

# **LAND SUITABILITY MAP**

## **ROBUSTA, LIBERICA AND EXCELSA COFFEE**

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

**PROVINCE OF MISAMIS ORIENTAL**



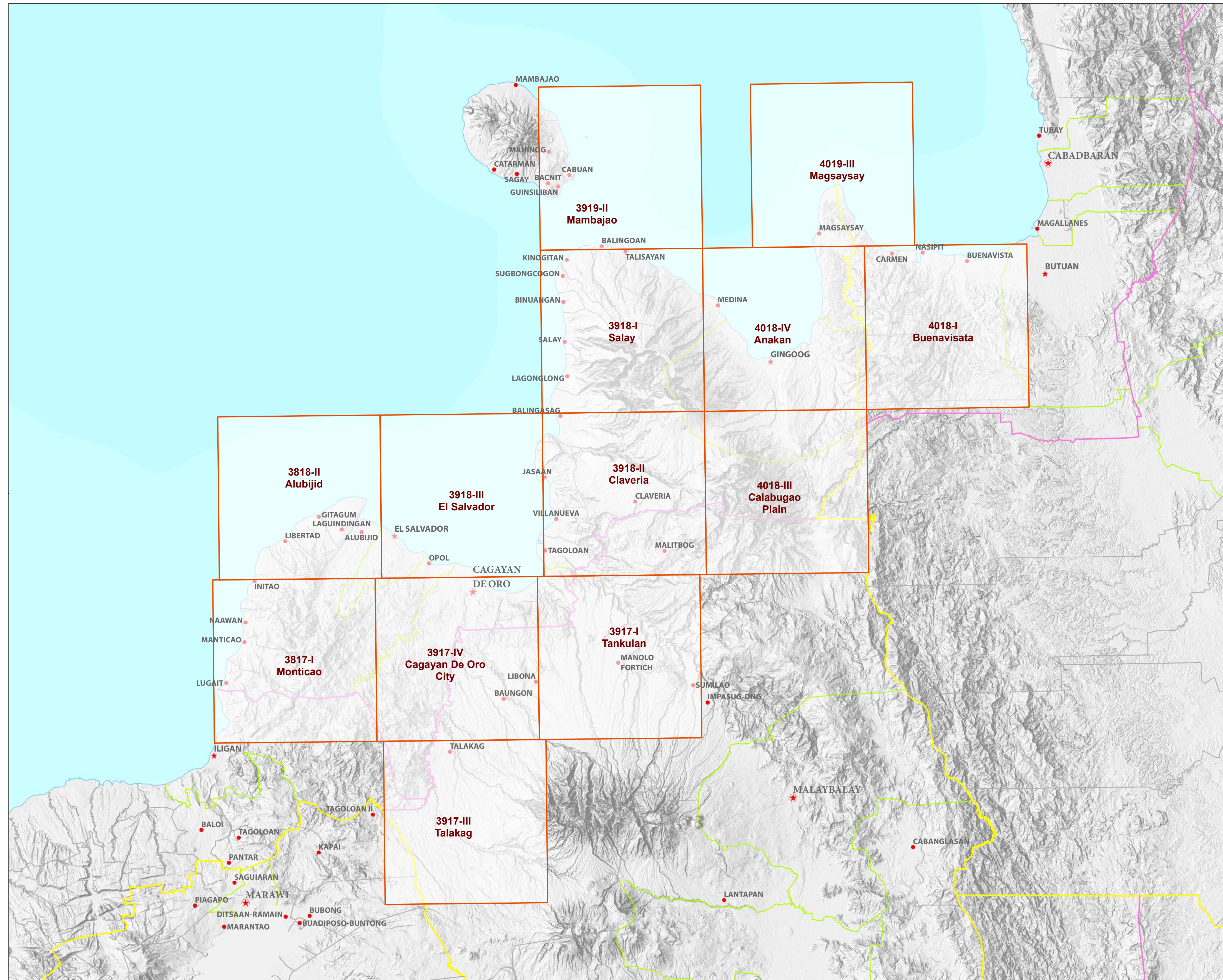
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## LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS

### PROVINCE OF MISAMIS ORIENTAL



**LEGEND**

**Places**

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

**Administrative Boundary**

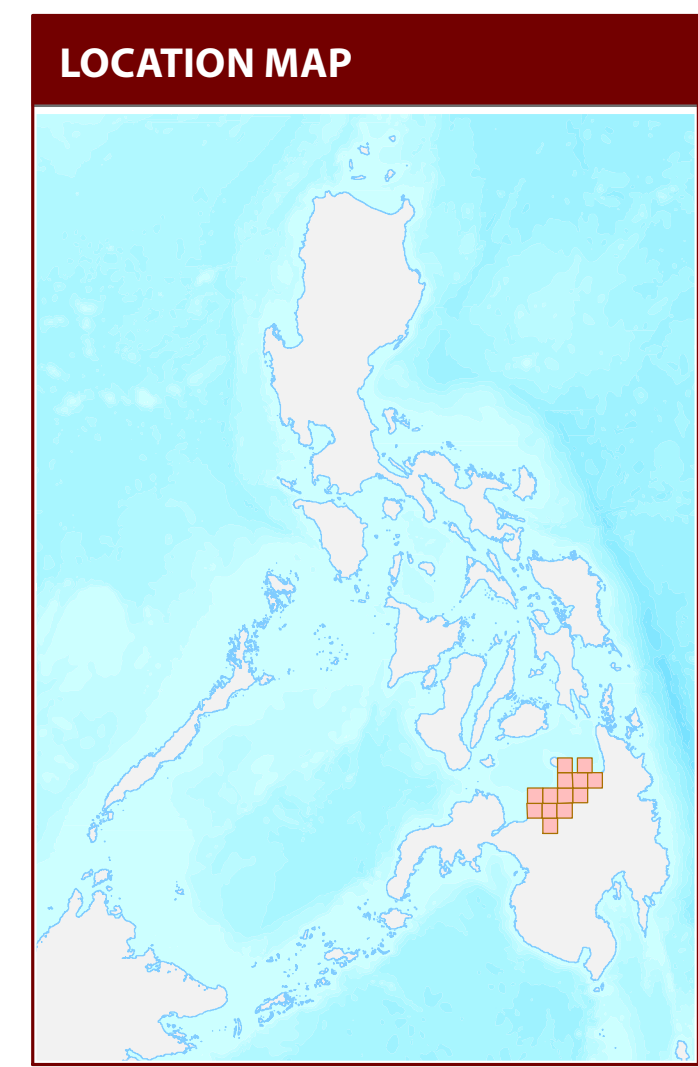
- Regional
- Provincial
- City
- Municipal

**Map Index**

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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 (PCA-F) and funded by the Bureau of Agricultural Research (BAR).

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# LAND SUITABILITY MAP FOR ROBUSTA, LIBERICA AND EXCELSA COFFEE

## LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS MISAMIS ORIENTAL, REGION X

### EXTENT OF SUITABILITY FOR ROBUSTA, LIBERICA AND EXCELSA COFFEE PRODUCTION BY MUNICIPALITY

MUNICIPALITY	Existing Coffee (Ha)			TOTAL EXISTING AREA (Ha)	EXPANSION AREA (Ha)						CONFLICT RESOLUTION (Ha)								TOTAL POTENTIAL EXPANSION AREAS (Ha)		
	S1	S2	S3		Coconut		Shrubland, unmanaged*		Grassland, unmanaged*		Corn		Cassava		Cacao		Mango			Other Crops	
					S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2		S1	S2
ALUBIHID	-	-	-	-	849	393	161	371	66	316	-	-	-	-	-	-	-	-	-	-	2,155
BALINGASAG	3	-	-	3	2,215	655	25	179	33	28	-	71	-	-	3	1	-	-	-	-	3,209
BALINGOAN	1	-	-	1	1,406	26	1	207	177	1,136	-	-	-	-	3	-	-	-	-	-	2,955
BINUANGAN	-	-	-	-	757	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	757
CAGAYAN DE ORO CITY	-	-	-	-	3,282	459	447	717	698	764	-	108	17	11	1	-	8	7	-	-	6,519
CITY OF EL SALVADOR	-	-	-	-	355	710	30	356	14	227	-	-	-	-	-	-	-	-	-	-	1,691
CLAVERIA	-	2	1	3	498	1,472	75	1,045	-	303	884	565	-	-	2	-	-	-	-	-	4,845
GINGOOG CITY	-	-	-	-	11,283	3,526	471	743	72	330	-	44	-	-	-	-	-	-	-	-	16,469
GITAGUM	-	-	-	-	345	-	42	-	-	2	-	-	-	-	-	-	-	-	-	-	389
INITAO	-	-	1	1	2,903	1,071	-	-	15	-	-	-	-	-	-	-	-	-	-	-	3,989
JASAAN	-	-	-	-	1,721	-	14	-	-	-	-	34	-	-	-	-	-	-	-	-	1,769
KINOGUITAN	1	-	-	1	2,295	107	-	21	3	314	-	-	-	-	2	-	-	-	-	-	2,741
LAGONGLONG	1	-	-	1	500	-	-	-	3	-	-	17	-	-	2	-	-	-	-	-	522
LAGUINDINGAN	-	-	-	-	125	-	-	-	276	-	-	-	-	-	1	-	-	-	-	-	401
LIBERTAD	-	-	-	-	822	-	-	-	40	8	-	-	-	-	-	-	-	-	-	-	870
LUGAIT	-	-	-	-	408	1,025	8	2	25	-	-	-	-	-	-	1	-	-	-	-	1,470
MAGSAYSAY	-	-	-	-	2,304	-	239	-	323	-	-	-	-	-	1	-	-	-	-	-	2,867
MANTICAO	-	-	-	-	1,407	1,523	7	51	85	19	-	-	-	-	1	1	-	-	-	-	3,094
MEDINA	-	-	-	-	1,311	1,045	-	54	-	82	-	-	-	-	-	-	-	-	-	-	2,492
NAAWAN	-	-	-	-	1,374	922	4	19	47	50	-	-	-	-	2	-	-	-	-	-	2,418
OPOL	-	-	-	-	424	175	65	469	302	2,656	-	-	-	-	-	1	-	-	-	-	4,092
SALAY	1	-	-	1	1,077	207	-	48	-	531	-	11	-	-	1	-	-	-	-	-	1,875
SUGBONGGOGON	1	-	-	1	1,320	341	-	-	-	376	-	-	-	-	3	-	-	-	-	-	2,040
TAGOLOAN	-	-	-	-	445	14	89	2	41	7	-	7	-	-	1	-	-	-	-	-	606
TALISAYAN	-	-	-	-	817	221	840	198	186	229	-	-	-	-	-	-	-	-	-	-	2,492
VILLANUEVA	-	-	-	-	442	19	12	-	9	2	38	25	-	-	-	1	-	-	-	-	549
<b>TOTAL</b>	<b>7</b>	<b>2</b>	<b>2</b>	<b>11</b>	<b>40,682</b>	<b>13,910</b>	<b>2,530</b>	<b>4,481</b>	<b>2,417</b>	<b>7,380</b>	<b>923</b>	<b>881</b>	<b>17</b>	<b>11</b>	<b>20</b>	<b>6</b>	<b>8</b>	<b>7</b>	<b>-</b>	<b>-</b>	<b>73,273</b>

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

### AGRONOMIC REQUIREMENT OF ROBUSTA, LIBERICA AND EXCELSA 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 (Robusta, Excelsa, Liberica)	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	30 - 100	FSL, L, SIL	SPD, PD	5.1 - 5.5 7.3 - 7.8	medium	moderate	moderate	common	1000-2000	1000-2000	I, II
	S3	>30	<30	S, LS, CSL, SL	VPD, ED	<5.0 -> 7.9	low	severe	severe	many	>2000	<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**  
E12 - 1000m - 2000m  
E13 - > 2000m

**SOIL DRAINAGE**  
D2 - Somewhat poorly drained to poorly drained  
D3 - Very poorly drained or excessively drained

**SOIL DEPTH**  
Sh2 - Shallow to moderately deep (30 - 100cm)  
Sh3 - Very shallow (< 30cm)

**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	CODE	LIMITATION	CODE	LIMITATION	CODE	LIMITATION	CODE	LANDUSE
1	E2-Rc3	11	F2-Tc	21	T2-E3-Sh2-Rc3	31	T3-E3-Rc2	41	T3	51	Tc	4	Corn		
2	E2-Sh2-Rc2	12	F3-D2	22	T2-E12	32	T3-E3-Sh2-Rc3	42	T3-E3			51	Cassava		
3	E2-Sh2-Rc3	13	Rc2	23	T2-E12-E3	33	T3-E3-Sh3-Rc2	43	T3-E3-Rc3			81	Coffee		
4	E3-Rc3	14	Sh2-Rc2	24	T2-E12-E3-Rc2	34	T3-E3-Sh3-Rc3	44	T3-E3-Sh3-Rc3			82	Cacao		
5	E3-Sh2-Rc3	15	Sh2-Rc3	25	T2-E12-E3-Sh2-Rc2	35	T3-E12	45	T3-E12			85	Mango		
6	E12	16	T2	26	T2-E13-E3-Sh2-Rc2	36	T3-E12-E3	46	T3-E12-E3			116	Coconut		
7	E12-Rc2	17	T2-E3	27	T2-F2-D2	37	T3-E12-E3-Rc2	47	T3-E12-E3-Rc3			126	Grassland		
8	E12-Sh2-Rc2	18	T2-E3-Rc2	28	T2-F3-D2	38	T3-E12-E3-Sh3-Rc2	48	T3-E12-E3-Sh3-Rc3			134	Shrubs, unmanaged		
9	E13-Sh2-Rc2	19	T2-E3-Rc3	29	T3	39	T3-E13-E3-Sh3-Rc2	49	T3-E13-E3-Sh3-Rc3						
10	F2-D2	20	T2-E3-Sh2-Rc2	30	T3-E3	40	T3-F3-D2	50	T3-E13						

### SUITABILITY CLASSES:

**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.

**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.

**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.

**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.

### CLIMATE TYPE

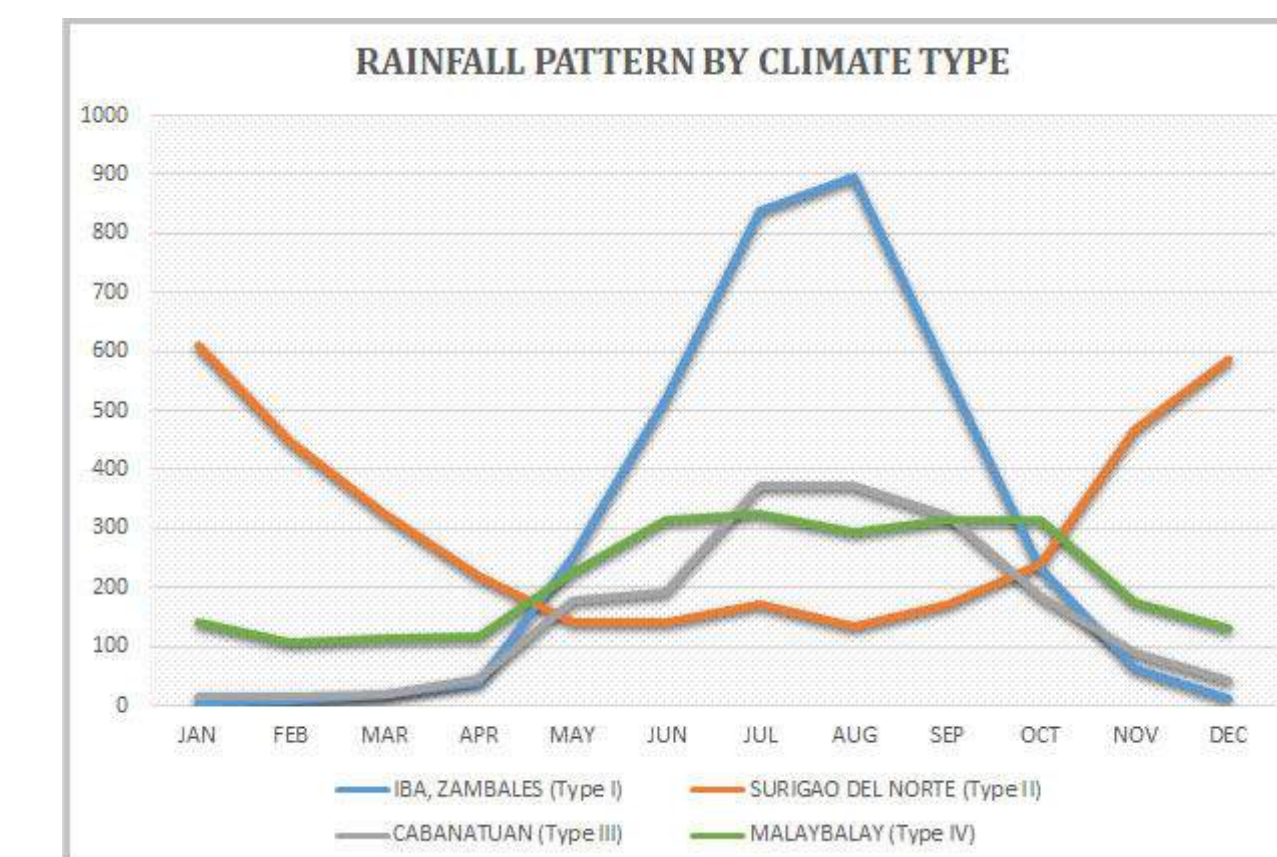
**TYPE I** : Two pronounced season, dry from November to April and wet during the rest of the year. Maximum rain period is from June to September

**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.

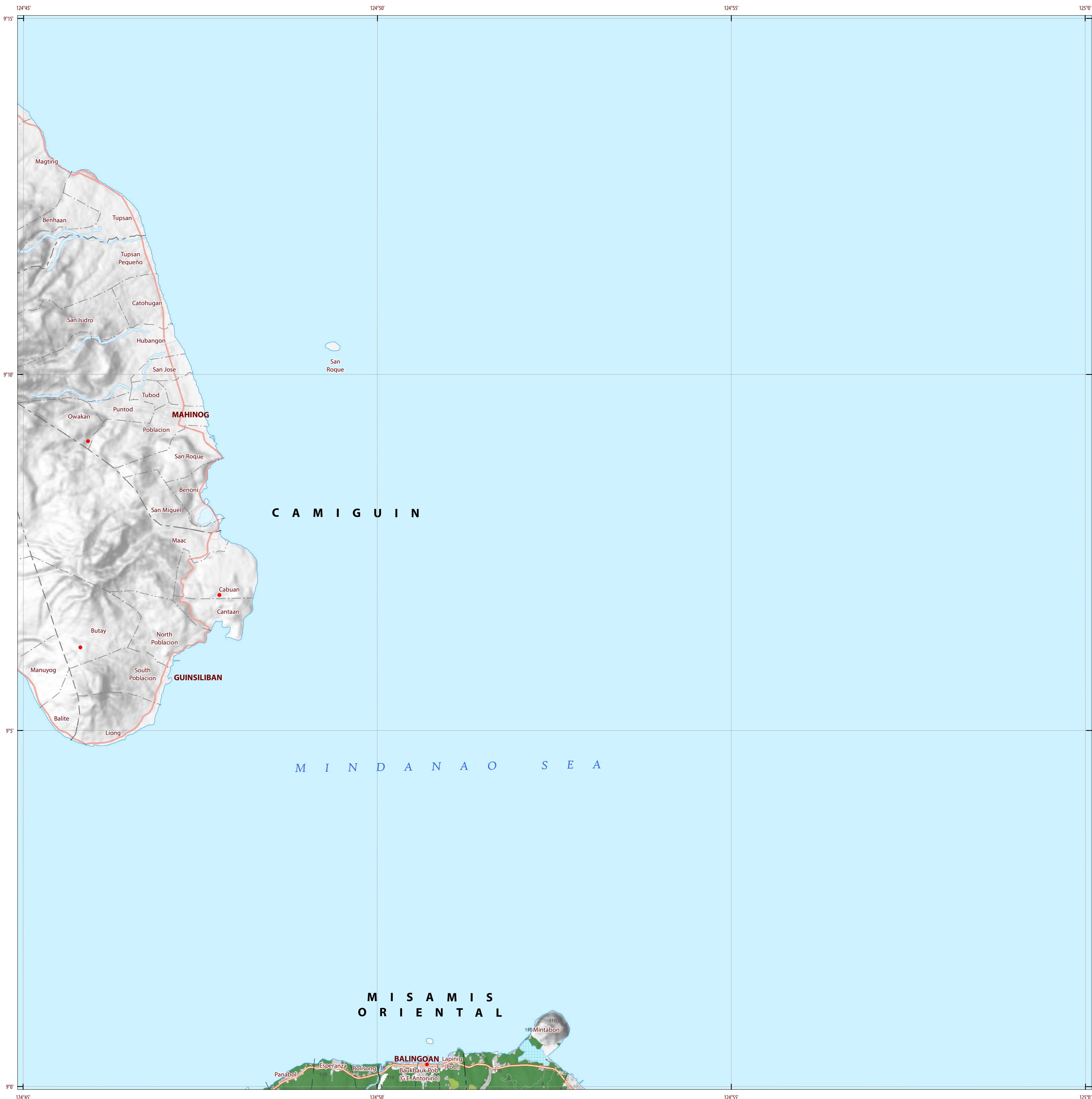
**TYPE III** : No very pronounced maximum rain period, with a dry season lasting only from one to three months, either during the period from December to February or from March to May. This type resembles Type I since it has a short dry season.

**TYPE IV** : Rainfall is more or less evenly distributed throughout the year. This type resembles Type II since it has no dry season.

Western part of Misamis Oriental is classified as climatic Type III and North Eastern part is climatic Type IV.

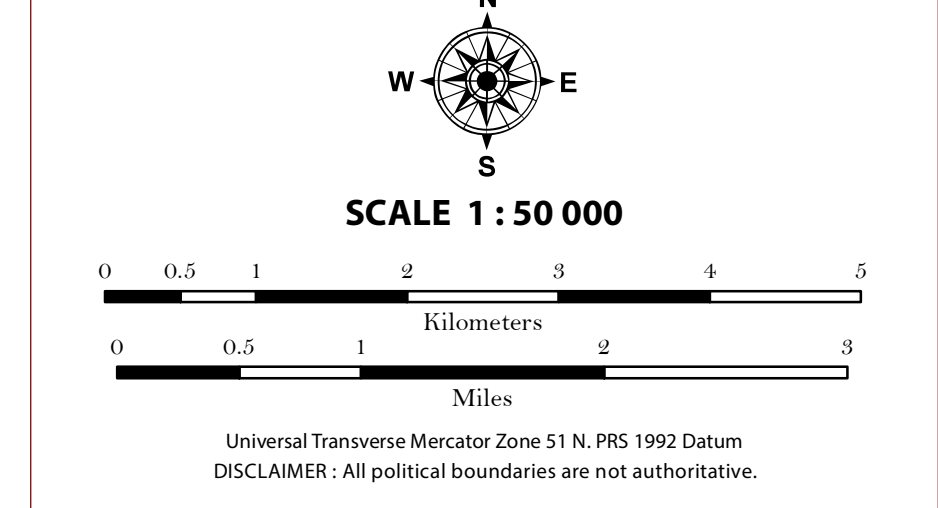


Source: PAGASA 2018, *Climatological Normals (Rainfall)*, Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), accessed 27 July 2018, <<https://www1.pagasa.dost.gov.ph/index.php/climate/climatological-normals>>.



## LAND SUITABILITY MAP ROBUSTA, LIBERICA AND EXCELSA COFFEE

### 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.
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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**

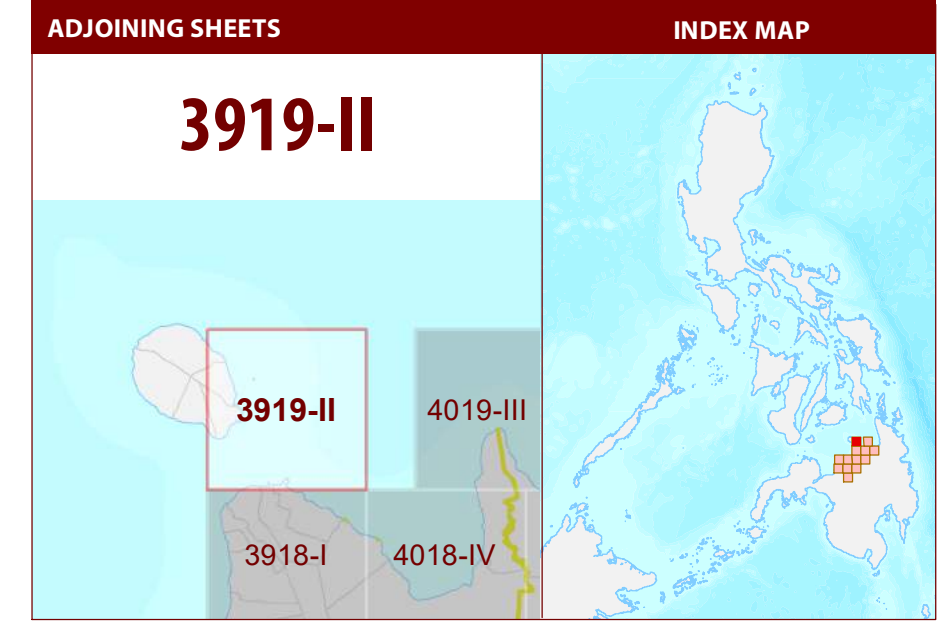
- NGP Areas
- Cacao
- Land limitation
- Land use

**CONVENTIONAL SIGNS**

ROADS	BOUNDARY	HYDROLOGY
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



**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).

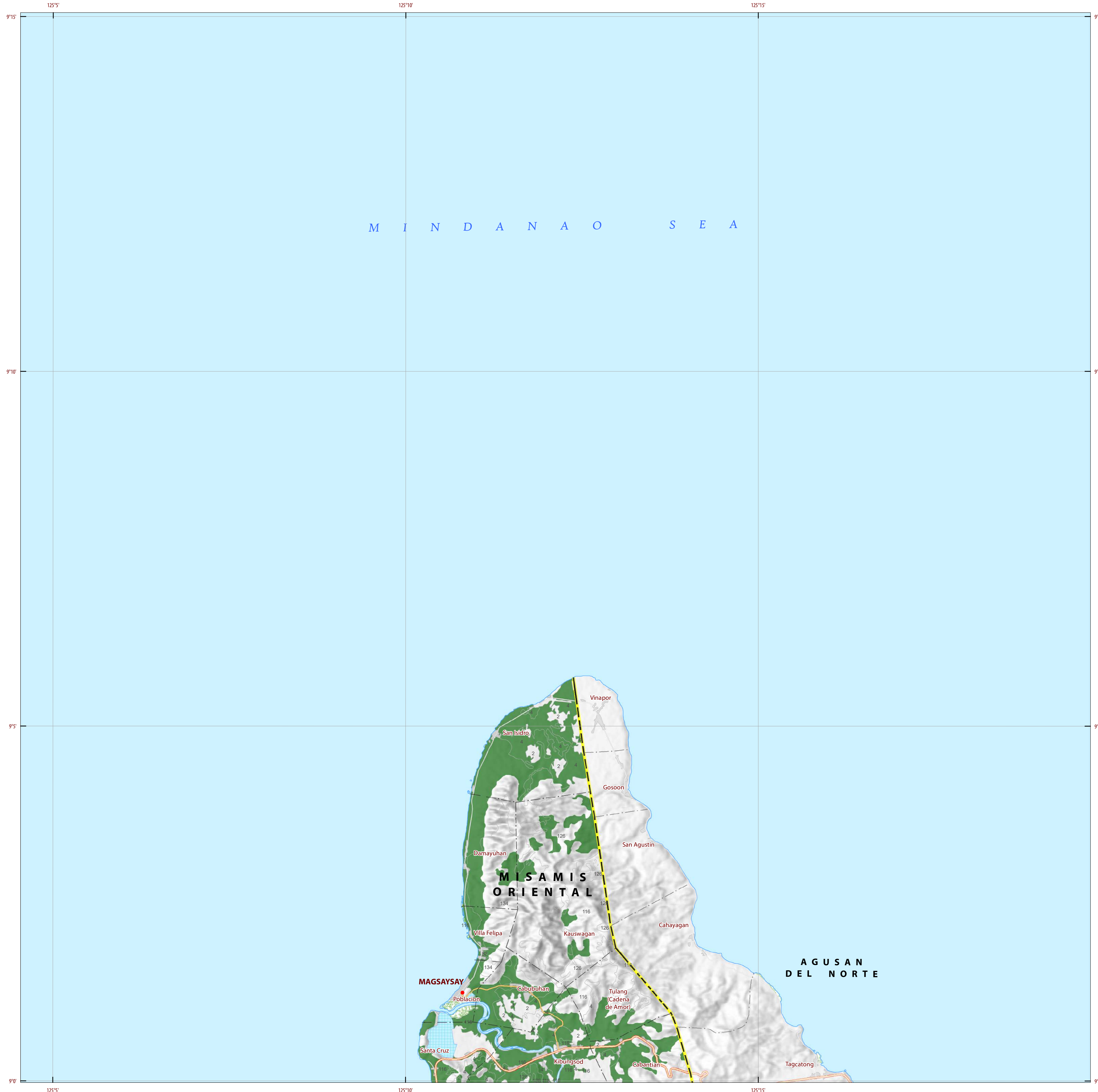
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GIS and Cartography : IRWIN K. SAMALCA

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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

<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
<b>LAND USE</b>		
Built-up	Fishpond	Mangrove

#### ADJOINING SHEETS

3919-II, 4019-III, 3918-I, 4018-IV, 4018-I

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#### MISCELLANEOUS INFORMATION

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Scale 1 : 50 000

Universal Transverse Mercator Zone 51 N, PRS 1992 Datum  
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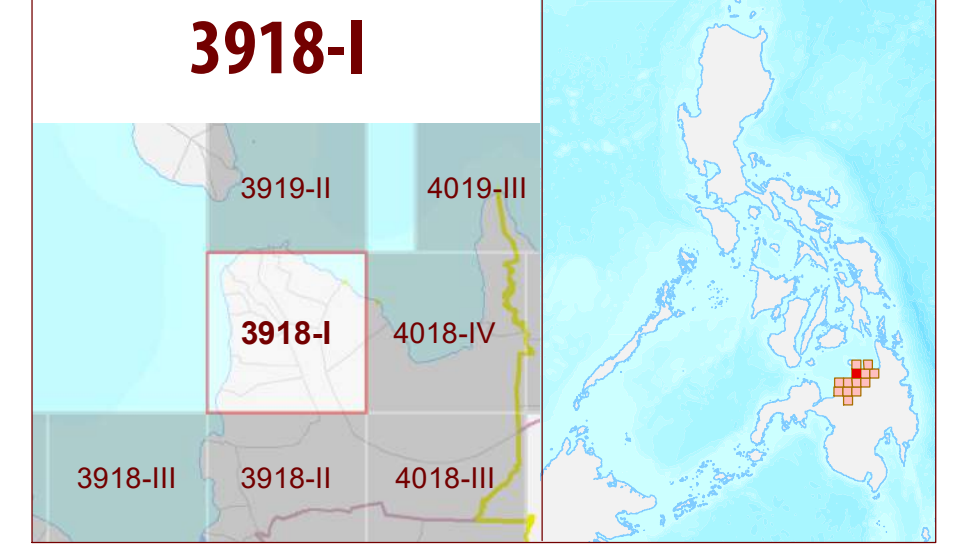
**LEGEND**

- 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**

- 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**



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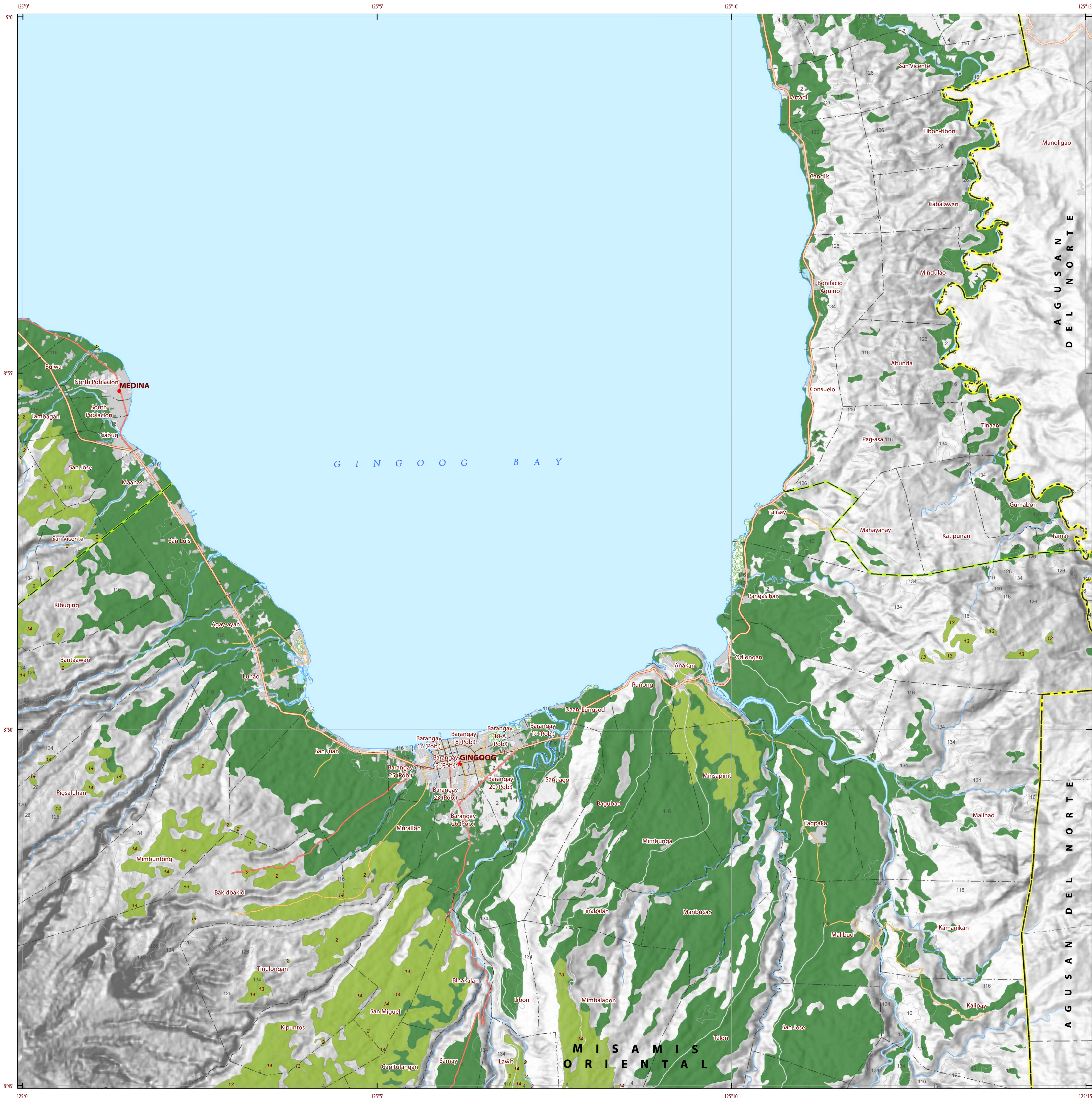
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### LAND SUITABILITY MAP ROBUSTA, LIBERICA AND EXCELSA COFFEE

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

3919-II, 4019-III, 3918-I, 4018-IV, 4018-I, 3918-II, 4018-III

#### INDEX MAP

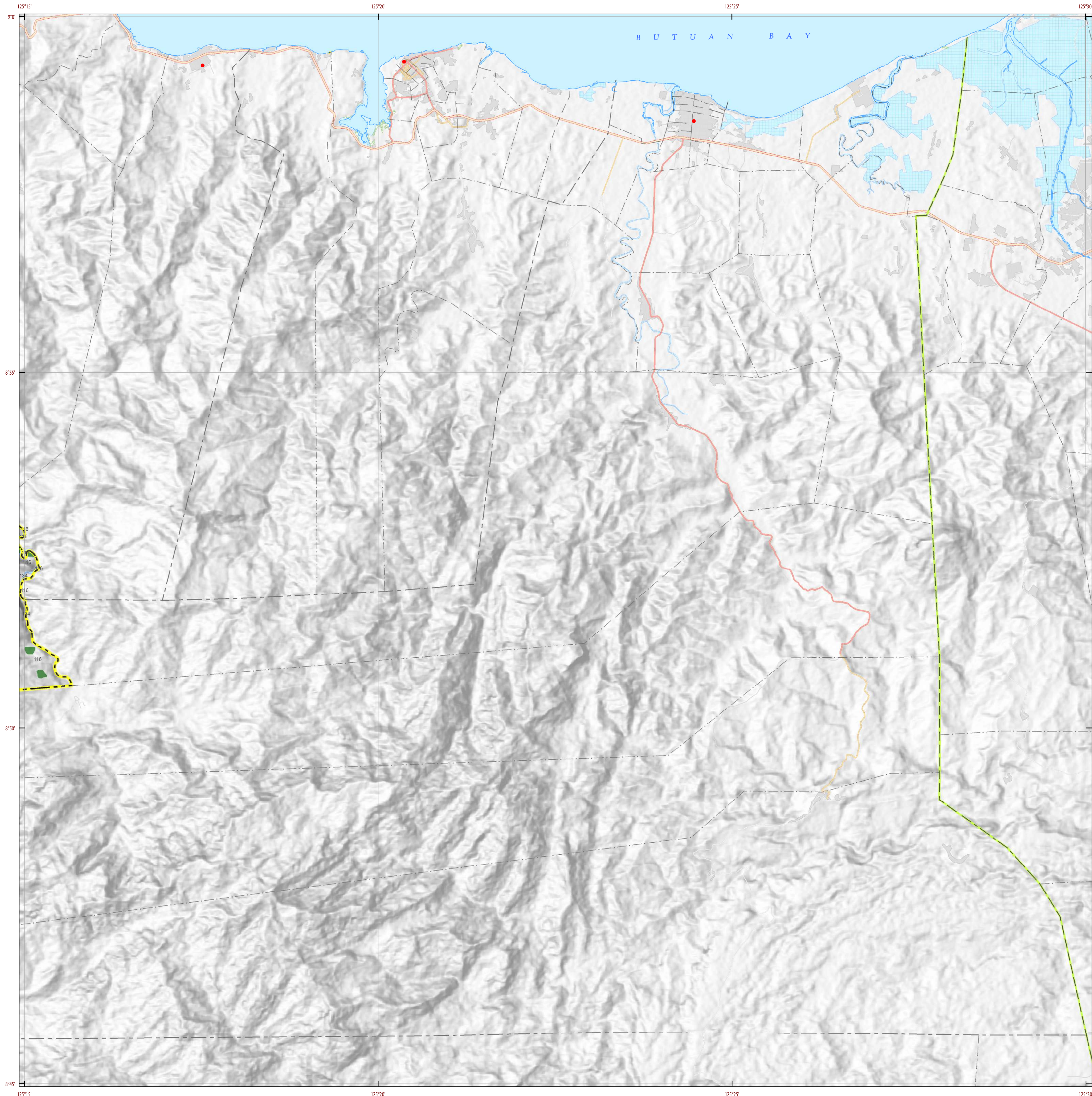
#### MISCELLANEOUS INFORMATION

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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 : Philippine Council on Agriculture and Fisheries (PCAF)  
 : Department of Agriculture and Fisheries - ARMM, Department of Agriculture Regional Field Office of Region IX, X, XII and XIII (Caraga)  
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**LAND SUITABILITY MAP  
ROBUSTA, LIBERICA  
AND EXCELSA COFFEE**

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

N  
W E  
S

**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.

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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      Land limitation  
Cacao              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
<b>LAND USE</b>		
Built-up	Fishpond	Mangrove

**ADJOINING SHEETS**      **INDEX MAP**

**4018-I**

3919-II 4019-III

4018-IV      **4018-I**

4018-III

**MISCELLANEOUS INFORMATION**

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### LAND SUITABILITY MAP ROBUSTA, LIBERICA AND EXCELSA 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.
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**Not Suitable/ Not Relevant**

**OTHER SIGNS**

- NGP Areas
- Cacao
- Land limitation
- Land use

#### CONVENTIONAL SIGNS

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

#### ADJOINING SHEETS

**3818-II**

3918-I, 3918-III, 3817-I, 3917-IV

#### MISCELLANEOUS INFORMATION

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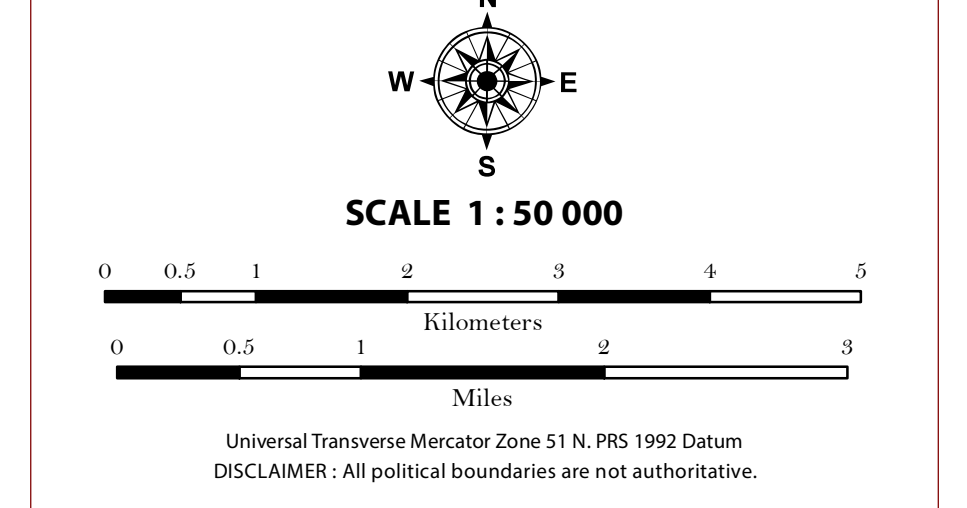
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**LAND SUITABILITY MAP  
ROBUSTA, LIBERICA  
AND EXCELSA COFFEE**

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



**LEGEND**

**SUITABILITY CLASSES**

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**Not Suitable/ Not Relevant**

**OTHER SIGNS**

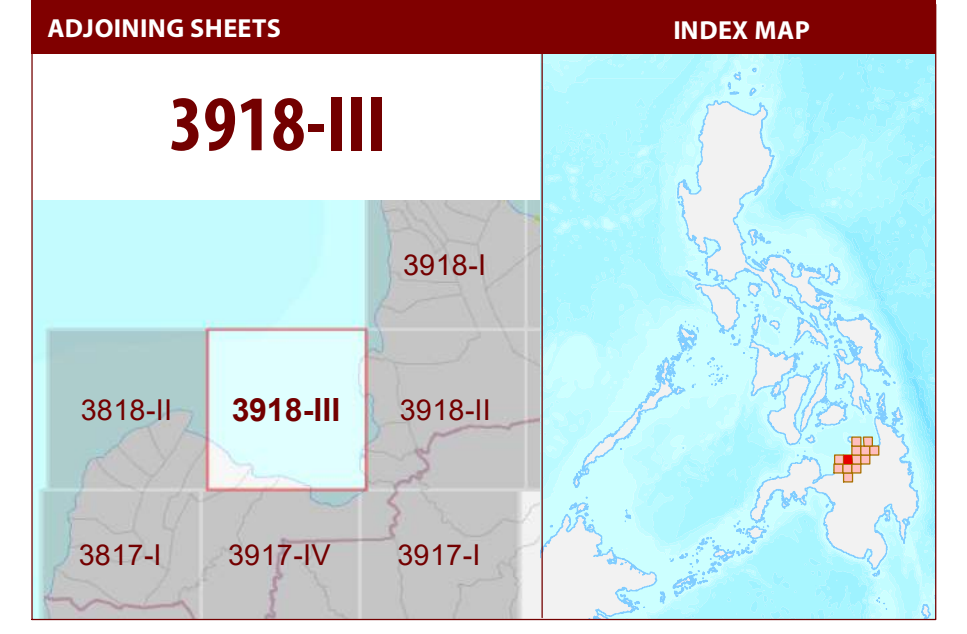
- NGP Areas
- Cacao
- Land limitation
- Land use

**CONVENTIONAL SIGNS**

ROADS	BOUNDARY	HYDROLOGY
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



**MISCELLANEOUS INFORMATION**

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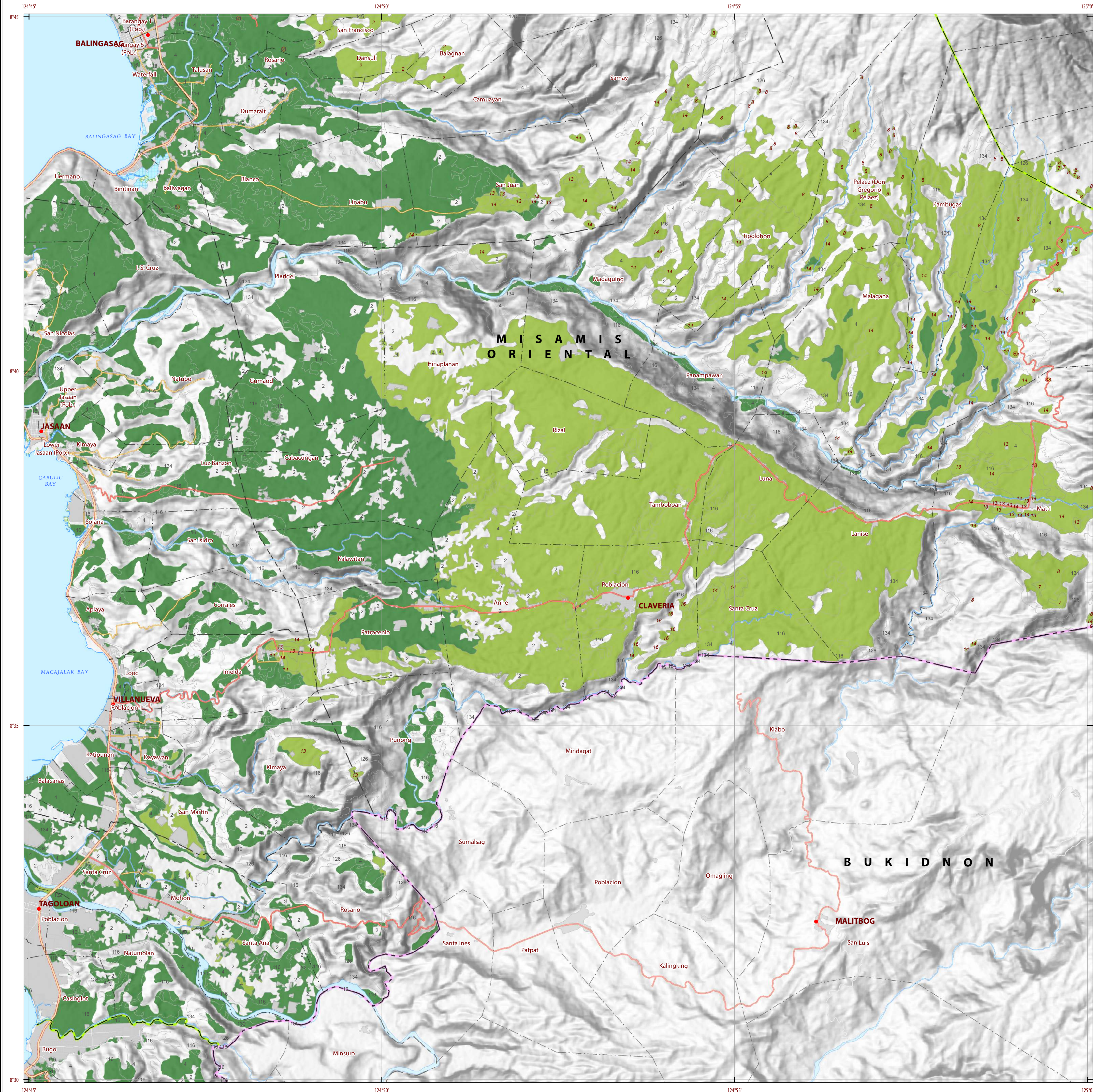
Project Leader : BERNARDO B. PASCUA  
GIS and Cartography : IRWIN K. SAMALCA

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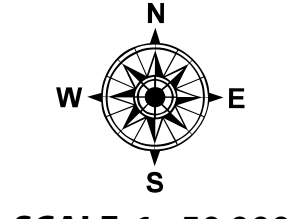
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**LAND SUITABILITY MAP  
ROBUSTA, LIBERICA  
AND EXCELSA COFFEE**

**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  
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**LEGEND**

**SUITABILITY CLASSES**

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- Not Suitable/ Not Relevant**

**OTHER SIGNS**

- NGP Areas
- Cacao
- Land limitation
- Land use

**CONVENTIONAL SIGNS**

ROADS	BOUNDARY	HYDROLOGY
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

**ADJOINING SHEETS**

**3918-II**

3918-I 4018-IV  
3918-III 3918-II 4018-III  
3917-IV 3917-I

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**MISCELLANEOUS INFORMATION**

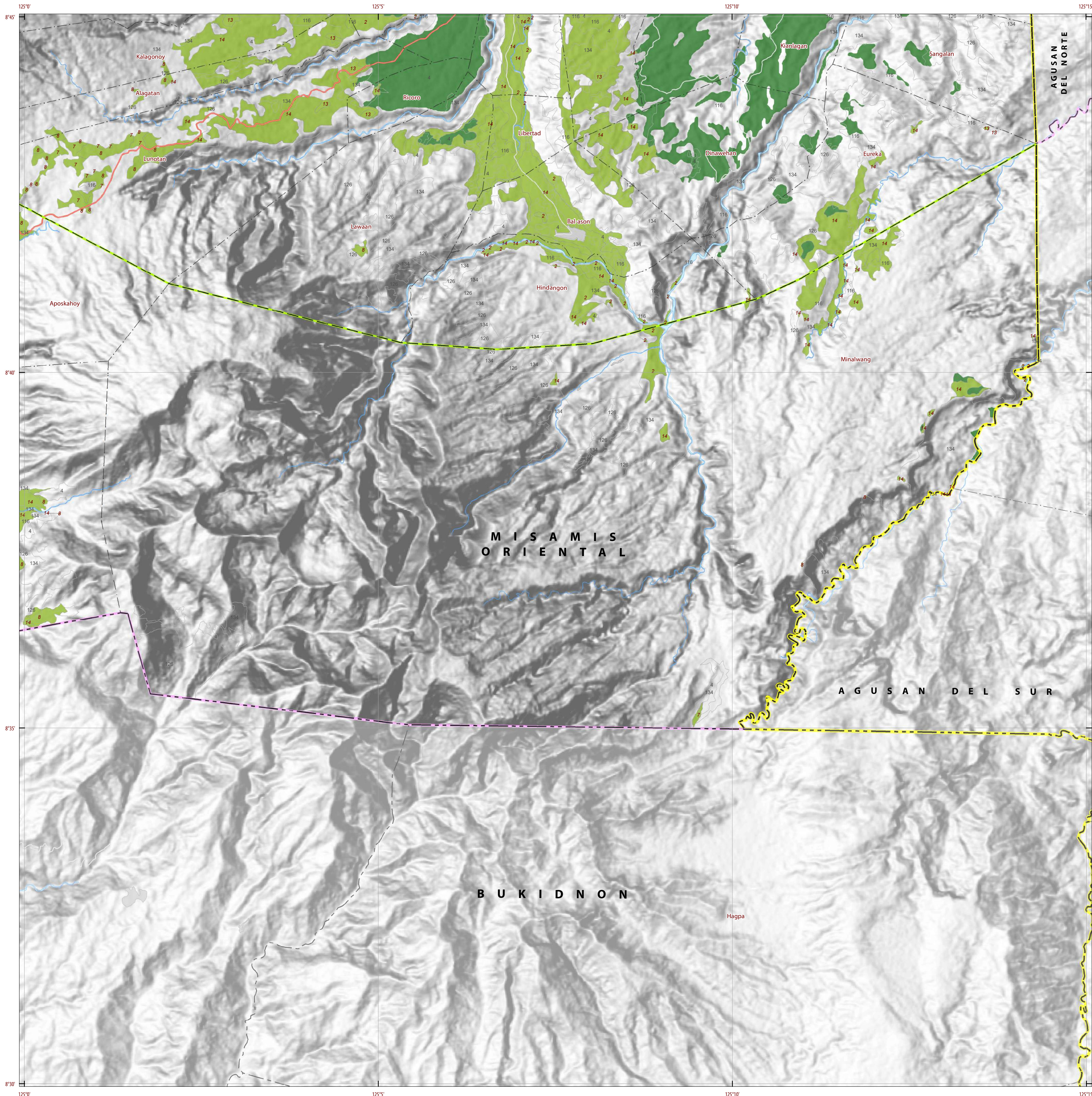
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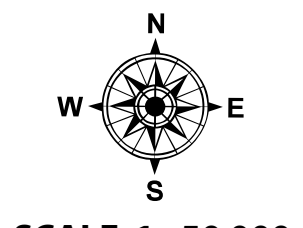
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**LAND SUITABILITY MAP  
ROBUSTA, LIBERICA  
AND EXCELSA COFFEE**

LAND RESOURCES EVALUATION AND SUITABILITY  
ASSESSMENT OF STRATEGIC PRODUCTION AREAS

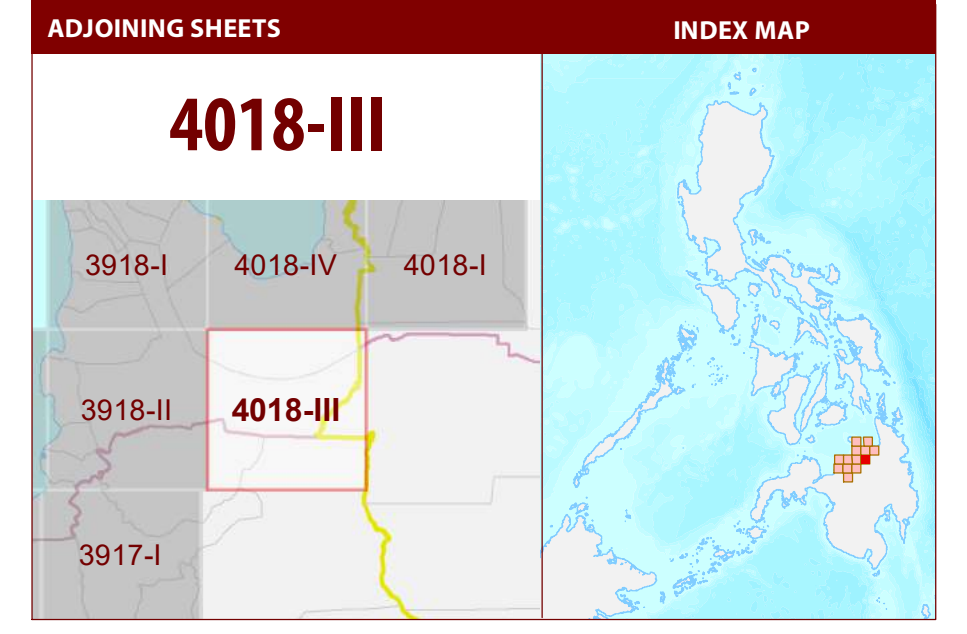


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**LEGEND**

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  - 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 |
| <b>LAND USE</b> |                 |                     |
| Built-up        | Fishpond        | Mangrove            |



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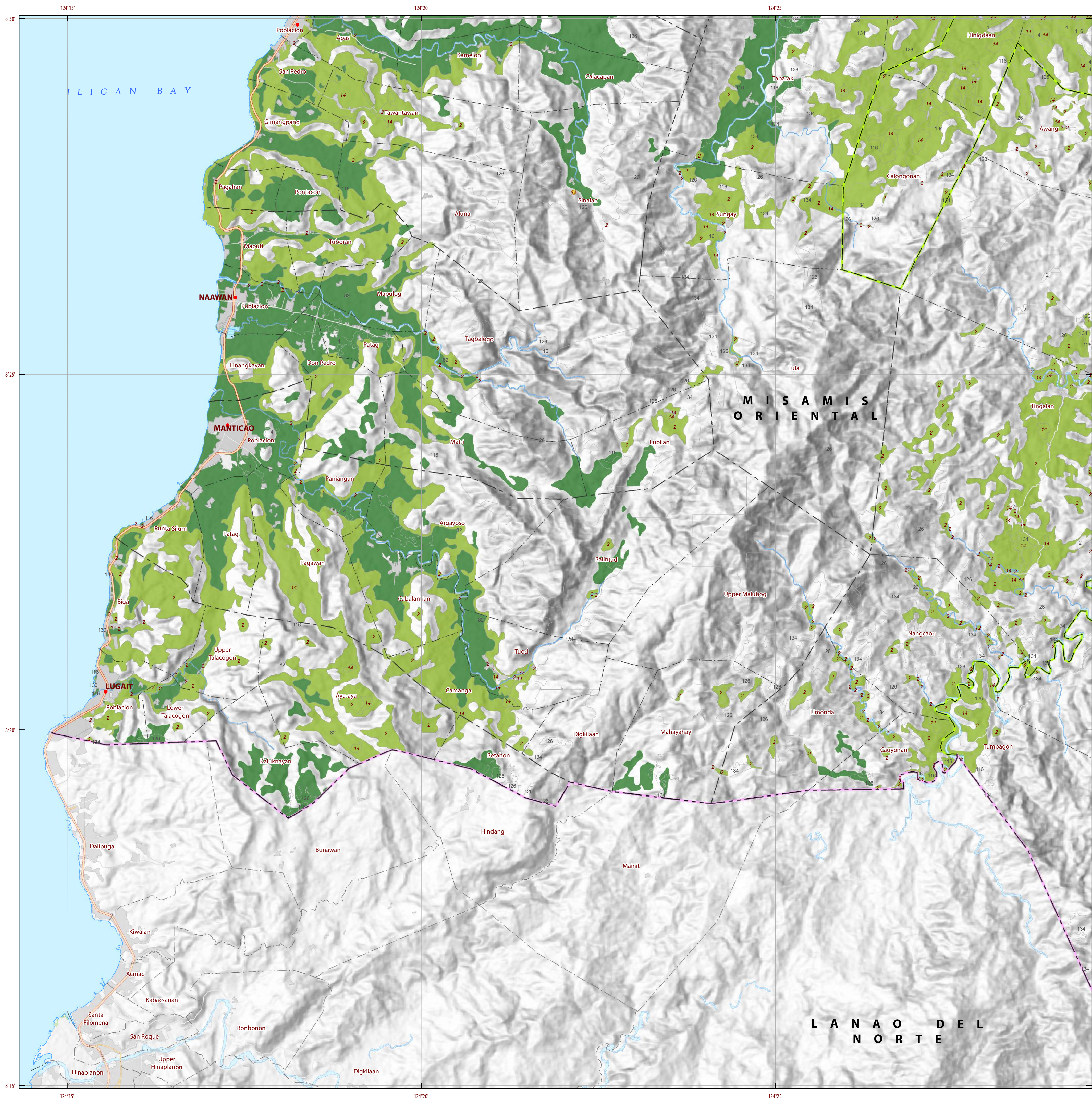
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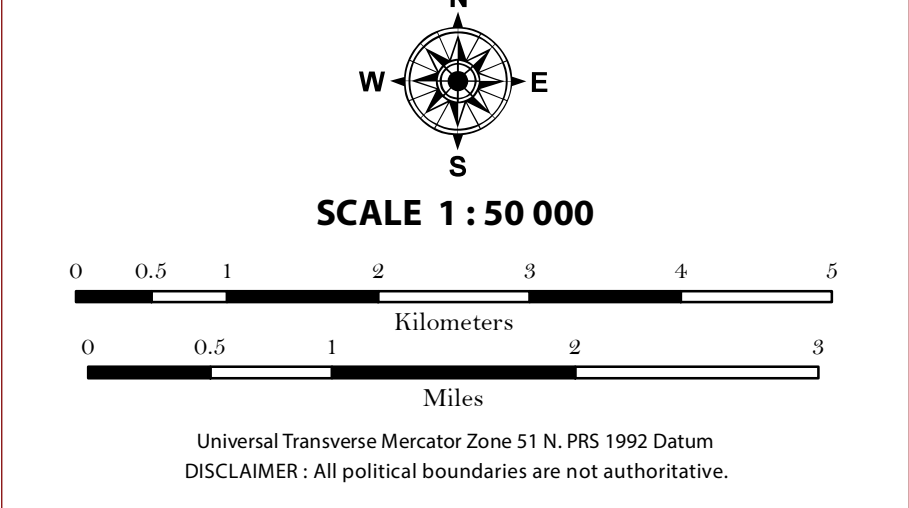
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**LAND SUITABILITY MAP  
ROBUSTA, LIBERICA  
AND EXCELSA COFFEE**

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



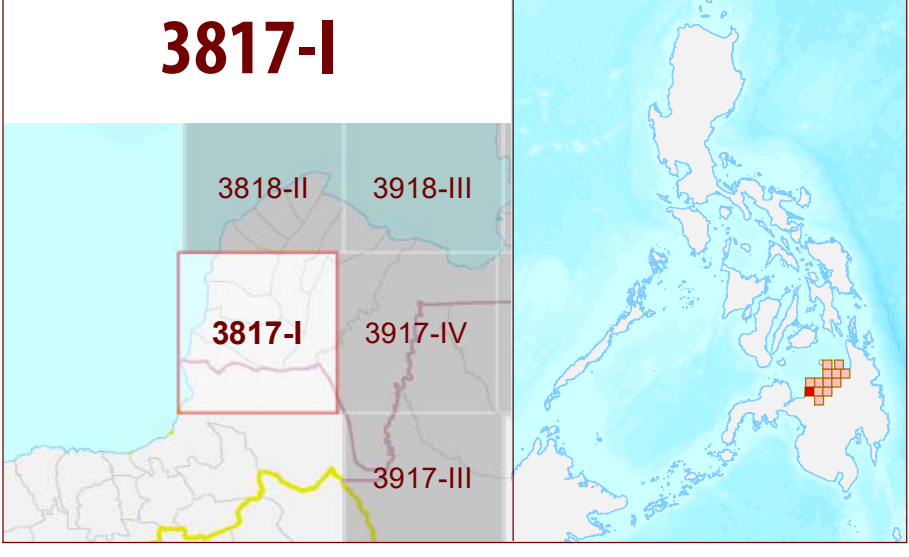
**LEGEND**

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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**      **INDEX MAP**



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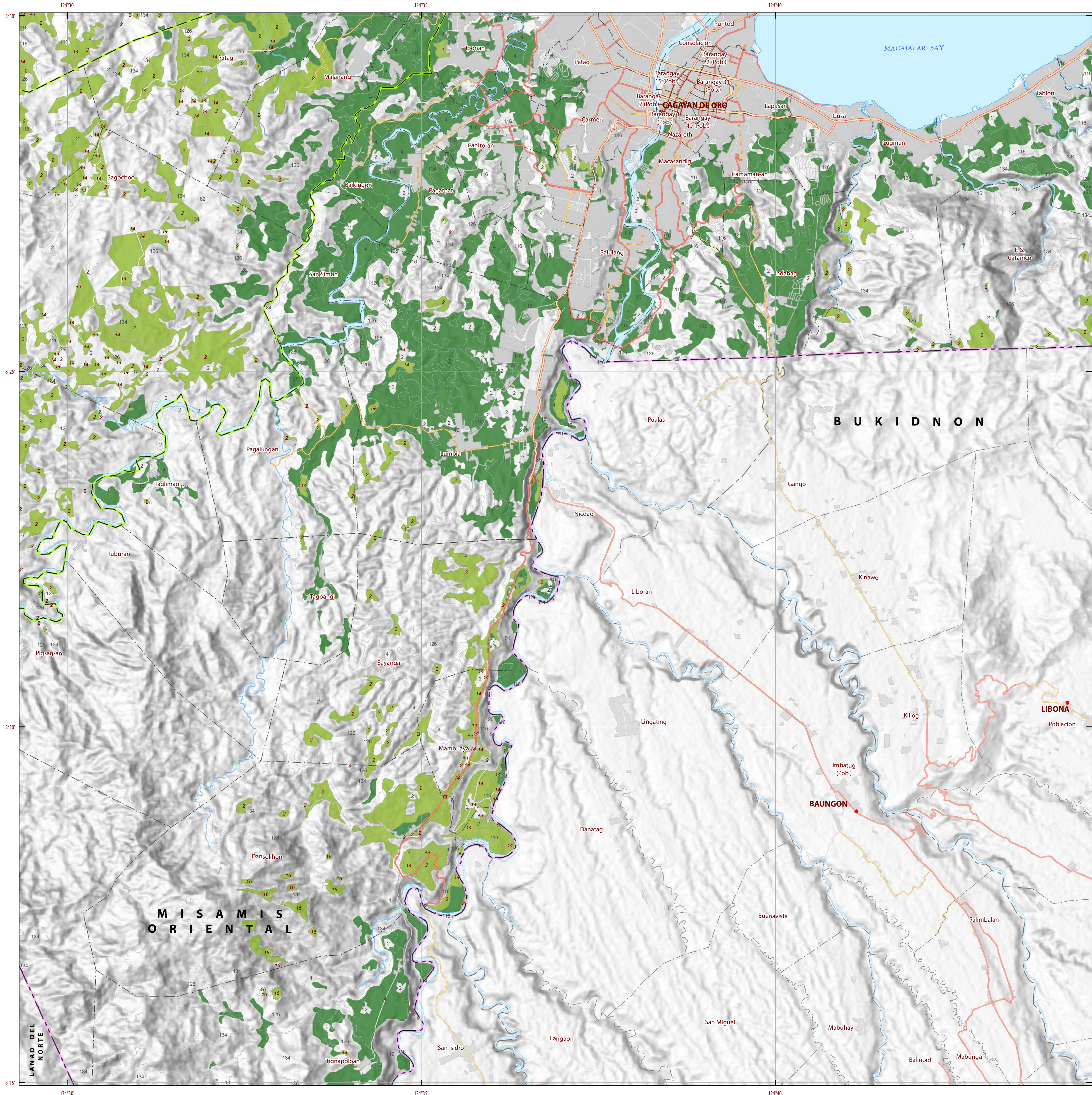
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### LAND SUITABILITY MAP ROBUSTA, LIBERICA AND EXCELSA COFFEE

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  
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**LEGEND**

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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**

<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

**ADJOINING SHEETS**

**3917-IV**

3818-II 3918-III 3918-II  
3817-I 3917-IV 3917-I  
3917-III

**INDEX MAP**

**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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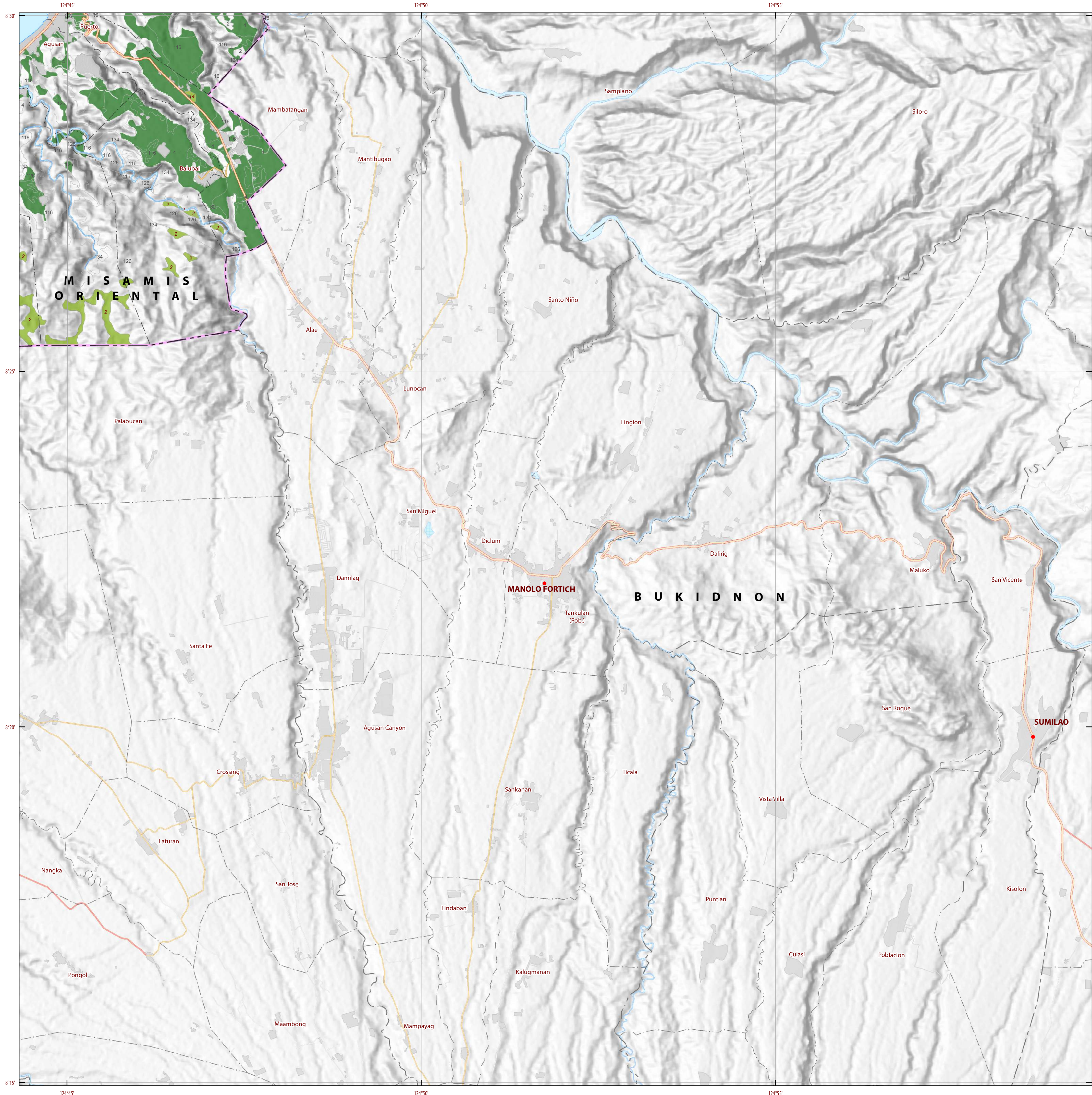
Funding Agency : Department of Agriculture - Bureau of Agricultural Research (DA-BAR)  
Collaborating Agencies : Philippine Council on Agriculture and Fisheries (PCAF)  
: Department of Agriculture and Fisheries - ARMM, Department of Agriculture Regional Field Office of Region IX, X, XI, XII and XIII (Caraga)  
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PROVINCE OF MISAMIS ORIENTAL Sheet 11 of 13 Sheet No. 3917-IV



### LAND SUITABILITY MAP ROBUSTA, LIBERICA AND EXCELSA 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.
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##### OTHER SIGNS

- NGP Areas
- Cacao
- Land limitation
- Land use

#### CONVENTIONAL SIGNS

ROADS	BOUNDARY	HYDROLOGY
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

#### ADJOINING SHEETS

3917-I

3918-III 3918-II 4018-III

3917-IV 3917-I

3917-III

#### INDEX MAP

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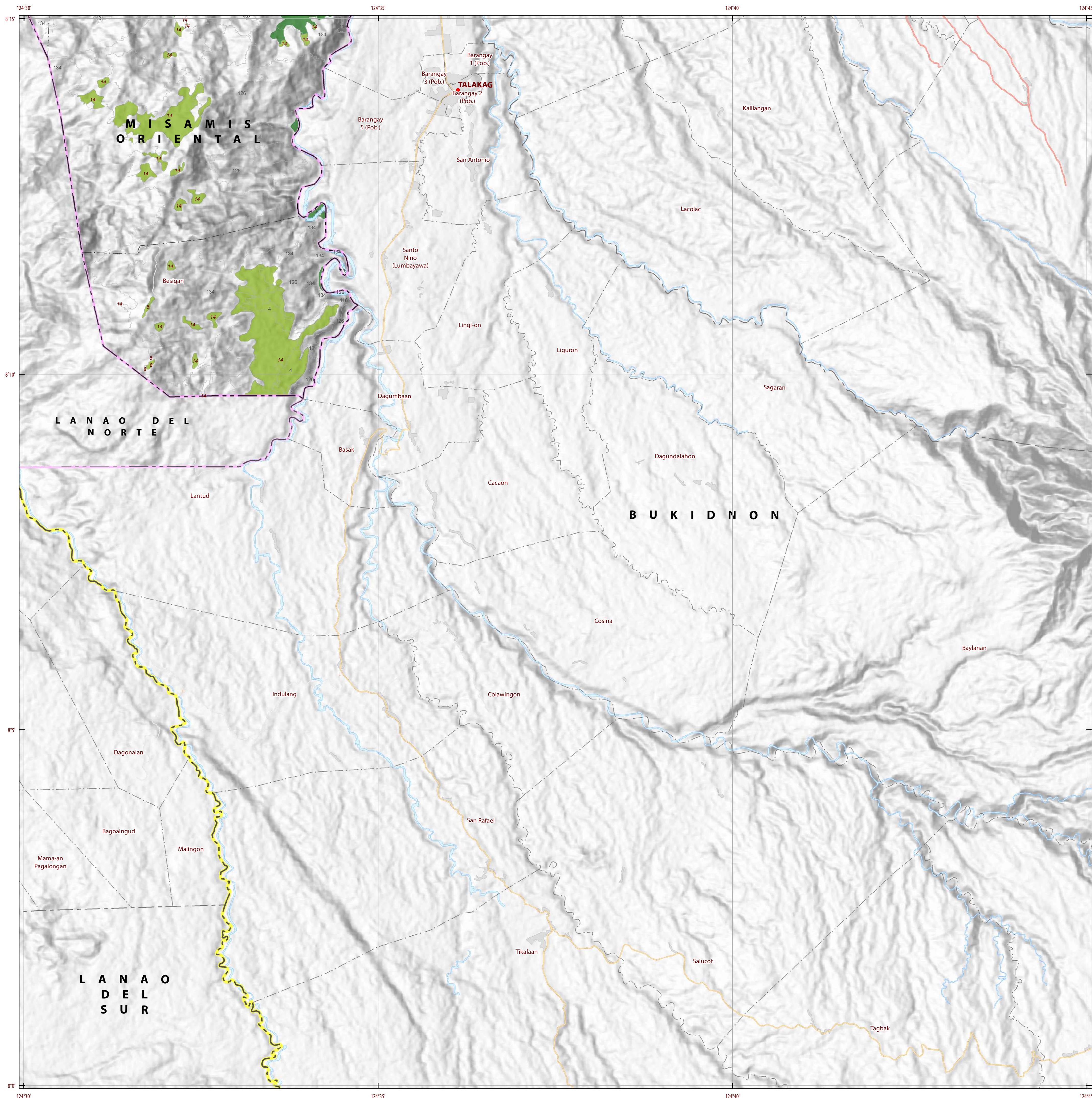
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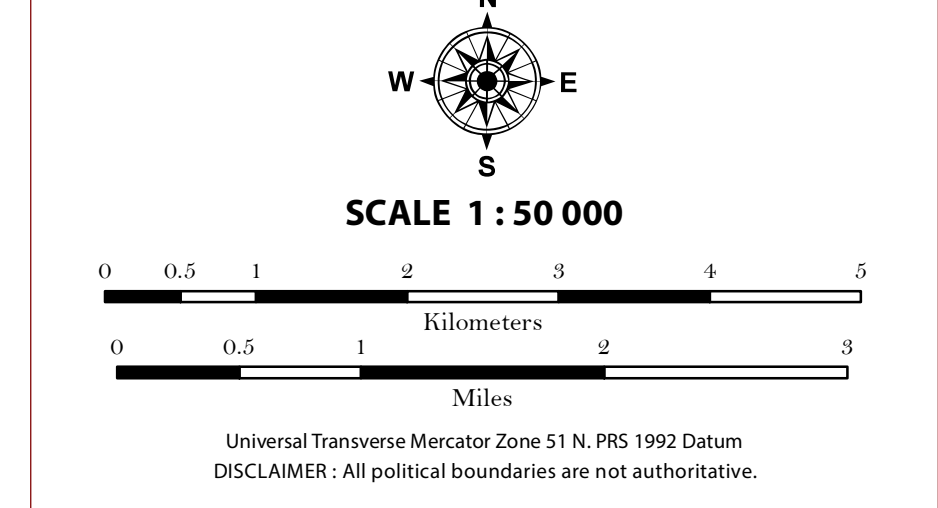
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**LAND SUITABILITY MAP  
ROBUSTA, LIBERICA  
AND EXCELSA COFFEE**

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



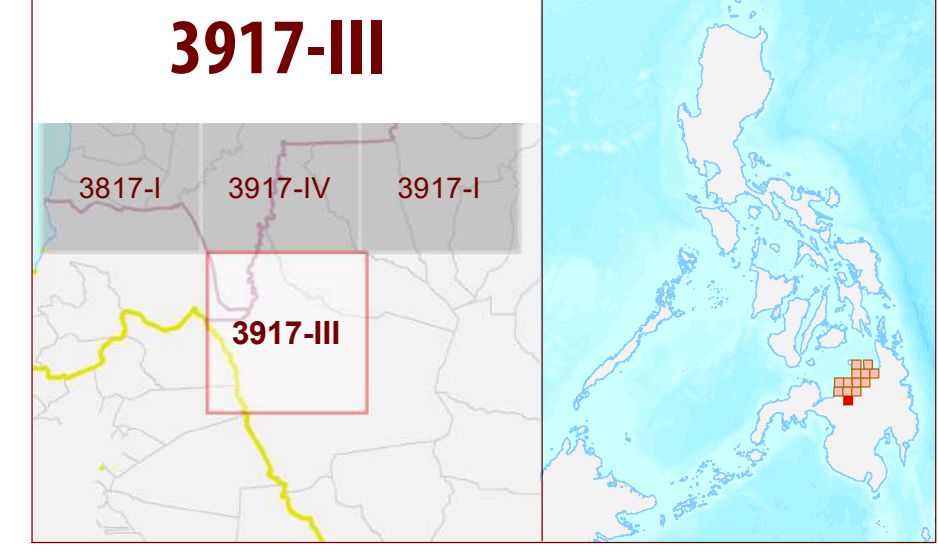
**LEGEND**

- SUITABILITY CLASSES**
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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
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**ADJOINING SHEETS**      **INDEX MAP**



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