROCK OUTCROPS</b> Rc2 - Common Rc3 - Many	<b>FLOODING</b> F2 - Moderate seasonal flooding F3 - Severe seasonal flooding

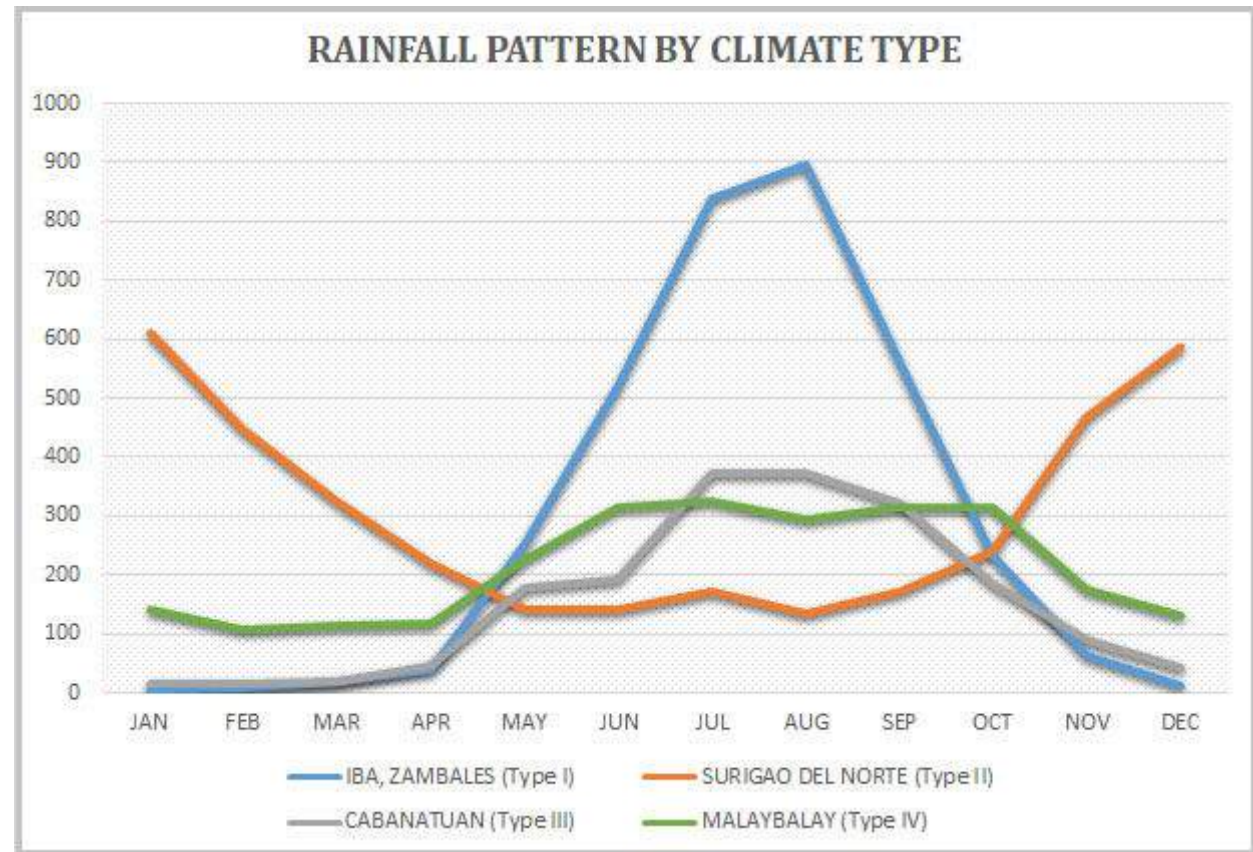
CODE	LIMITATION	CODE	LIMITATION	CODE	LIMITATION
1	EI3	11	T2-EI3-E3	21	T3-EI2-E3-Sh3-Rc3
2	EI3-F2-D2	12	T2-EI3-E3-Sh2-Rc2	22	T3-EI3-E3
3	EI3-F2-Tc	13	T2-EI3-E3-Sh2-Rc3	23	T3-EI3-E3-Sh3-Rc3
4	EI3-F3-D2	14	T2-EI3-F2-D2	24	T3-EI3-F3-D2
5	EI3-Sh2-Rc2	15	T2-EI3-F3-D2	25	T3-EI3
6	T2-EI2-E3-Sh2-Rc2	16	T3-EI2-E3-Sh3-Rc2		
7	T2-EI2-E3-Sh2-Rc3	17	T3-EI3-E3		
8	T2-EI2-Sh2-Rc2	18	T3-EI3-E3-Sh3-Rc2		
9	T2-EI3	19	T3-EI3-E3-Sh3-Rc3		
10	T2-EI3-E2-Sh2-Rc2	20	T3-EI3-F3-D2		

CODE	LANDUSE
2	Paddy rice, non-irrigated
116	Coconut
126	Grassland
134	Shrubs, unmanaged
137	Rubber

### CLIMATE TYPE

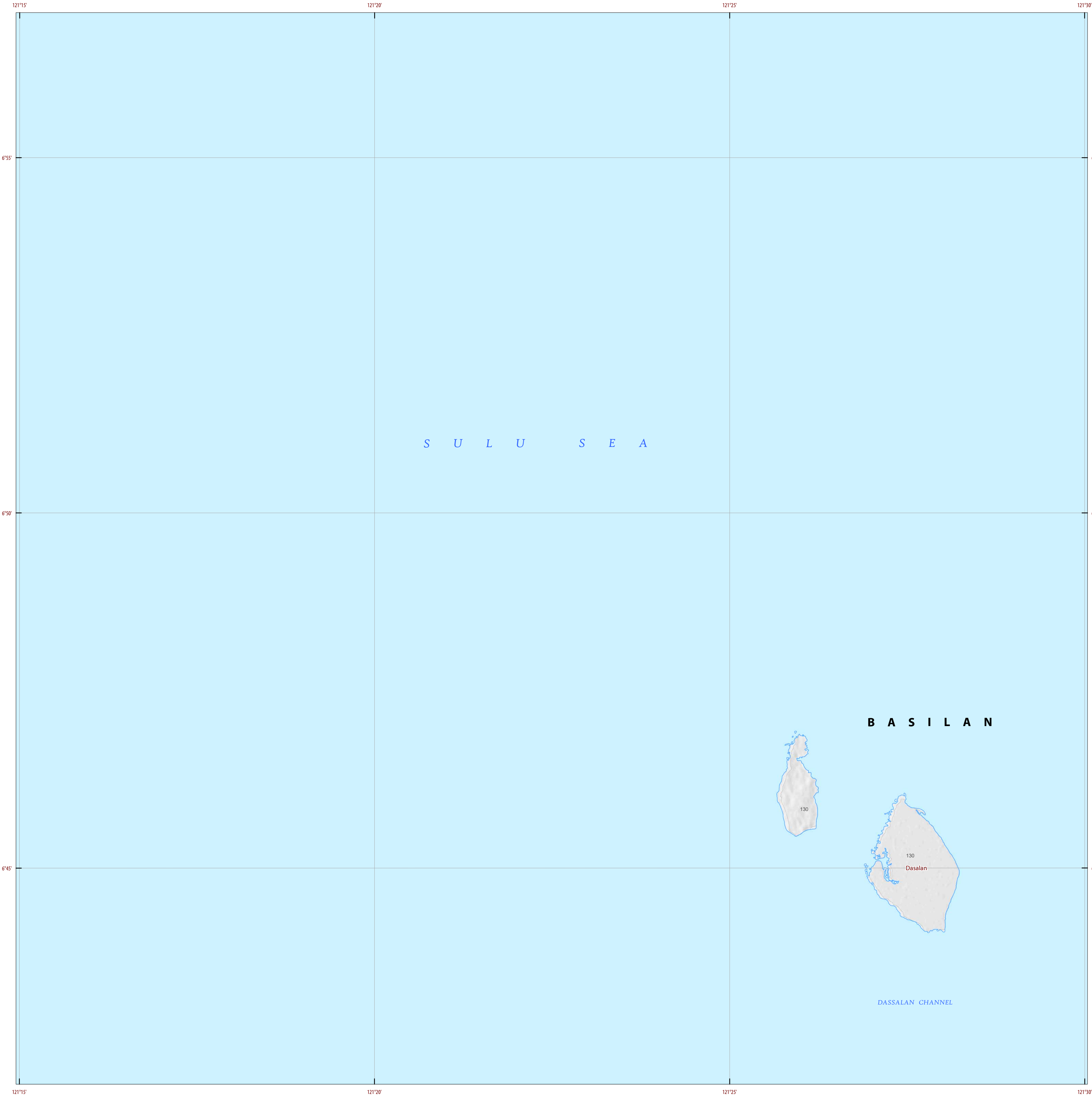
<b>TYPE I</b> : Two pronounced season, dry from November to April and wet during the rest of the year. Maximum rain period is from June to September	<b>TYPE II</b> : No dry season with a very pronounced maximum rain period from December to February. There is not a single dry month. Maximum monthly rainfall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




The whole part of Basilan is classified as climate Type IV



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>>.

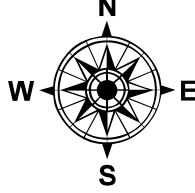








LAND SUITABILITY MAP  
ARABICA COFFEE

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

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.

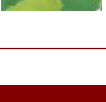
Not Suitable/ Not Relevant

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

ADJOINING SHEETS

INDEX MAP

3214-I





MISCELLANEOUS INFORMATION

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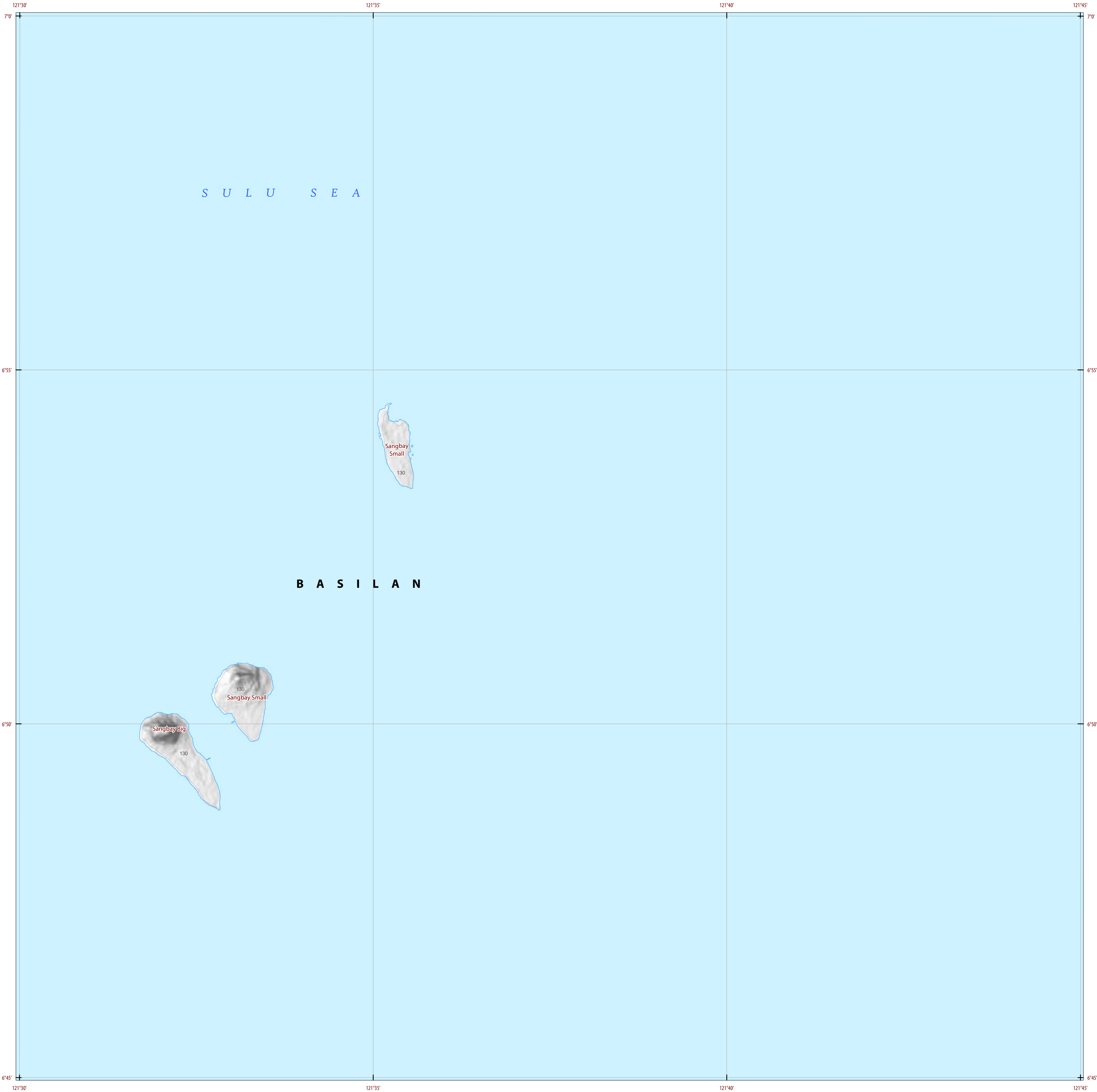
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3314-IV

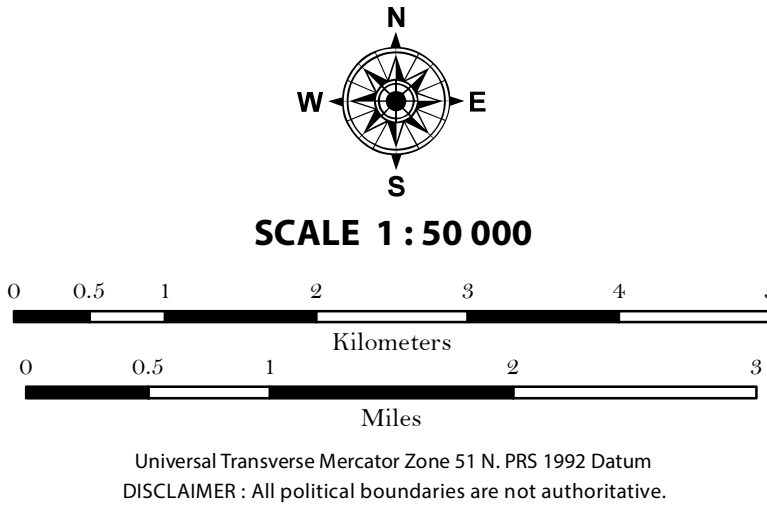
PROVINCE OF BASILAN

Teinga Island



LAND SUITABILITY MAP  
ARABICA COFFEE

LAND RESOURCES EVALUATION AND SUITABILITY  
ASSESSMENT OF STRATEGIC PRODUCTION AREAS



**LEGEND**

**SUITABILITY CLASSES**

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- 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**

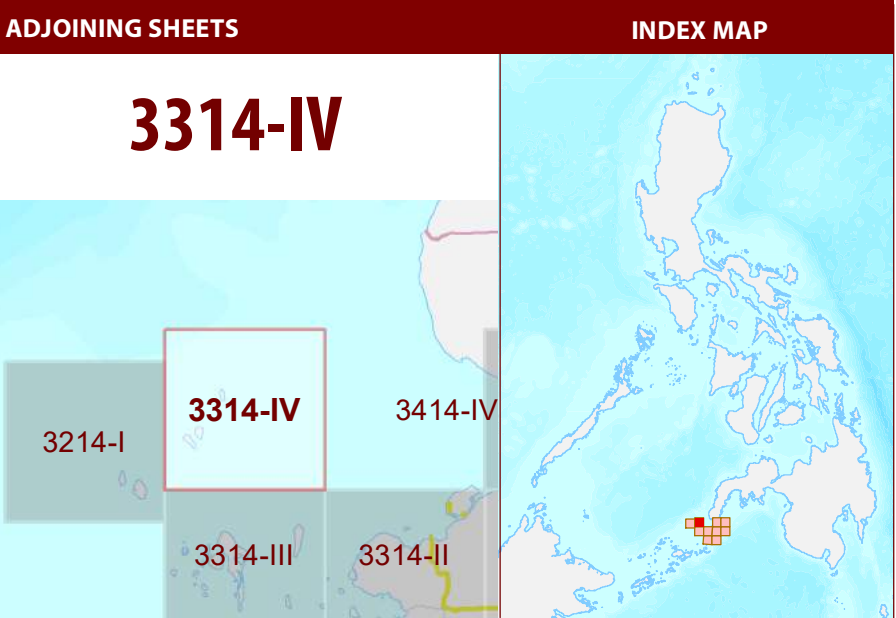
- NGP Areas
- Cacao
- Land limitation
- Land use

**CONVENTIONAL SIGNS**

<b>ROADS</b>	<b>BOUNDARY</b>	<b>HYDROLOGY</b>
Expressway	Region	Sea / Shoreline
Trunk line	Province	Lakes / Rivers
Primary	District	<b>PLACES</b>
Secondary	Municipality	Capital City / City
Tertiary	Barangay	Capital Town / Town

**LAND USE**

- Built-up
- Fishpond
- Mangrove



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3414-IV

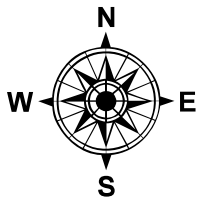
PROVINCE OF BASILAN

Zamboanga City

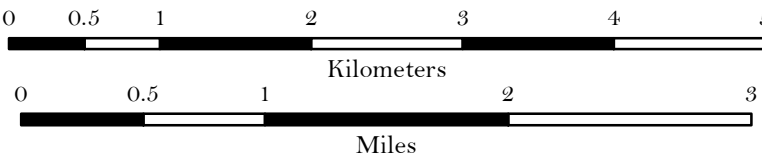


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ARABICA COFFEE

LAND RESOURCES EVALUATION AND SUITABILITY  
ASSESSMENT OF STRATEGIC PRODUCTION AREAS



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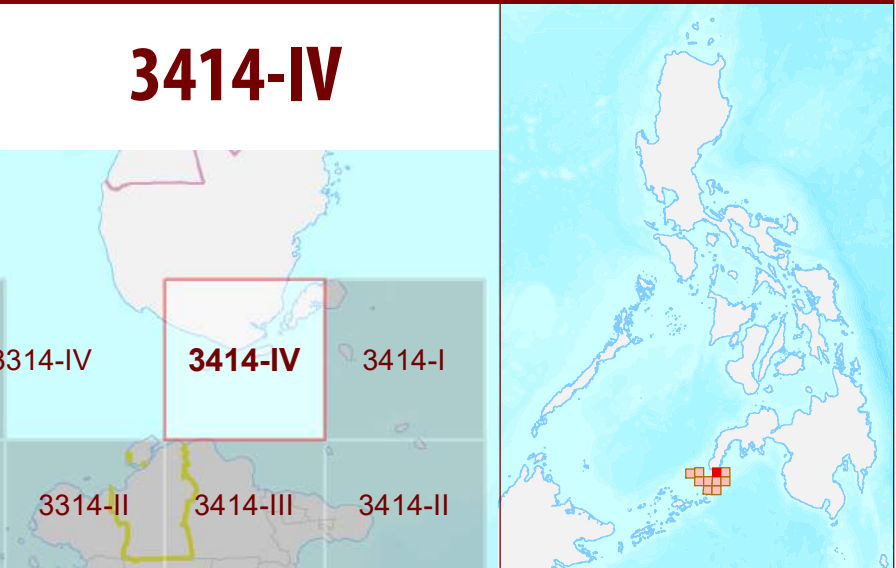
OTHER SIGNS

- 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
  - Lakes / Rivers
- PLACES**
  - Capital City / City
  - Capital Town / Town
- LAND USE**
  - Built-up
  - Fishpond
  - Mangrove

ADJOINING SHEETS



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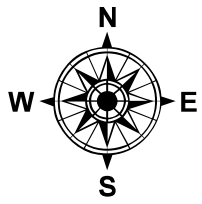


LAND SUITABILITY MAP



ARABICA COFFEE

LAND RESOURCES EVALUATION AND SUITABILITY

ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SCALE 1 : 50 000



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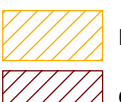
S3


Marginally Suitable


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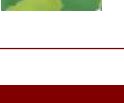
Not Suitable/ Not Relevant

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

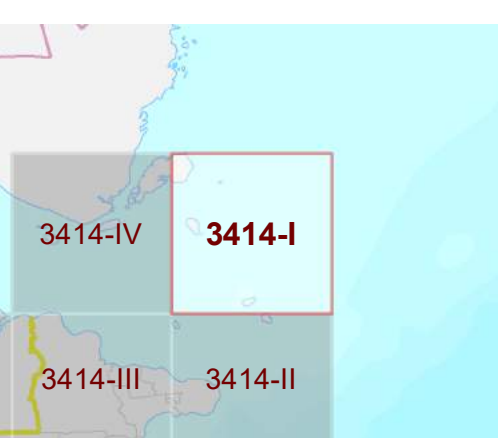
Built-up

Fishpond

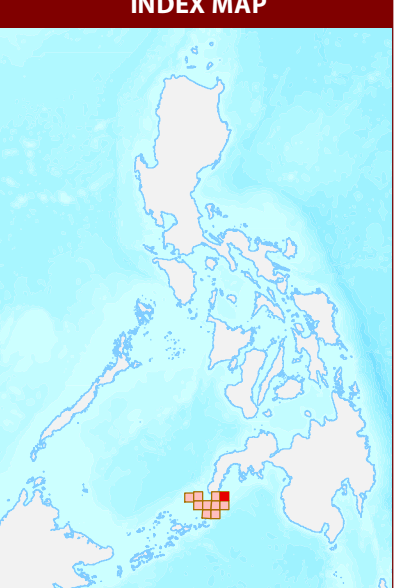
Mangrove

ADJOINING SHEETS

3414-I



INDEX MAP



MISCELLANEOUS INFORMATION

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Project Leader

: BERNARDO B. PASCUA

GIS and Cartography

: IRVIN K. SAMALCA

Funding Agency


: Department of Agriculture - Bureau of Agricultural Research (DA-BAR)

Collaborating Agencies

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DEPARTMENT OF AGRICULTURE

BUREAU OF SOILS AND WATER MANAGEMENT

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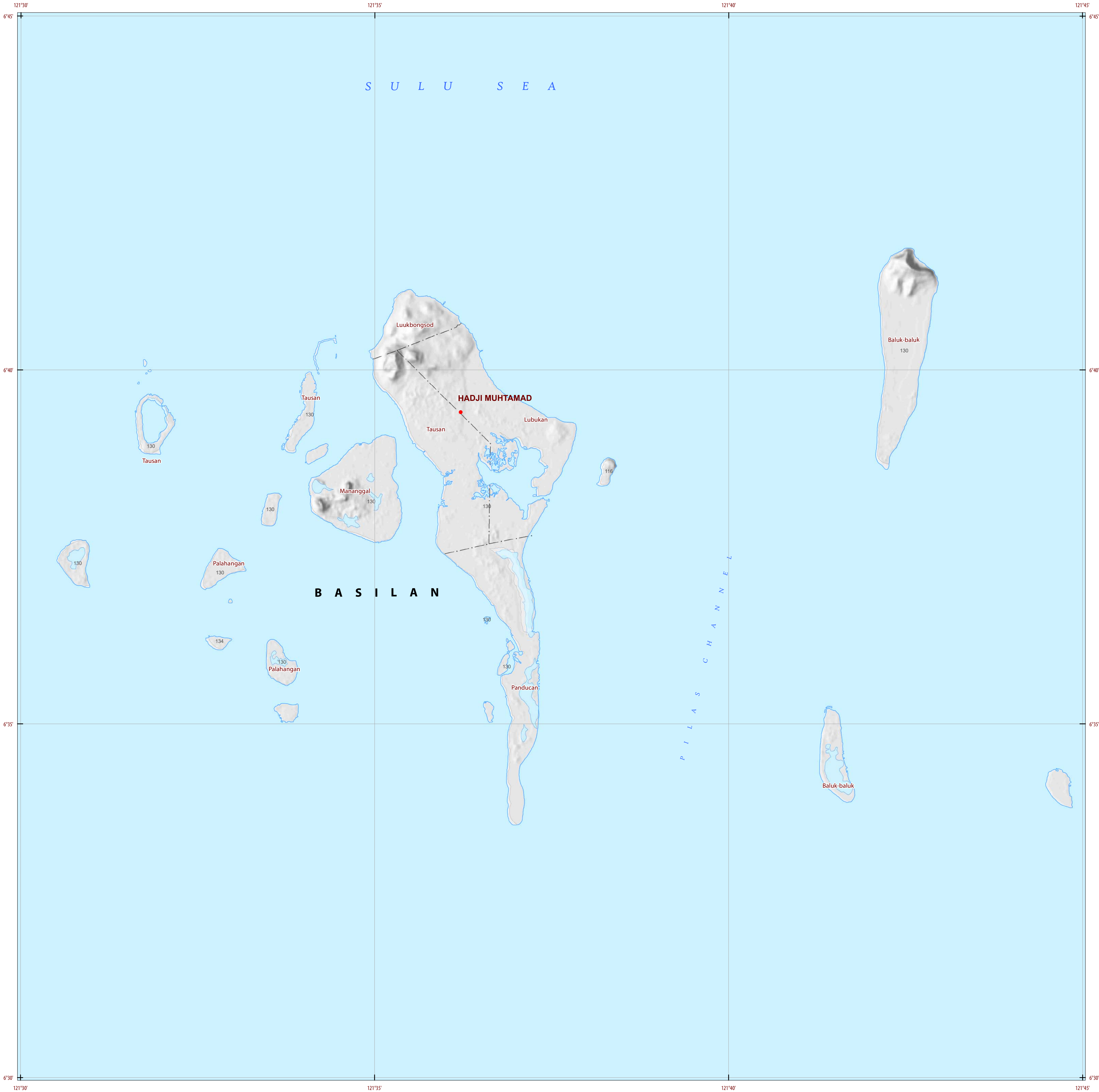
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PROVINCE OF BASILAN

Sheet 4 of 10

Sheet No. 3414-I

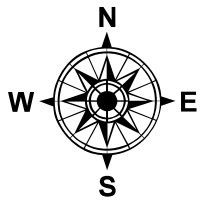






## LAND SUITABILITY MAP ARABICA COFFEE

### LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SCALE 1 : 50 000

0

0.5

1

2

3

4

5

Kilometers

0

0.5

1

2

3

Miles

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

#### 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.

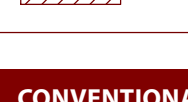
S3


**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

#### ADJOINING SHEETS

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3314-IV


3414-IV

3314-III

3314-II

3313-I

#### INDEX MAP




#### MISCELLANEOUS INFORMATION

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PROVINCE OF BASILAN

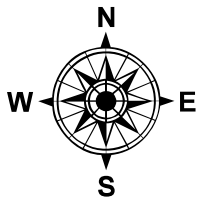
Sheet 5 of 10 Sheet No. 3314-III





LAND SUITABILITY MAP  
ARABICA COFFEE

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

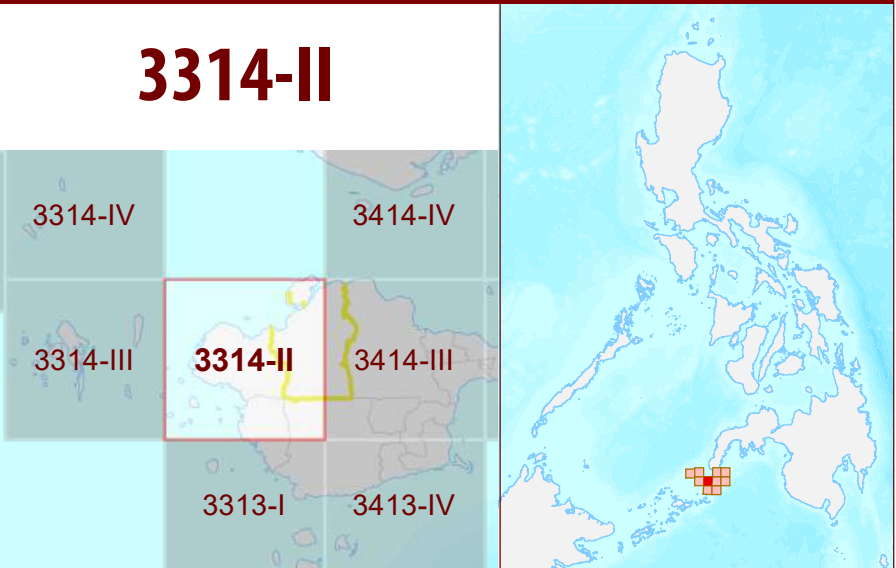
OTHER SIGNS

- 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



MISCELLANEOUS INFORMATION

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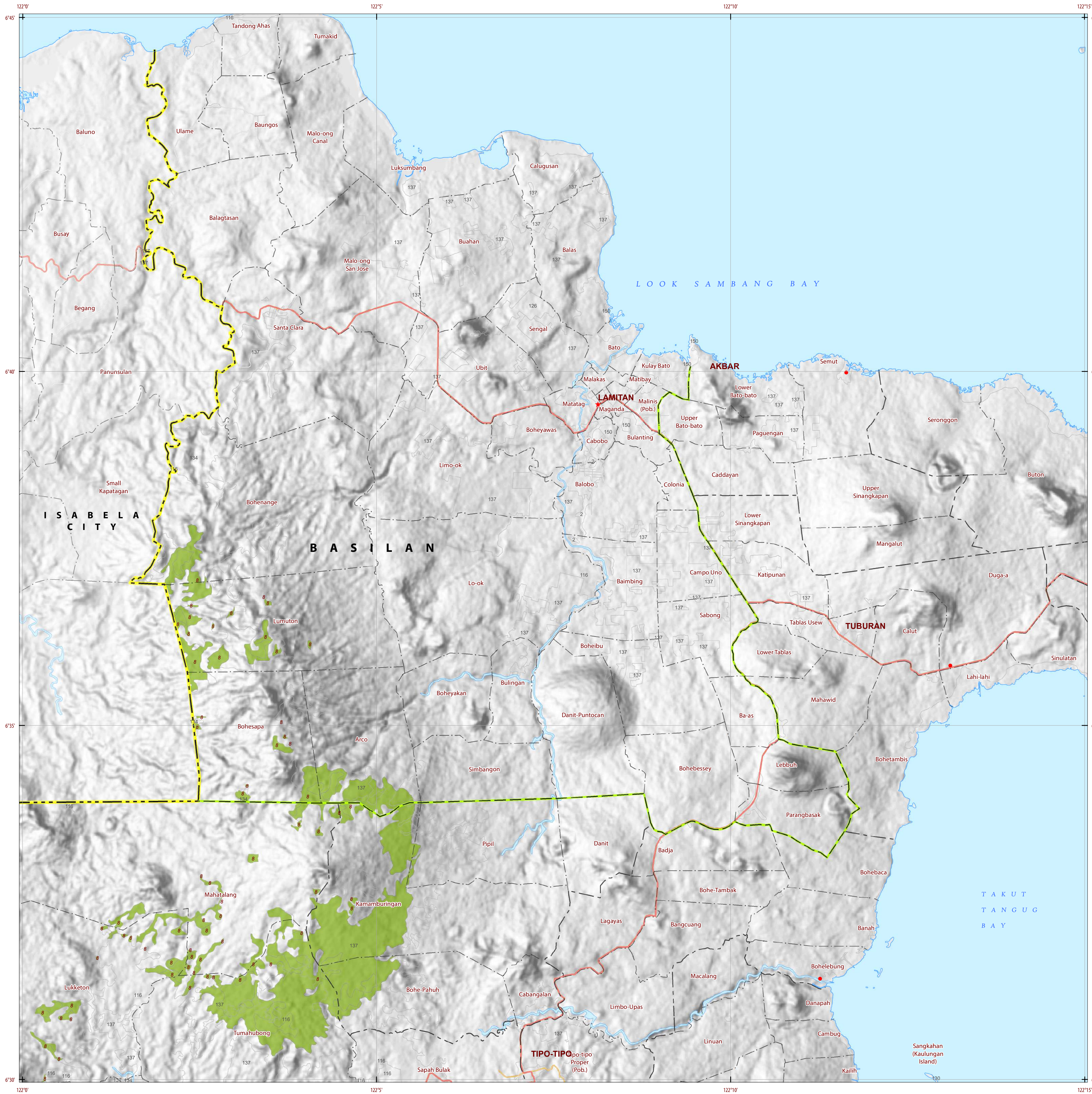
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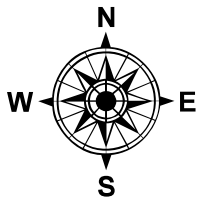
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## LAND SUITABILITY MAP ARABICA COFFEE

### 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** - 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.
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Not Suitable/ Not Relevant

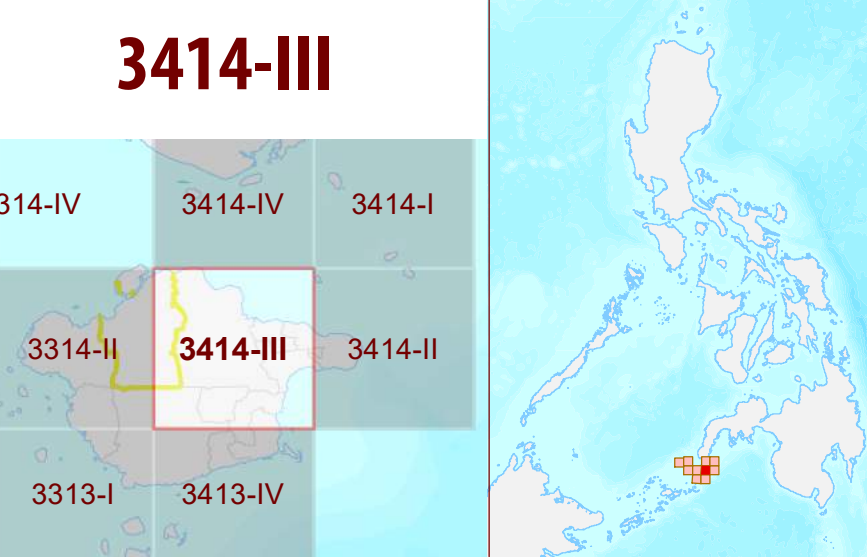
##### OTHER SIGNS

- 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



#### MISCELLANEOUS INFORMATION

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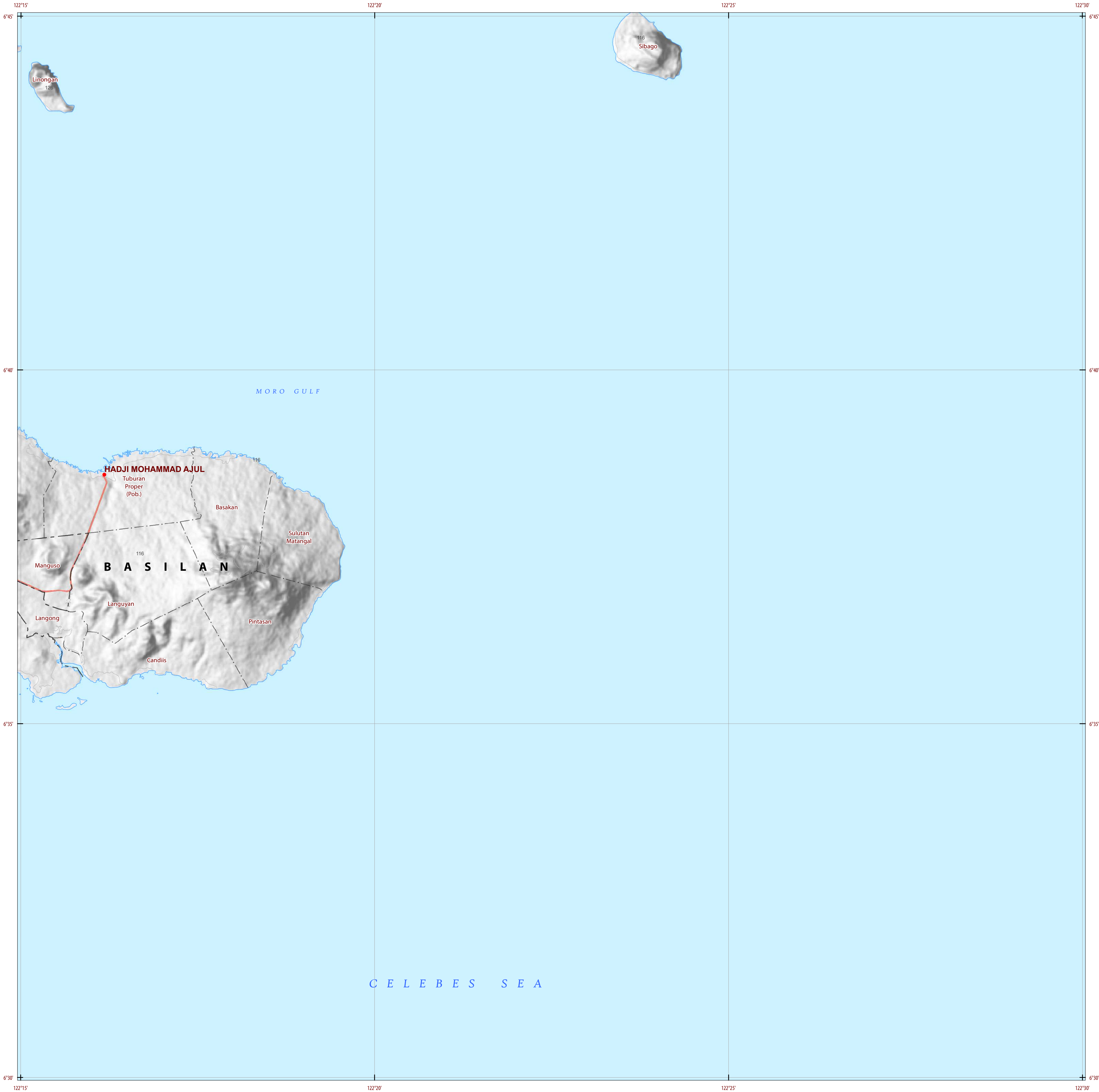
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3414-II

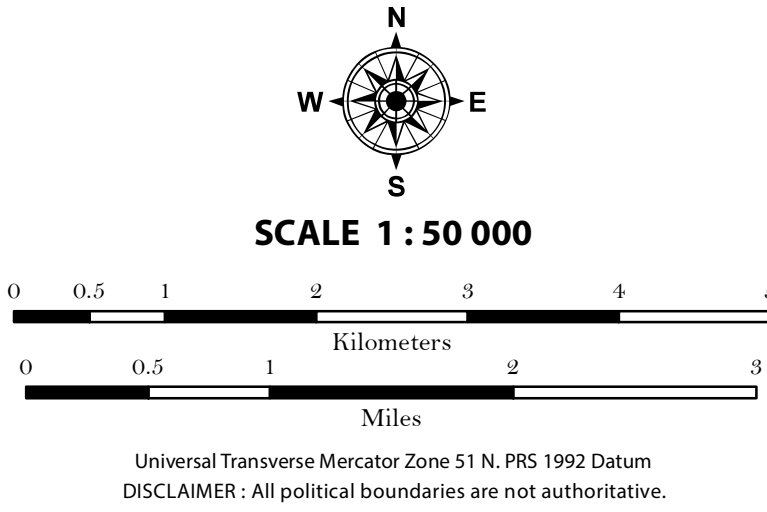
PROVINCE OF BASILAN

Mount Matanal



LAND SUITABILITY MAP  
ARABICA COFFEE

LAND RESOURCES EVALUATION AND SUITABILITY  
ASSESSMENT OF STRATEGIC PRODUCTION AREAS



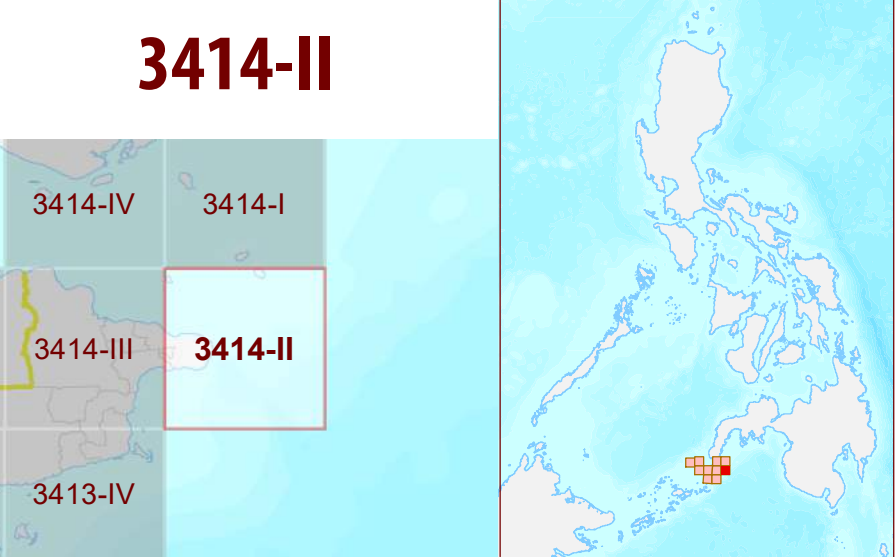
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  - Not Suitable/ Not Relevant**
- OTHER SIGNS**
- NGP Areas
  - Cacao
  - Land limitation
  - Land use

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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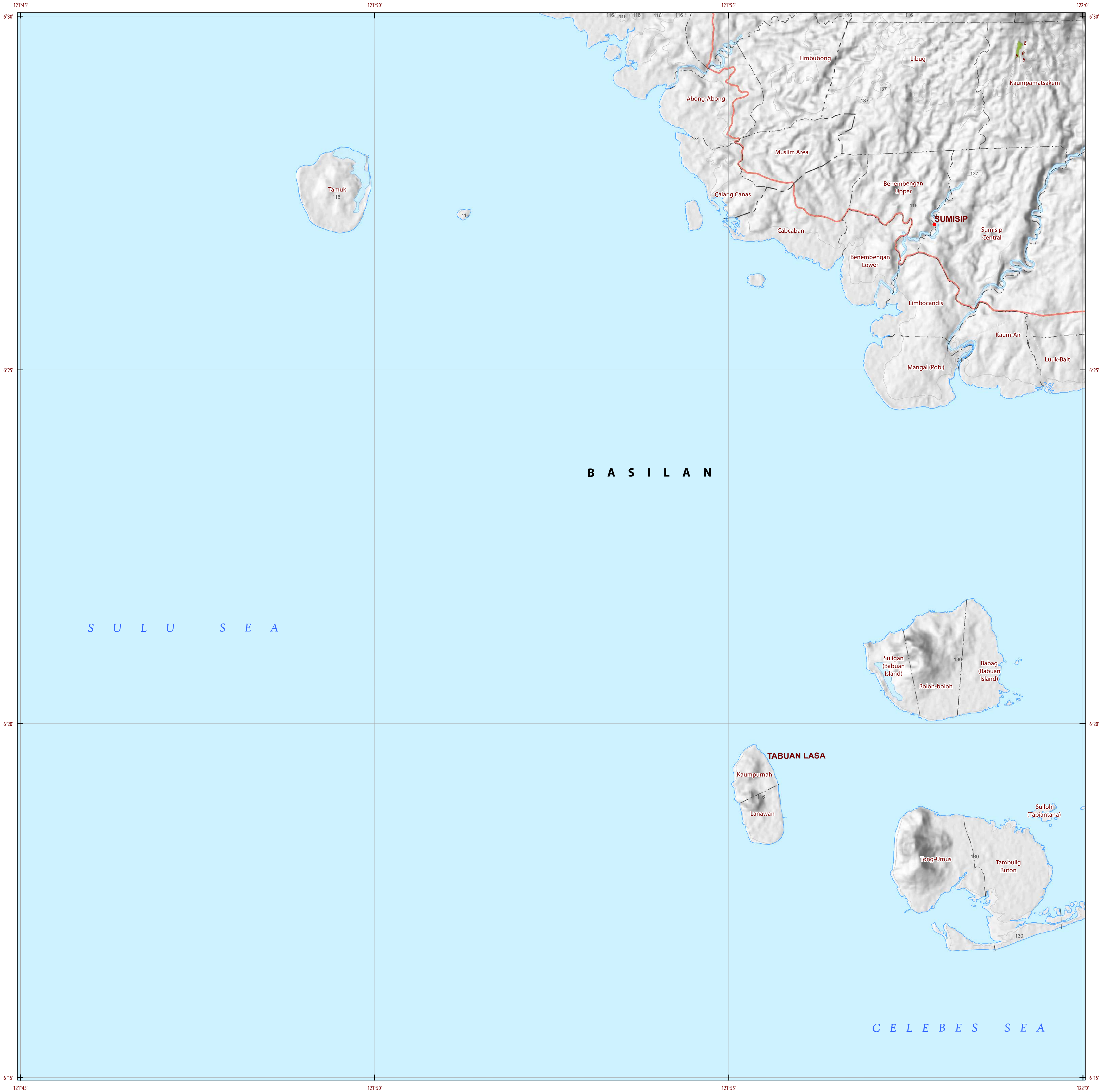
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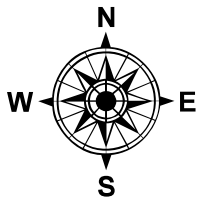
PROVINCE OF BASILAN

Tipiantana Island

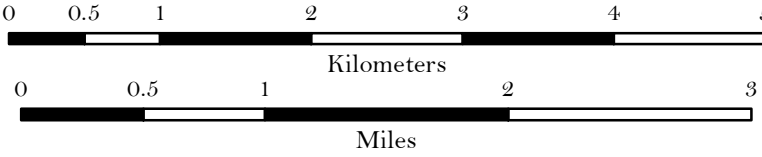


LAND SUITABILITY MAP  
ARABICA COFFEE

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

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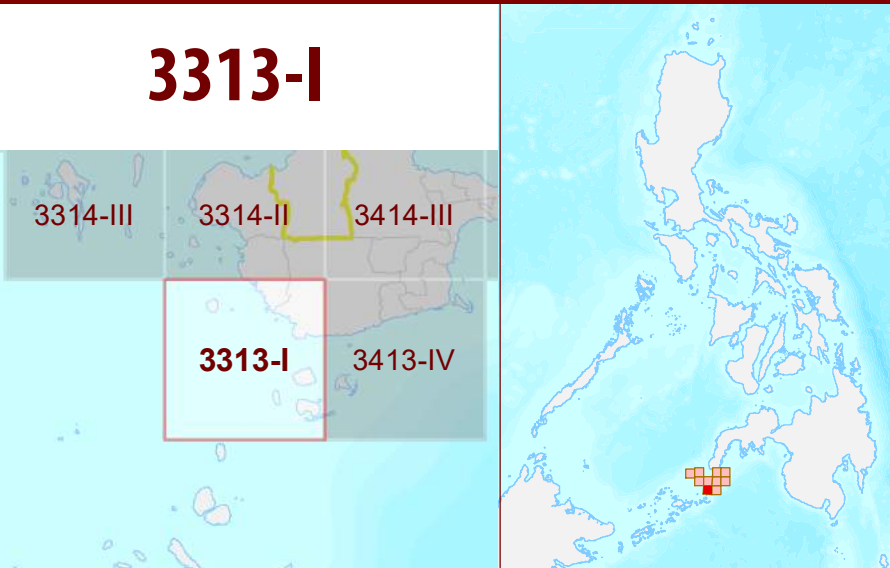
OTHER SIGNS

- 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, Lakes / Rivers
- PLACES**: Capital City / City, Capital Town / Town
- LAND USE**: Built-up, Fishpond, Mangrove

ADJOINING SHEETS



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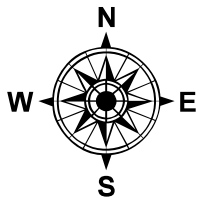
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LAND SUITABILITY MAP  
ARABICA COFFEE

LAND RESOURCES EVALUATION AND SUITABILITY  
ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SCALE 1 : 50 000



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LEGEND

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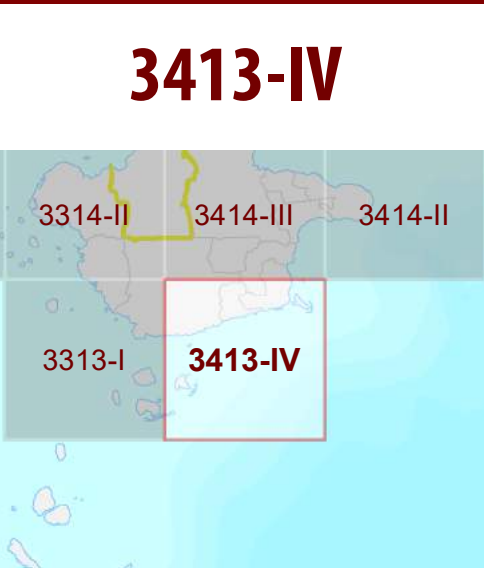
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- Cacao
- Land limitation
- Land use

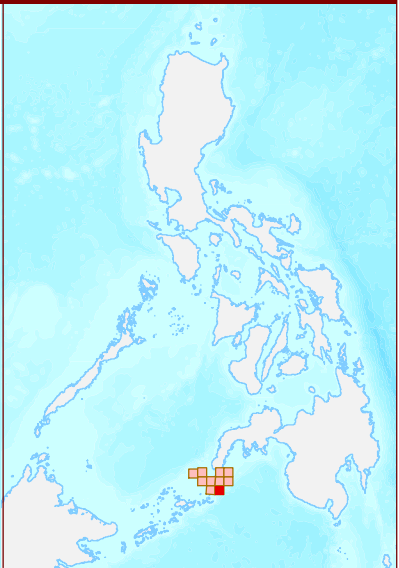
CONVENTIONAL SIGNS

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- 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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