

LAND SUITABILITY MAP

CASSAVA

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS

PROVINCE OF NORTH COTABATO



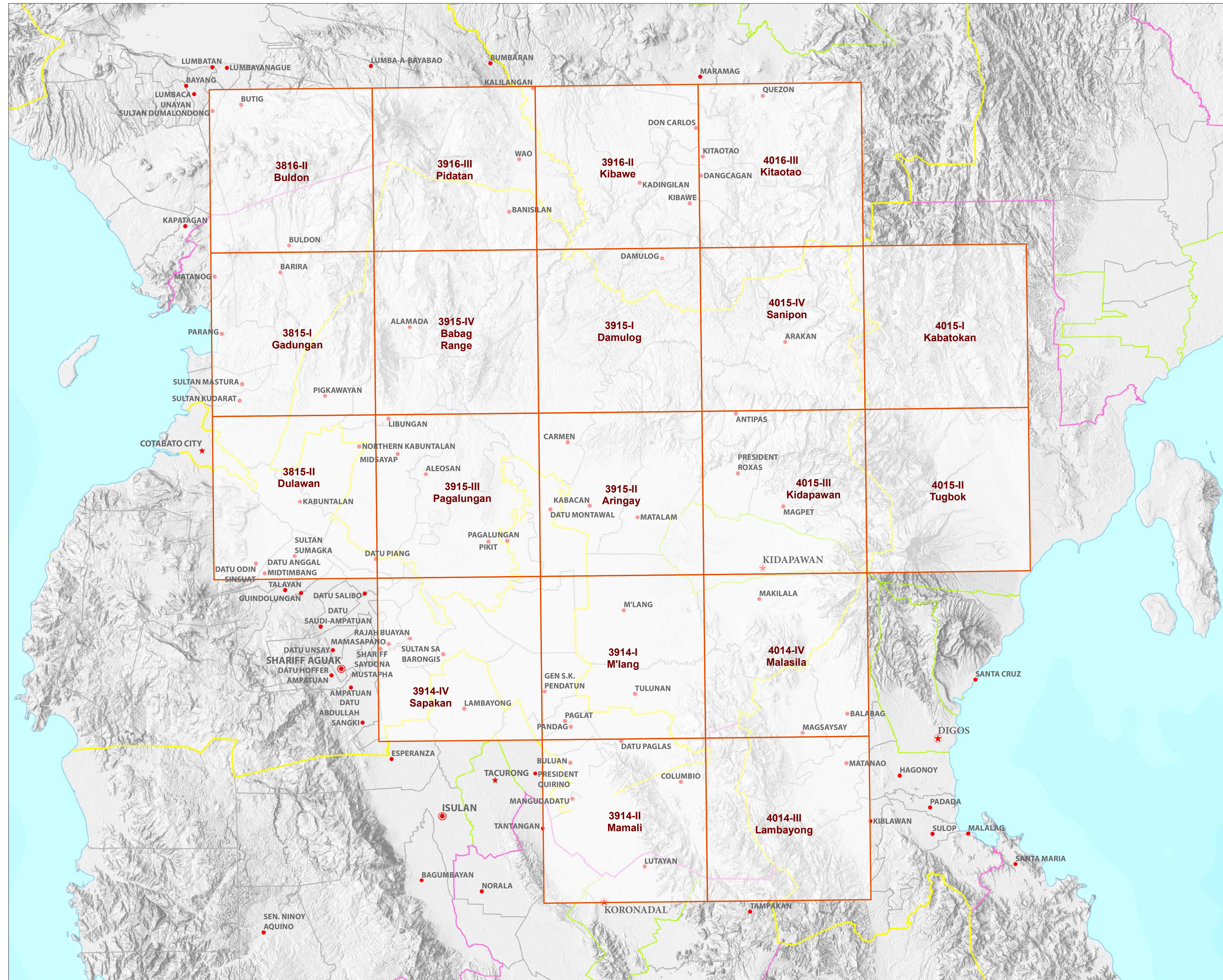
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MAP INDEX

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS

PROVINCE OF NORTH COTABATO



LEGEND

Places

-  Capital City
-  City
-  Capital Town
-  Town

Administrative Boundary

- Regional
- Provincial
- City
- Municipal

Map Index

- Index grid

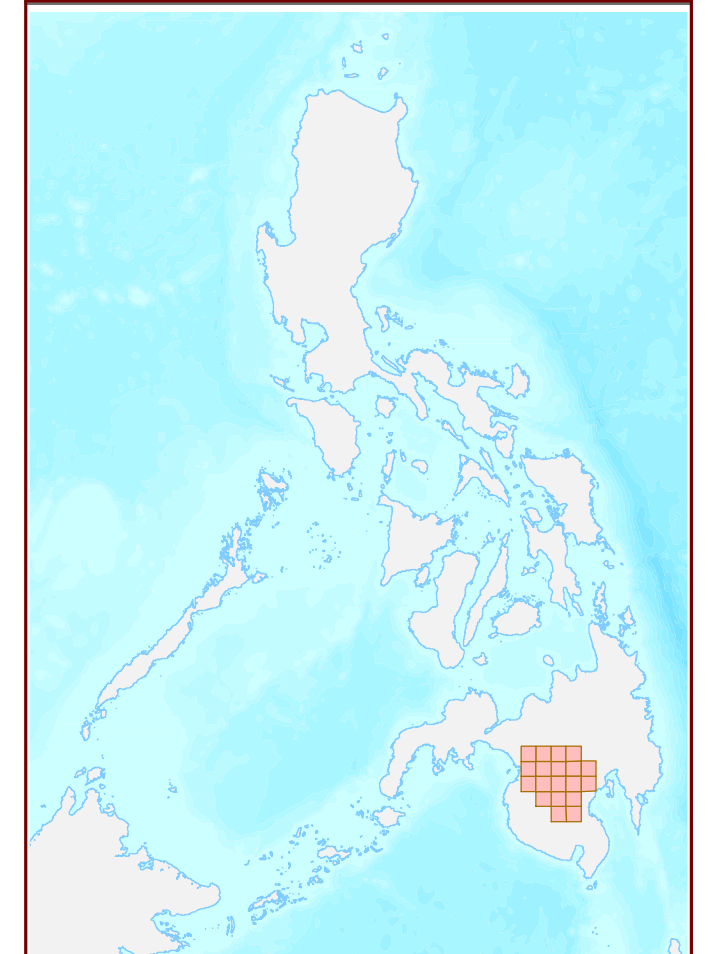
Topographic Relief



Bathymetry



LOCATION MAP



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 CASSAVA

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS NORTH COTABATO, REGION XII

EXTENT OF SUITABILITY FOR CASSAVA PRODUCTION BY MUNICIPALITY

MUNICIPALITY	EXISTING CASSAVA (Ha)			TOTAL EXISTING AREA (Ha)	EXPANSION AREA (Ha)						CONFLICT RESOLUTION AREA (Ha)								TOTAL POTENTIAL EXPANSION AREA (Ha)
					Coconut		Shrubland, unmanaged*		Grassland, unmanaged*		Corn		Sugarcane		Pineapple		Other crops		
	S1	S2	S3		S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2			
ALAMADA	-	-	-	-	291	1,441	-	220	300	2,907	2,403	7,974	-	-	-	-	-	-	15,536
ALEOSAN	-	-	-	-	658	863	87	511	7	640	2,160	1,316	2,223	4,619	-	-	613	1,591	15,288
ANTIPAS	-	-	-	-	847	4,804	-	-	-	173	277	837	-	-	-	-	-	-	6,938
ARAKAN	-	-	-	-	669	4,369	-	91	23	1,198	542	4,734	-	37	-	-	-	1	11,663
BANISILAN	-	-	-	-	9	35	-	692	21	2,177	196	3,094	13	8,960	-	-	-	-	15,195
CARMEN	-	-	-	-	1,054	884	35	1,443	501	7,043	13,490	9,308	135	162	-	-	47	1	34,101
CITY OF KIDAPAWAN	-	-	-	-	12,993	6,445	-	-	-	-	1,956	526	-	-	1,204	325	-	-	23,449
KABACAN	-	-	-	-	635	3	10	528	450	2,352	5,281	795	-	-	-	-	-	-	10,055
LIBUNGAN	-	-	-	-	167	1,242	-	-	557	1,163	1,676	619	779	279	-	-	596	1,117	8,195
MAGPET	-	-	-	-	3,012	1,723	-	-	-	113	739	406	-	-	-	-	1	-	5,994
MAKILALA	-	-	-	-	3,289	3,936	18	317	71	568	2,508	578	-	-	2,506	1,756	-	-	15,546
MATALAM	-	-	-	-	1,586	3,702	11	298	146	3,221	11,959	4,793	-	-	-	-	-	-	25,716
MIDSAYAP	-	-	-	-	489	143	494	-	-	-	6,403	934	229	798	-	-	897	3,050	13,436
M'LANG	-	-	-	-	3,364	2,441	-	-	-	10,672	470	-	-	-	2,260	229	-	-	19,436
PIGKAWAYAN	-	-	-	-	2,958	2,155	-	82	306	1,290	1,776	160	-	-	-	-	171	48	8,945
PIKIT	-	-	-	-	3,629	405	218	674	44	1,220	9,454	623	10	49	-	-	-	-	16,326
PRESIDENT ROXAS	-	-	-	-	1,973	2,688	10	380	271	7,340	4,210	2,158	-	1	-	-	2	18	19,053
TULUNAN	-	-	-	-	1,865	644	1	18	290	3,574	6,661	908	-	-	523	178	-	-	14,662
TOTAL	-	-	-	-	39,488	37,923	883	5,254	2,986	34,978	82,363	40,232	3,387	14,906	6,494	2,488	2,326	5,826	279,533

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

AGRONOMIC REQUIREMENT OF CASSAVA 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
Cassava	S1	<8	>50	FSL, L, SIL, CL, SICL, SCL, SC, SiC, C	WD,MWD	5.6 -7.2	high	none-slight	none-slight	none-few	<500	1000-2000	I,II,III, IV
	S2	8 - 18	30 - 50	SL, HC	SPD, PD	5.1 - 5.5 7.3 - 7.8	medium	moderate	moderate	common	500-1500	2001-4500	II
	S3	18 - 30	<30	S, LS, CSL	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 - 500 - 1000m or 2000 - 2500m
EI3 - < 500m or > 2500m

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
1	EI2	11	T2-EI2	21	T3-E3-Sh2-Rc2	31	T3-EI2-E3-Sh3-Rc3	41	T3-EI3-E3-Sh3-Rc3
2	EI2-E2-Sh2-Rc3	12	T2-EI2-E3-Sh2-Rc3	22	T3-E3-Sh2-Rc3	32	T3-EI3-E3-Sh2-Rc2		
3	EI2-Sh2-Rc2	13	T2-EI2-Rc2	23	T3-E3-Sh3-Rc2	33	T3-EI3-E3-Sh3-Rc2		
4	EI3	14	T2-EI2-Sh2-Rc2	24	T3-E3-Sh3-Rc3	34	T3		
5	EI3-Sh2-Rc2	15	T2-EI2-Sh2-Rc3	25	T3-EI2	35	T3-E3		
6	F2-D2	16	T2-EI3-Sh2-Rc2	26	T3-EI2-E3	36	T3-E3-Sh3-Rc3		
7	F3-D2	17	T2-F3-D2	27	T3-EI2-E3-Rc2	37	T3-EI2		
8	Sh2-Rc2	18	T3	28	T3-EI2-E3-Sh2-Rc2	38	T3-EI2-E3		
9	T2	19	T3-E3	29	T3-EI2-E3-Sh2-Rc3	39	T3-EI2-E3-Rc3		
10	T2-E2-Sh2-Rc2	20	T3-E3-Rc3	30	T3-EI2-E3-Sh3-Rc2	40	T3-EI2-E3-Sh3-Rc3		

CODE	LANDUSE
4	Corn
34	Diversified crops
84	Pineapple
91	Banana
105	Fruit trees, mixed
112	Sugarcane
116	Coconut
126	Grassland
134	Shrubs, unmanaged
137	Rubber (T)

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

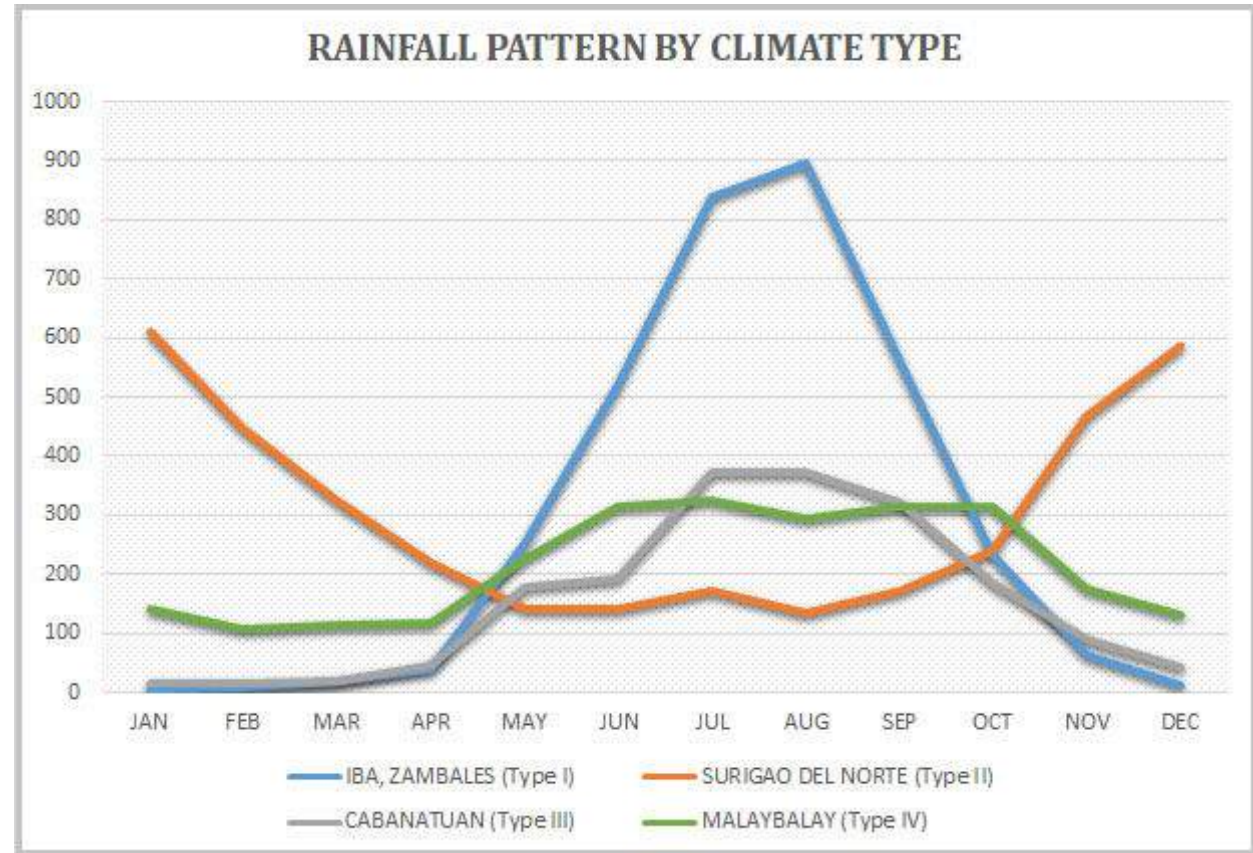
TYPE I : Two pronounced season, dry from November to April and wet during the rest of the year. Maximum rain period is from June to September

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.

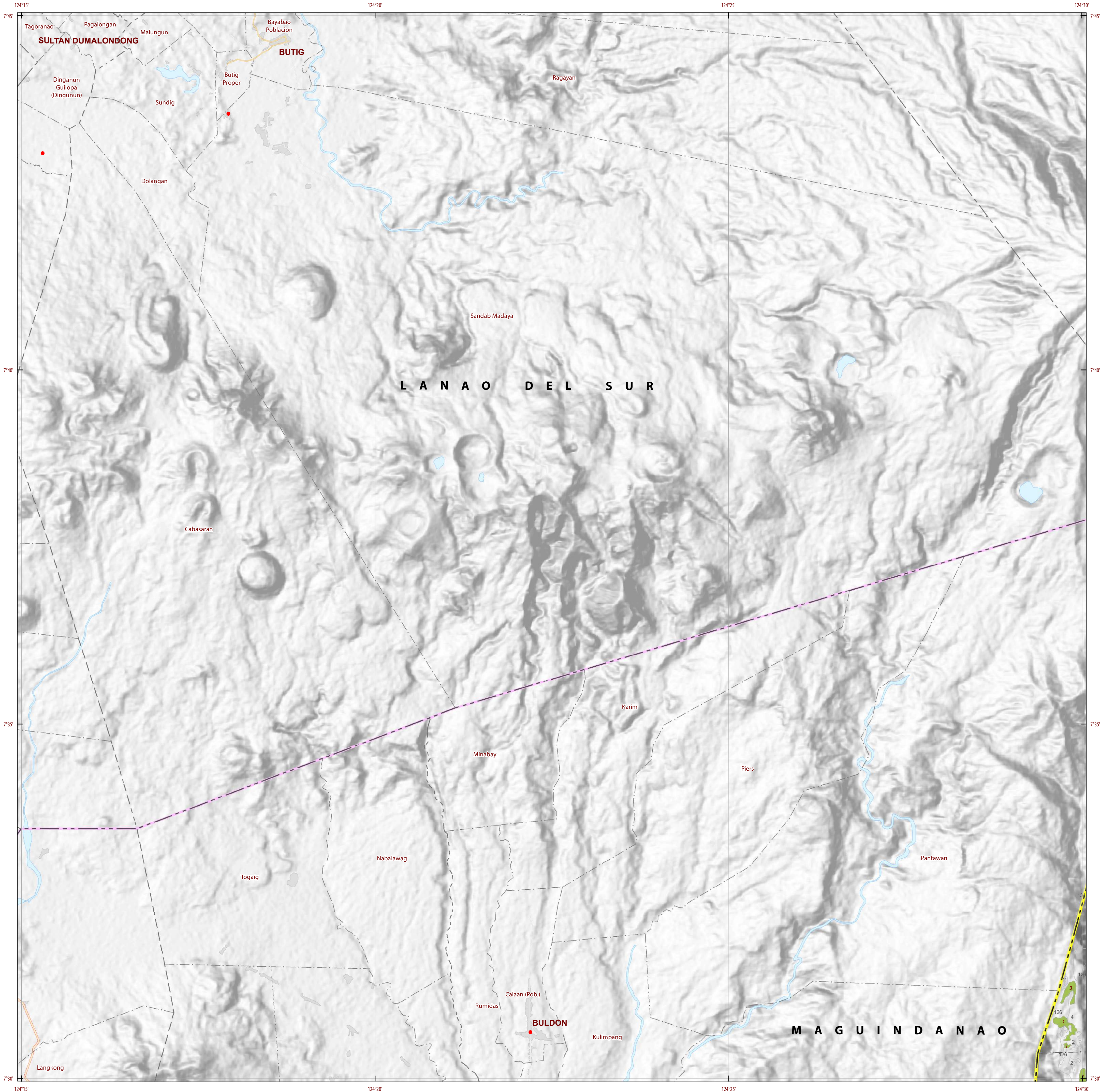
TYPE III : No very pronounced maximum rain period, with a dry season lasting only from one to three months, either during the period from December to February or from March to May. This type resembles Type I since it has a short dry season.

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

North Cotabato is mostly classified as climatic Type III and partly Type IV in the Eastern part.

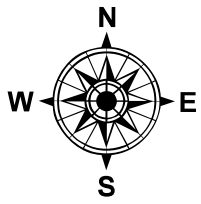


Source: PAGASA 2018, *Climatological Normals (Rainfall)*, Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA), accessed 27 July 2018, <<https://www1.pagasa.dost.gov.ph/index.php/climate/climatological-normals>>.

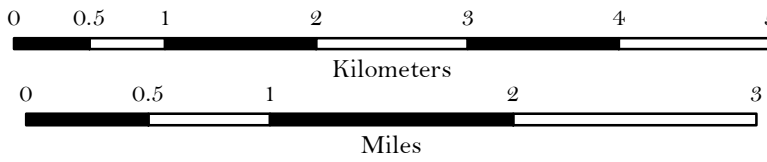


LAND SUITABILITY MAP CASSAVA

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

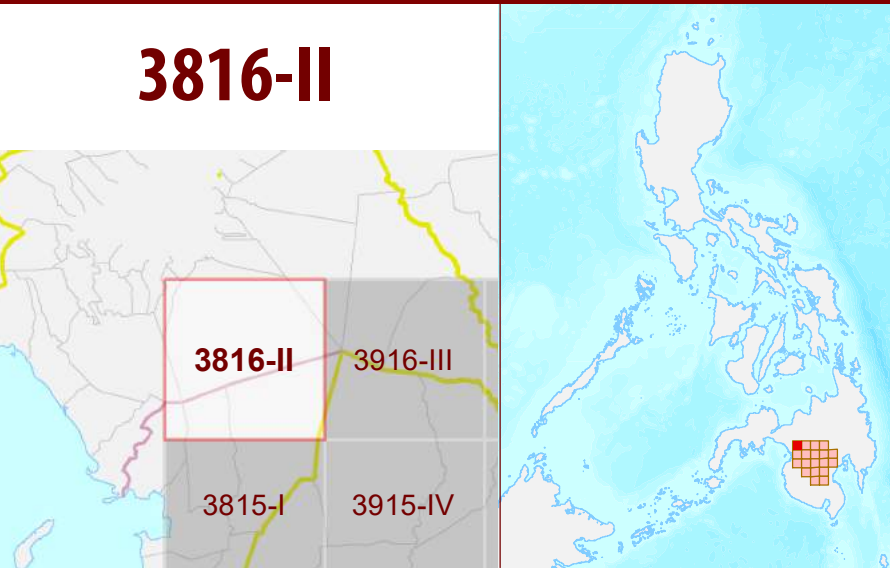
- NGP Areas
- Cacao
- Land limitation
- Land use

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

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), Soil 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 : IRVIN K. SAMALCA
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: 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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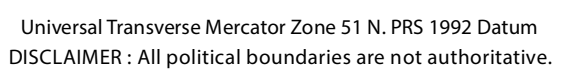
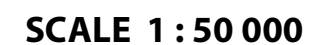


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LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SUITABILITY CLASSES

☐ **Not Suitable/ Not Relevant**

 NGP Areas
 Cacao

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

INDEX MAP

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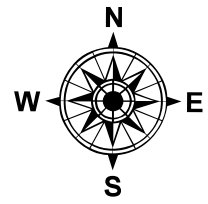
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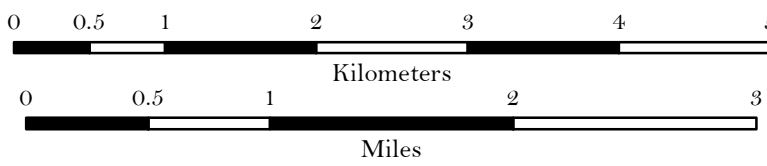


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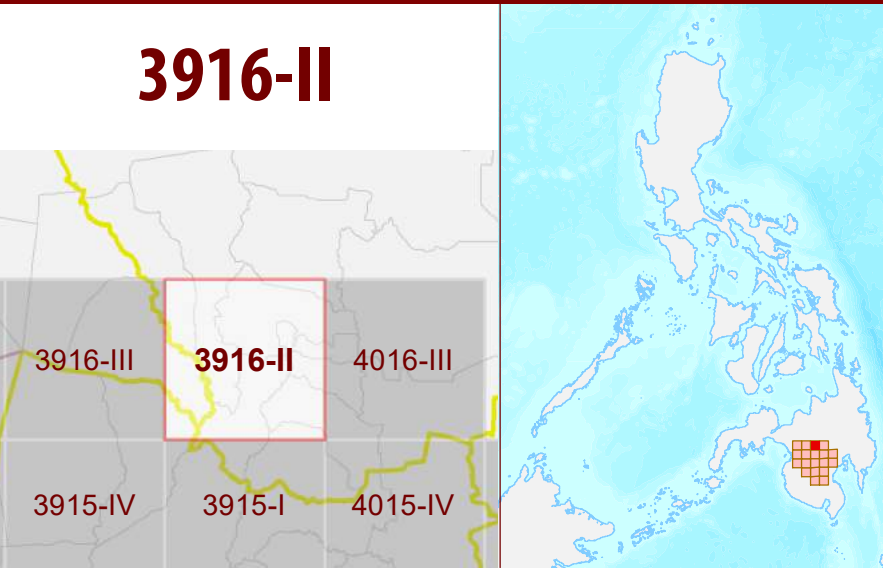
OTHER SIGNS

- NGP Areas
- Cacao
- Land limitation
- Land use

CONVENTIONAL SIGNS

- ROADS**
 - Expressway
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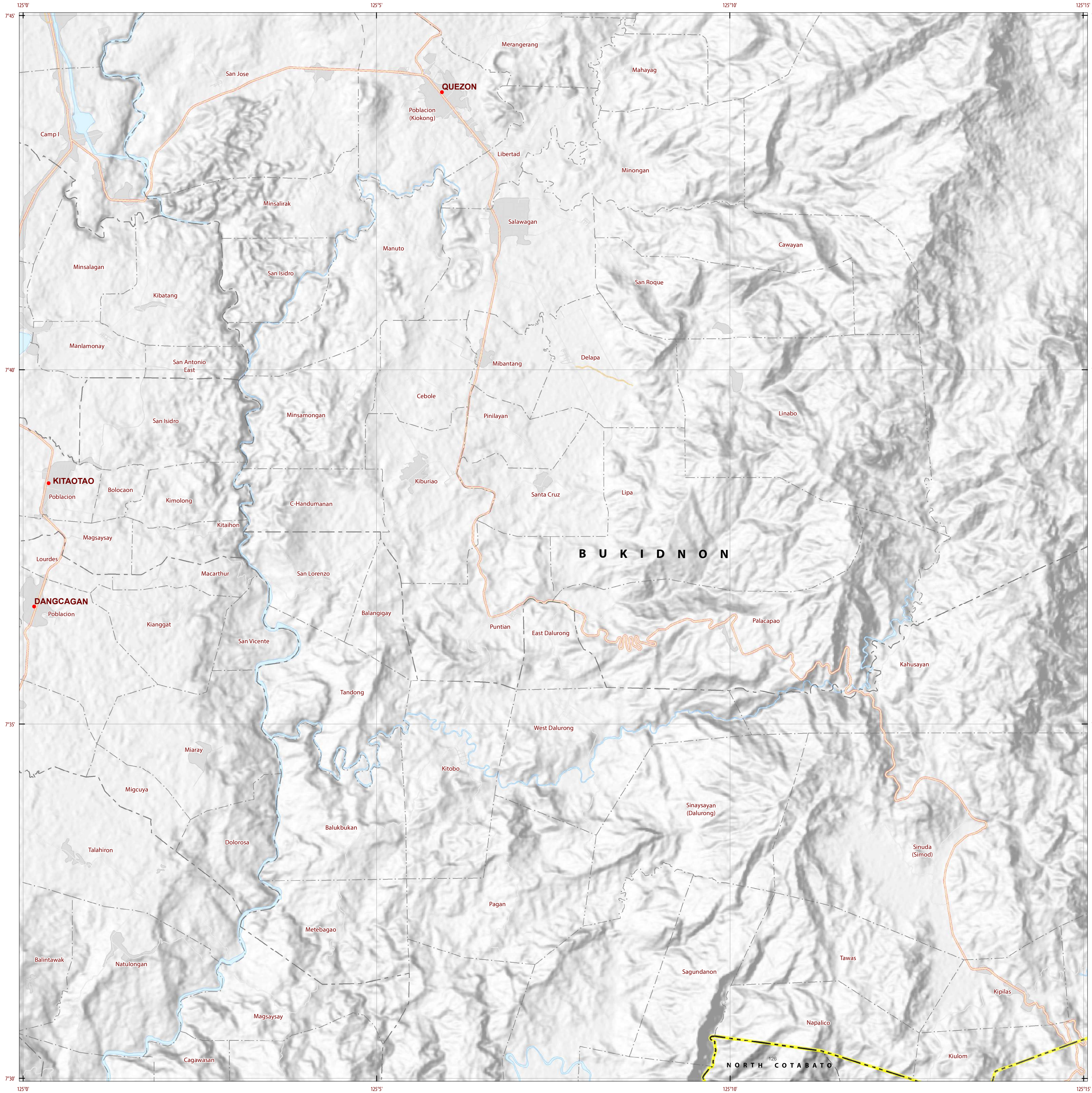
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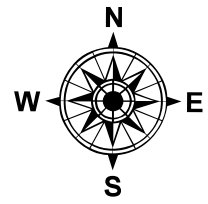
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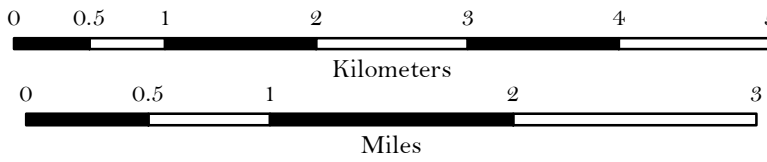


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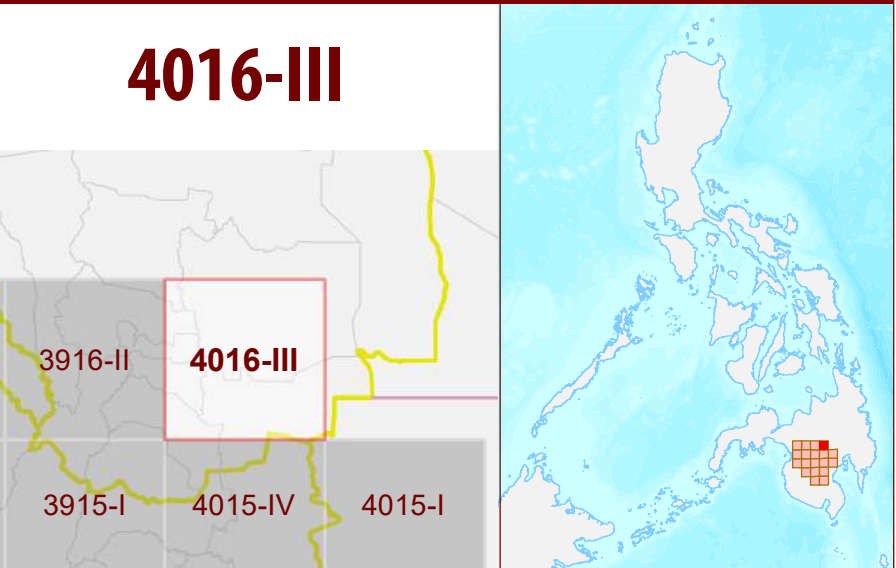
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GIS and Cartography : IRVIN K. SAMALCA

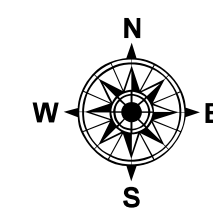
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Collaborating Agencies : Philippine Council on Agriculture and Fisheries (PCAF)
: Department of Agriculture and Fisheries - ARMM, Department of Agriculture Regional Field Office of Region IX, X, XI, XII and XIII (Caraga)
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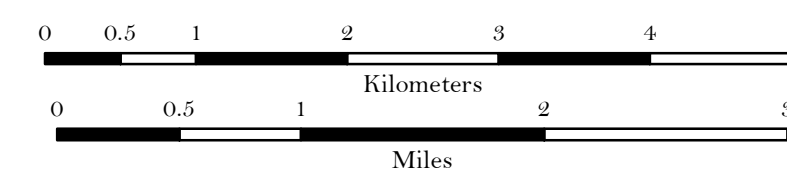
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Tel/Fax No. : (+632) 332-9534 E-mail: bswmclientcenter@da.gov.ph

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 agriculture 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 agriculture of a given use; the limitations will reduce productivity or benefits and increased 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 agriculture 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


CONVENTIONAL SIGNS

ROADS

-

BOUNDARY

- Region
 Region
 Region
 Region
 Region
 Region
 Region
 Region
 Region
 Region
 Region
 Region
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HYDROLOGY

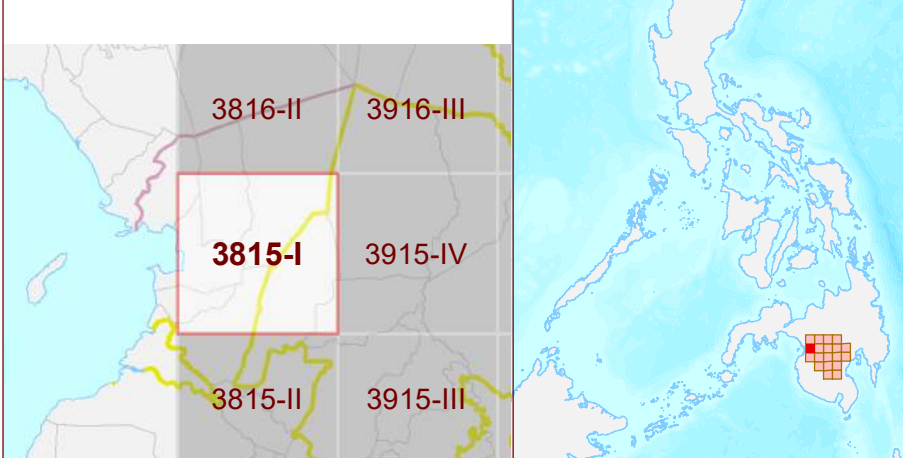
- Sea / Shoreline
Lakes / Rivers
- PLACES**
- ★ ★ Capital City / City
● ● Capital Town / Town

LAND U.S.

- Legend: Built-up Fishpond Mangrove

ADJOINING SHEETS

3815-I



INDEX MAP

MISCELLANEOUS INFORMATION

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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, XI, XII and XIII (Caraga) : Local Government Unit (LGU) of covered provinces and municipalities

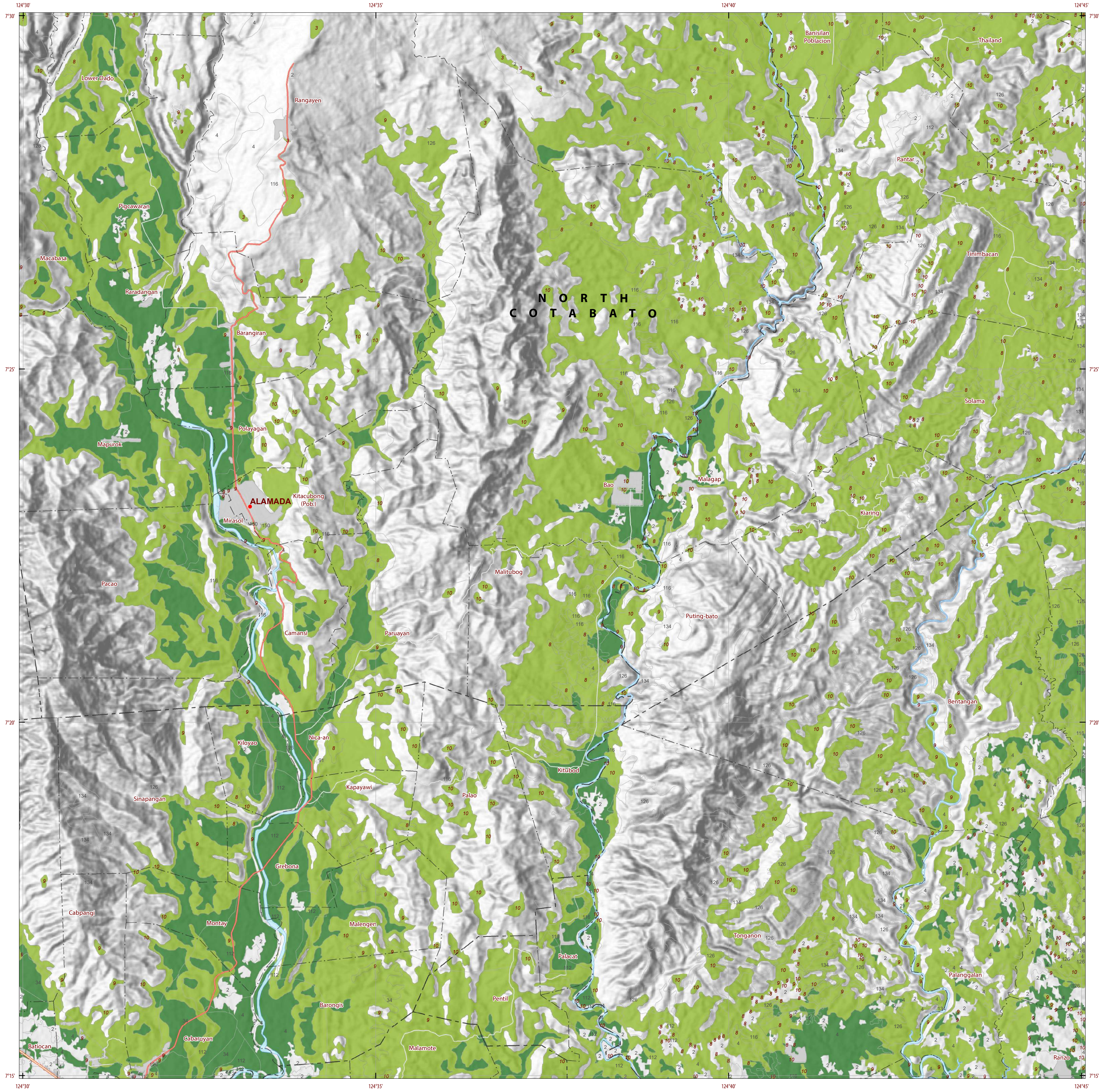
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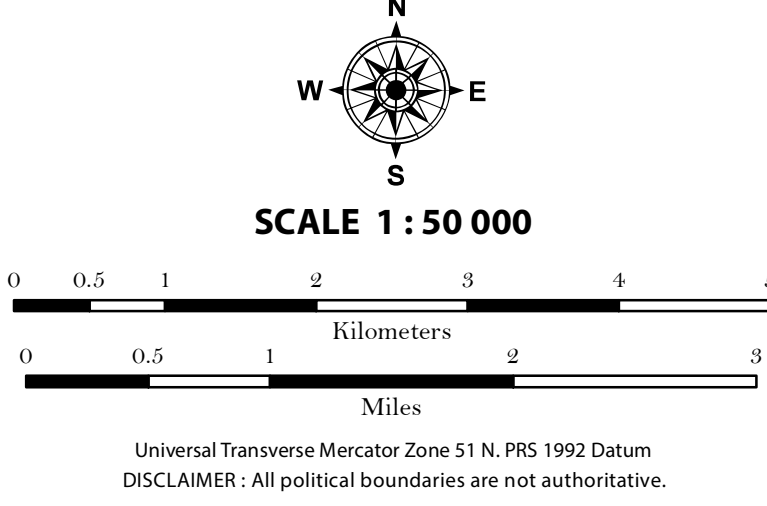
PROVINCE OF NORTH COTABATO

Sheet 5 of 19 Sheet No. 3815-I



LAND SUITABILITY MAP
CASSAVA

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 (diagonal lines)
- Cacao (hatched pattern)
- Land limitation (green with red outline)
- Land use (green)

CONVENTIONAL SIGNS

ROADS

- Expressway (thick orange line)
- Trunk line (orange line)
- Primary (thin orange line)
- Secondary (dashed orange line)
- Tertiary (dotted orange line)

BOUNDARY

- Region (thick black line)
- Province (dashed black line)
- District (dotted black line)
- Municipality (thin solid black line)
- Barangay (thin dashed black line)

HYDROLOGY

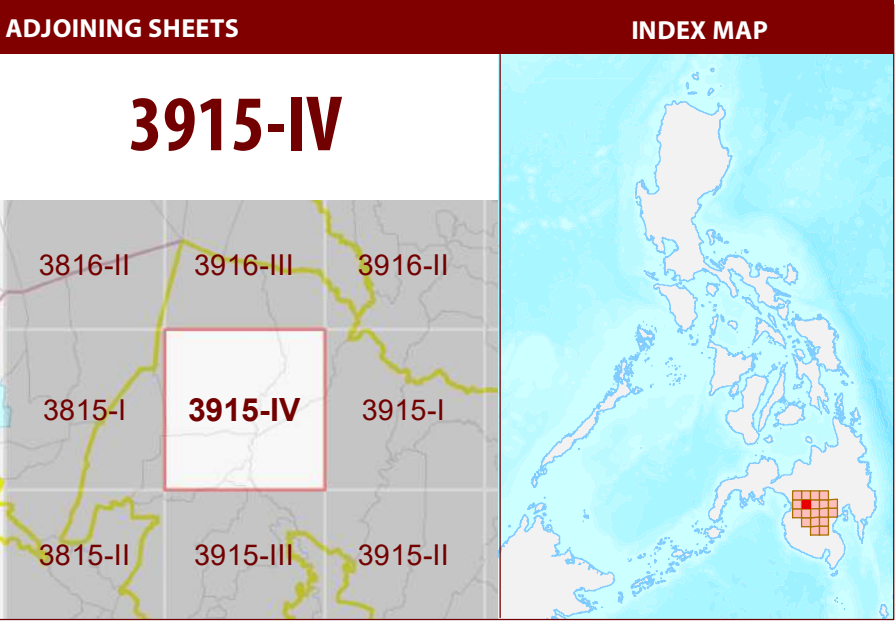
- Sea / Shoreline (blue wavy line)
- Lakes / Rivers (blue line)

PLACES

- Capital City / City (red star)
- Capital Town / Town (red dot)

LAND USE

- Built-up (grey)
- Fishpond (blue grid)
- Mangrove (green grid)



MISCELLANEOUS INFORMATION

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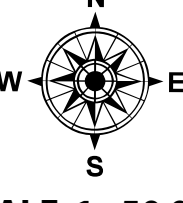


LAND SUITABILITY MAP

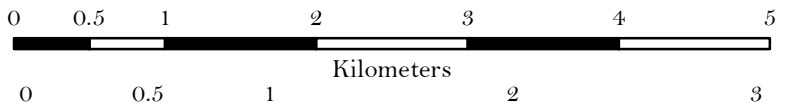
CASSAVA

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

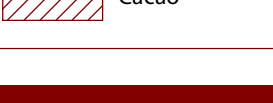
Marginally Suitable

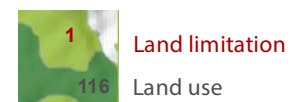
- Land having limitations which in aggregate are severe for sustained application of a given use and will so reduce productivity or benefits, or increase required inputs, that this expenditure will be only marginally justified.

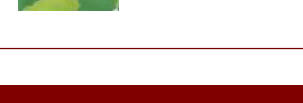
Not Suitable/ Not Relevant

OTHER SIGNS

 NGP Areas

 Cacao

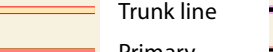
 Land limitation

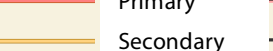
 Land use

CONVENTIONAL SIGNS

ROADS

 Expressway

 Trunk line

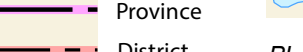
 Primary

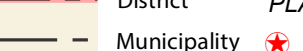
 Secondary

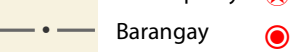
 Tertiary

BOUNDARY

 Region

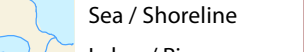
 Province

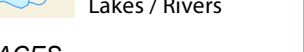
 District

 Municipality

 Barangay

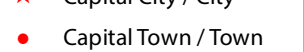
HYDROLOGY

 Sea / Shoreline

 Lakes / Rivers

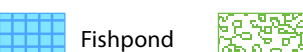
PLACES

 Capital City / City

 Capital Town / Town

LAND USE

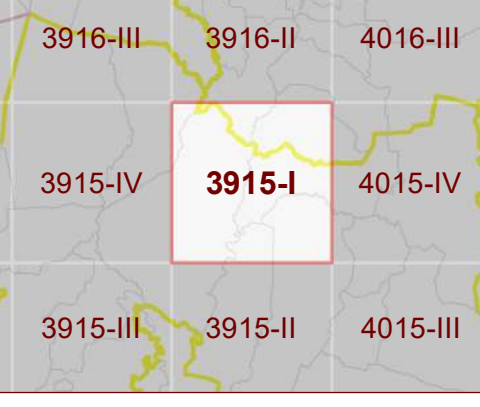
 Built-up

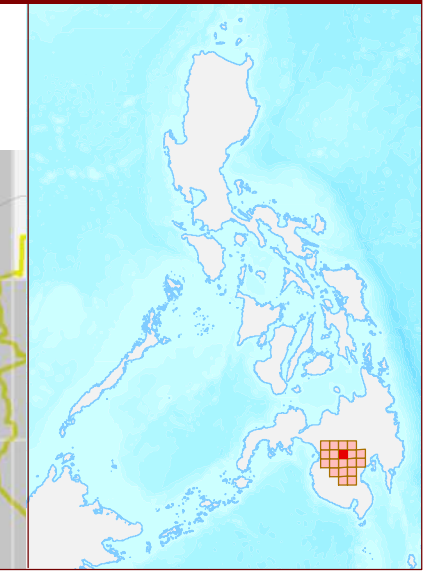
 Fishpond

 Mangrove

ADJOINING SHEETS

3915-I





MISCELLANEOUS INFORMATION

SOURCES OF INFORMATION

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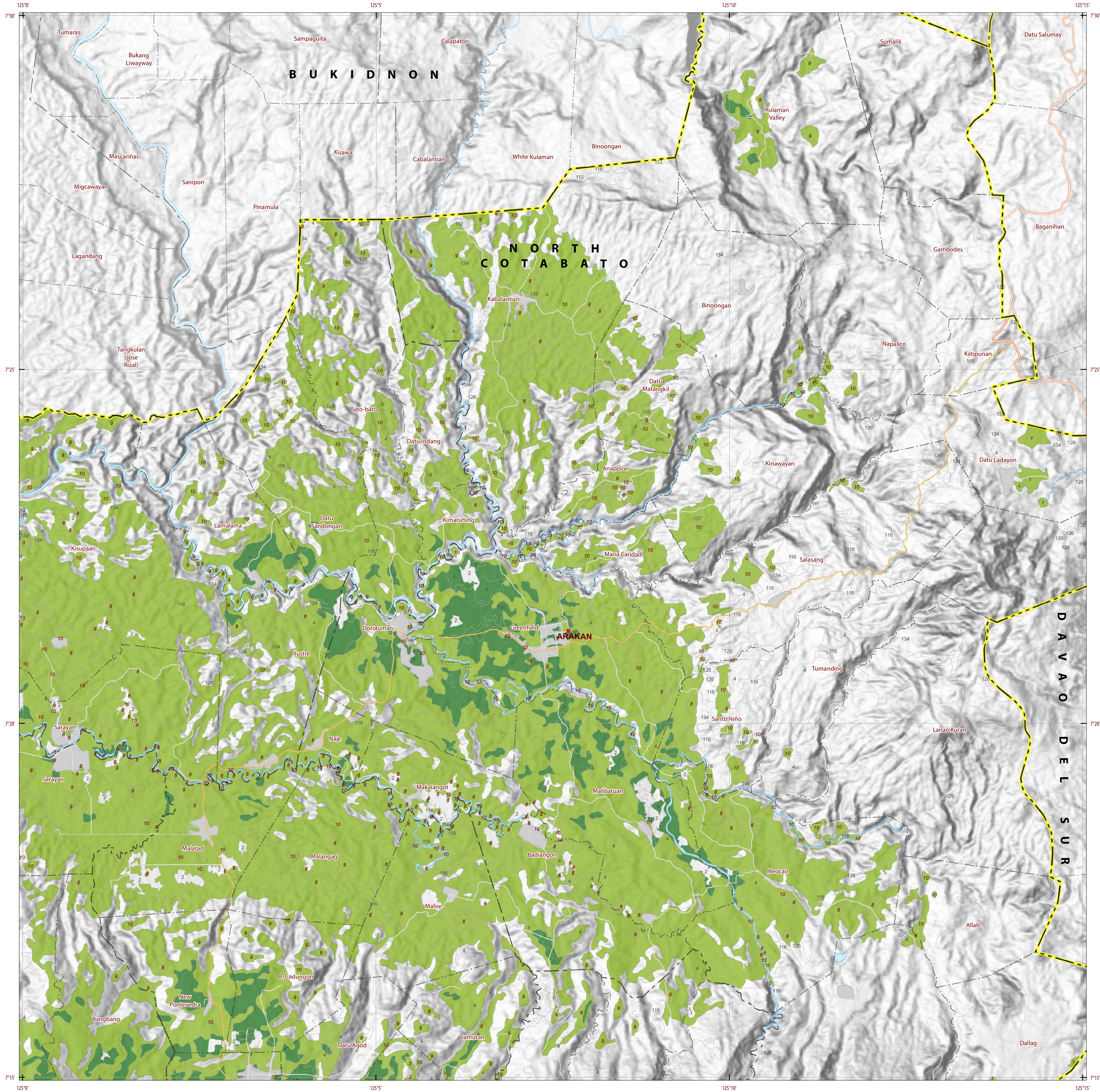
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PROVINCE OF NORTH COTABATO

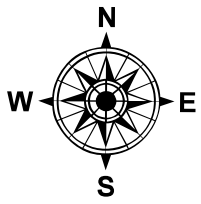
Sheet 7 of 19

Sheet No. 3915-I

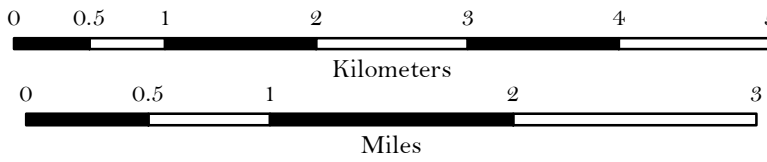


LAND SUITABILITY MAP CASSAVA

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

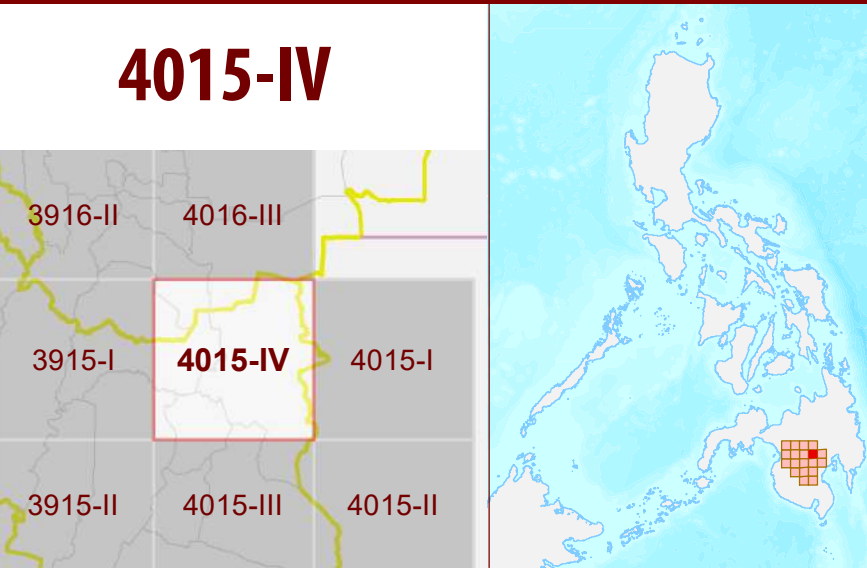
OTHER SIGNS

- 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



MISCELLANEOUS INFORMATION

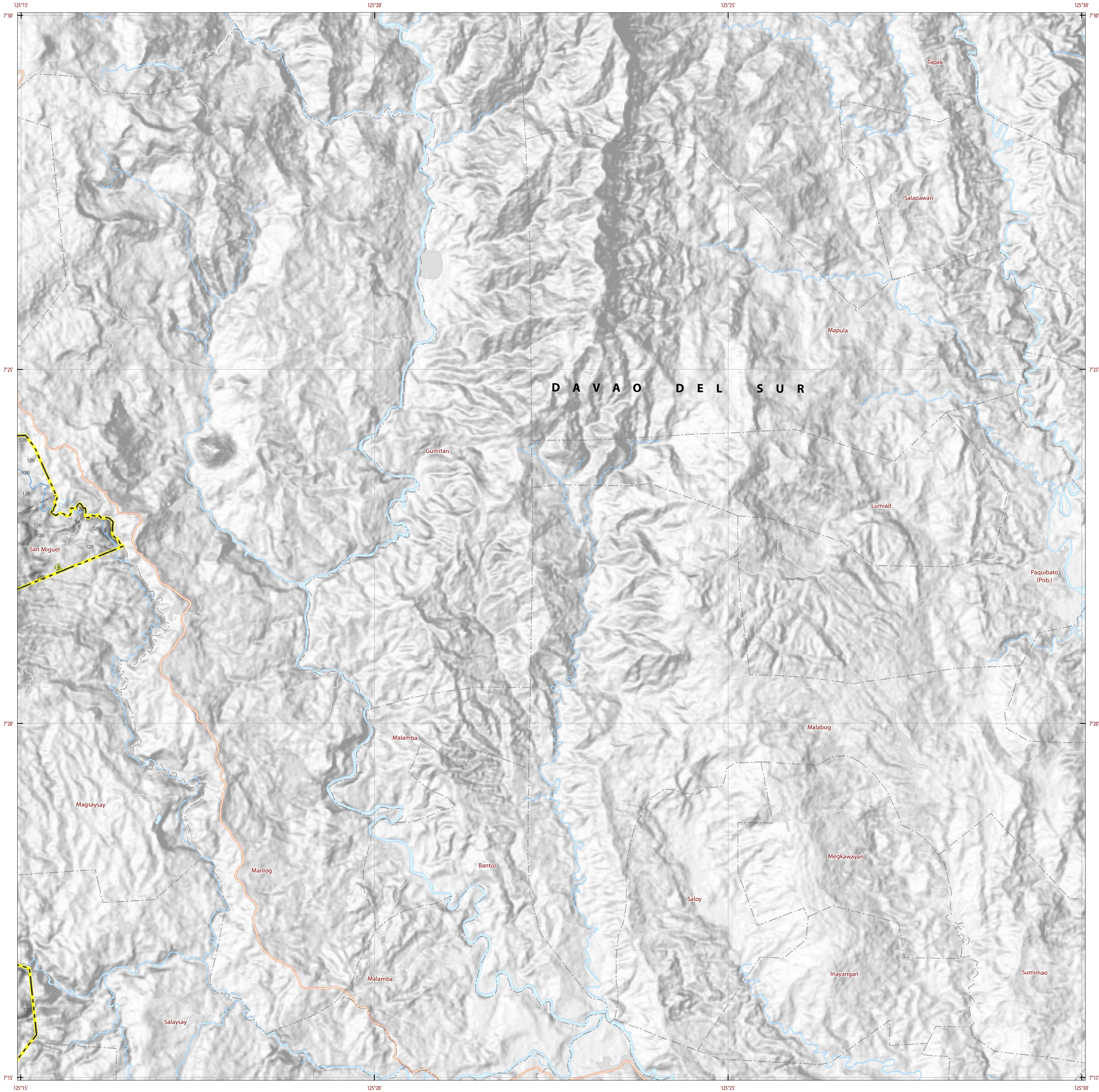
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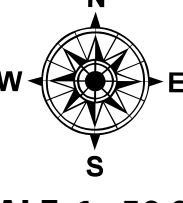
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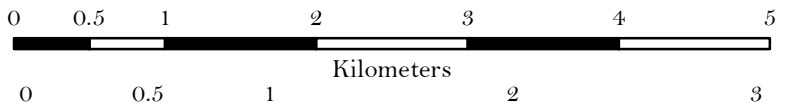
LAND SUITABILITY MAP
CASSAVA

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.

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.

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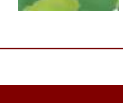
Not Suitable/ Not Relevant

OTHER SIGNS

 NGP Areas

 Cacao

 Land limitation

 Land use

CONVENTIONAL SIGNS

ROADS

 Expressway

 Trunk line

 Primary

 Secondary

 Tertiary

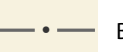
BOUNDARY

 Region

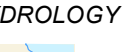
 Province

 District

 Municipality

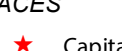
 Barangay

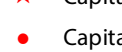
HYDROLOGY

 Sea / Shoreline

 Lakes / Rivers

PLACES

 Capital City / City

 Capital Town / Town

LAND USE

 Built-up

 Fishpond

 Mangrove

ADJOINING SHEETS

4015-I

4016-III

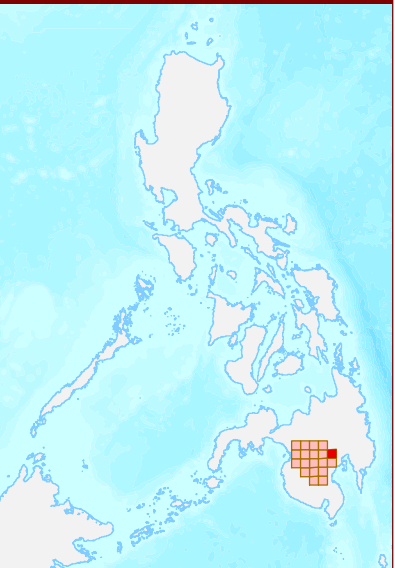
4015-IV

4015-I

4015-III

4015-II

INDEX MAP



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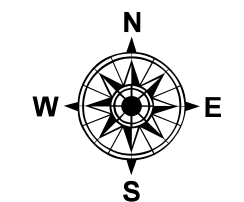
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PROVINCE OF NORTH COTABATO

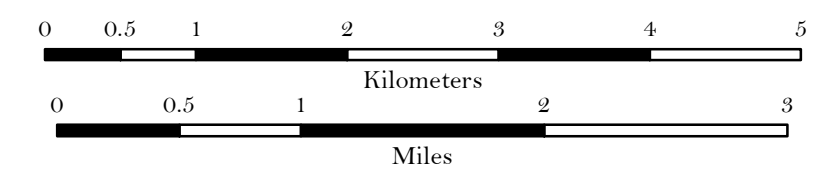
Sheet 9 of 19

Sheet No. 4015-I

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

-

CONVENTIONAL SIGNS

ROADS

- 
- Expressway
 - Trunk line
 - Primary
 - Secondary
 - Tertiary

BOUNDARY

- Region

HYDROLOGY

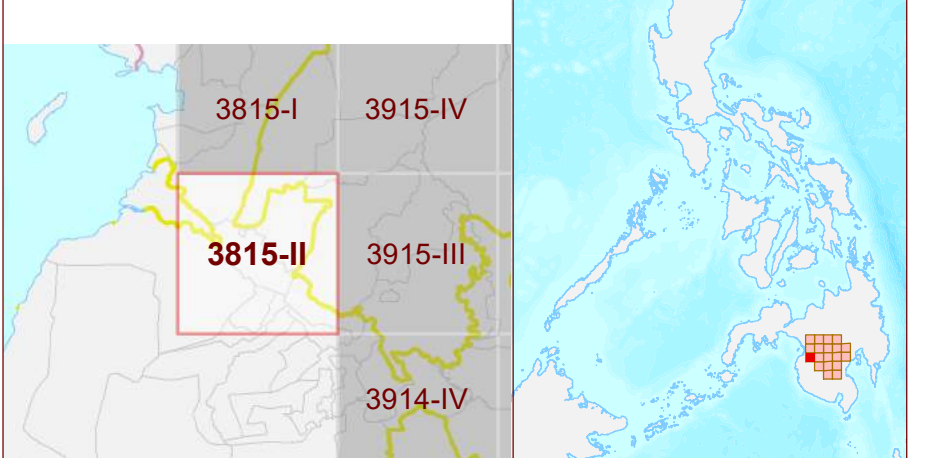
- Sea / Shoreline
Lakes / Rivers
- PLACES**
- ★ ★ Capital City / City
● ● Capital Town / Town

LAND USE

- Built-up
 Fishpond
 Mangrove

ADJOINING SHEETS

3815-II



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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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, XI, XII and XIII (Caraga) Local Government Unit (LGU) of covered provinces and municipalities

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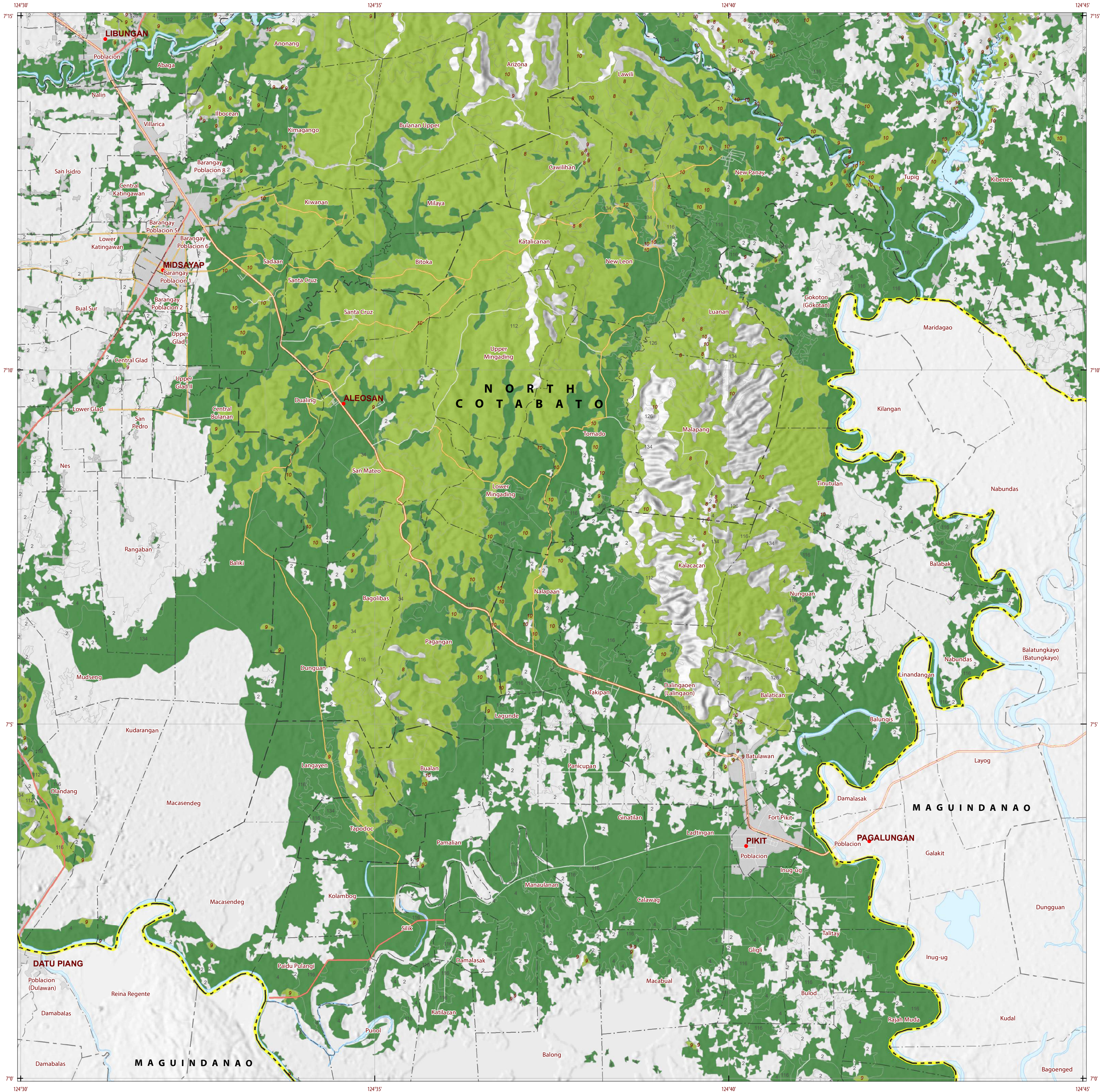
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3915-III

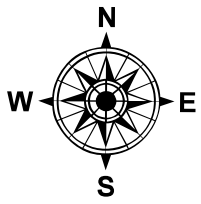
PROVINCE OF NORTH COTABATO

Pagalungan

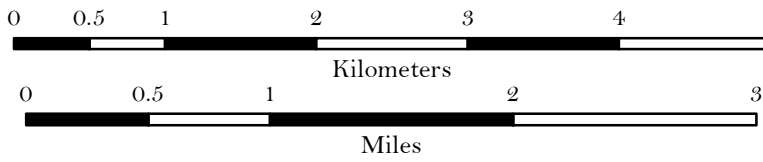


LAND SUITABILITY MAP
CASSAVA

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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Not Suitable/ Not Relevant

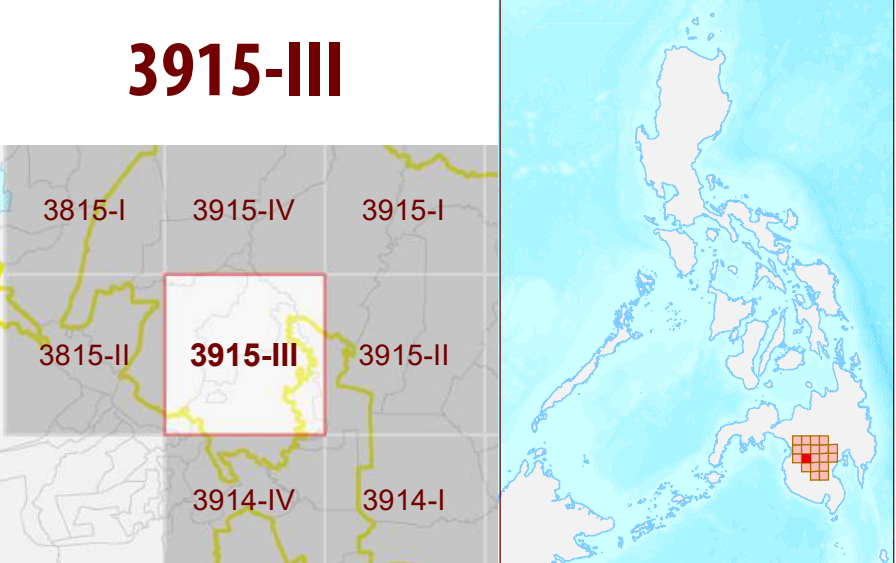
OTHER SIGNS

- 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

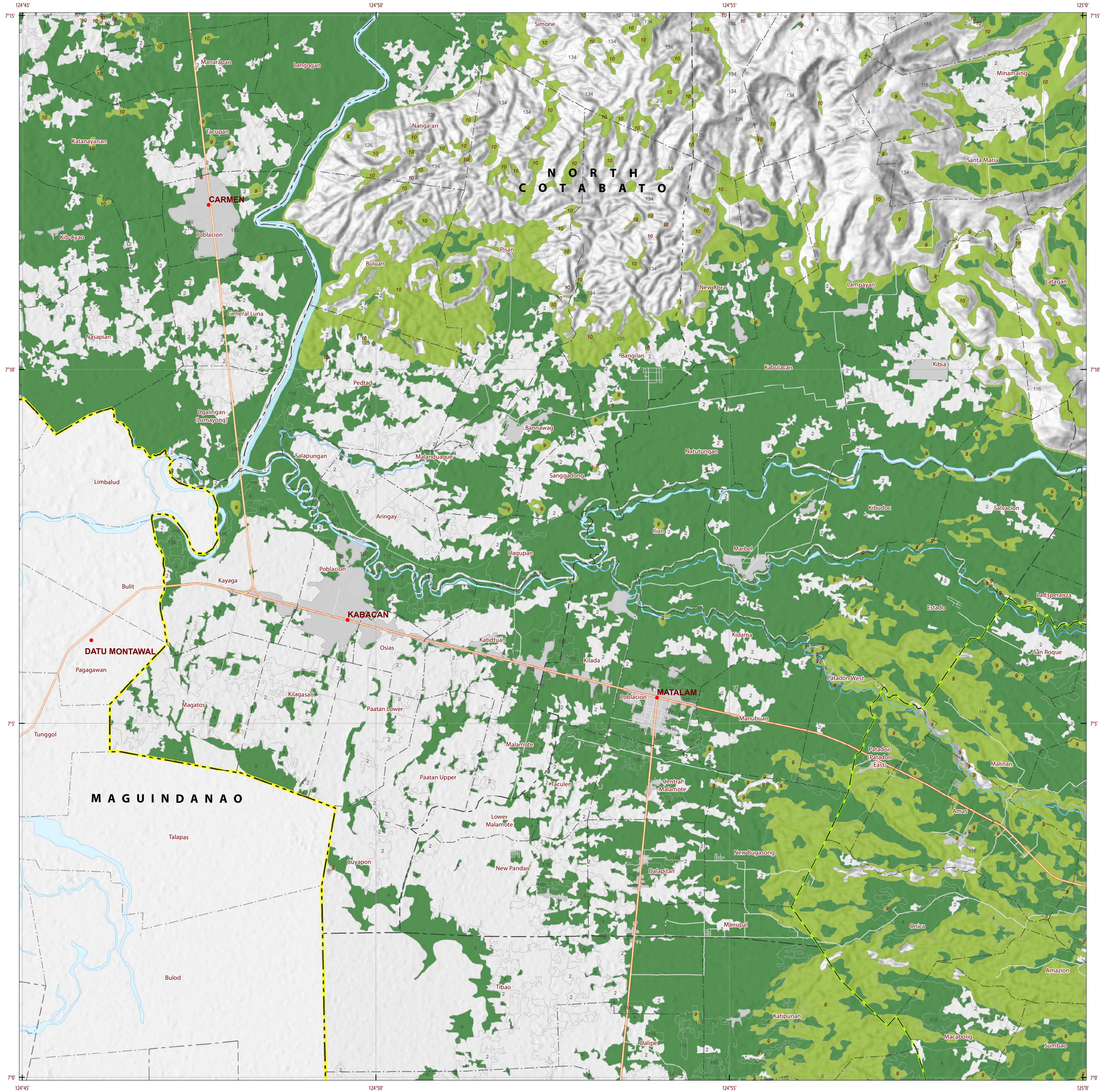
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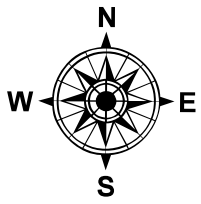
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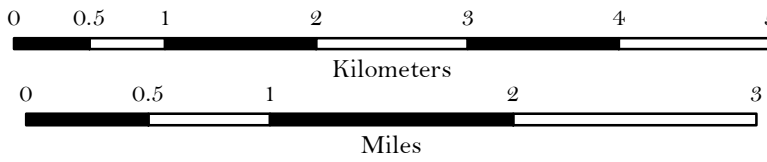


LAND SUITABILITY MAP
CASSAVA

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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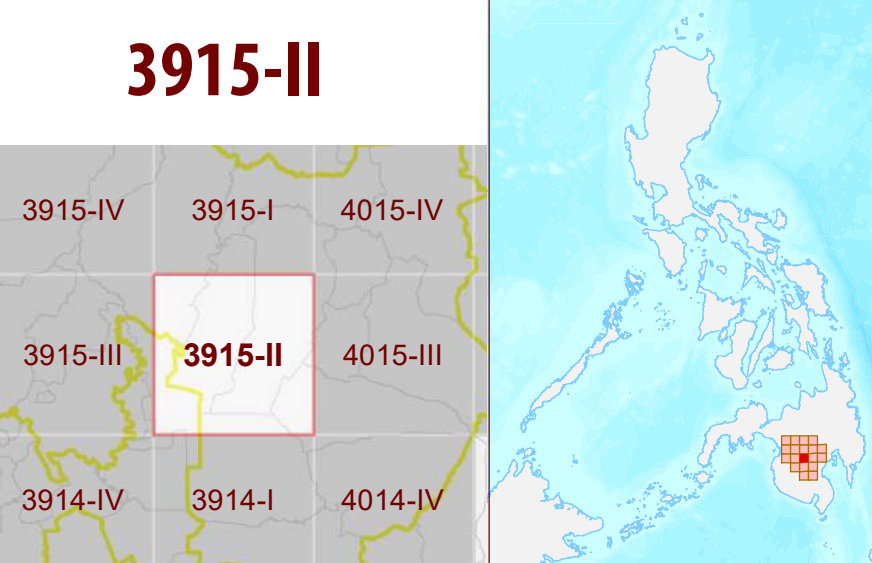
OTHER SIGNS

- 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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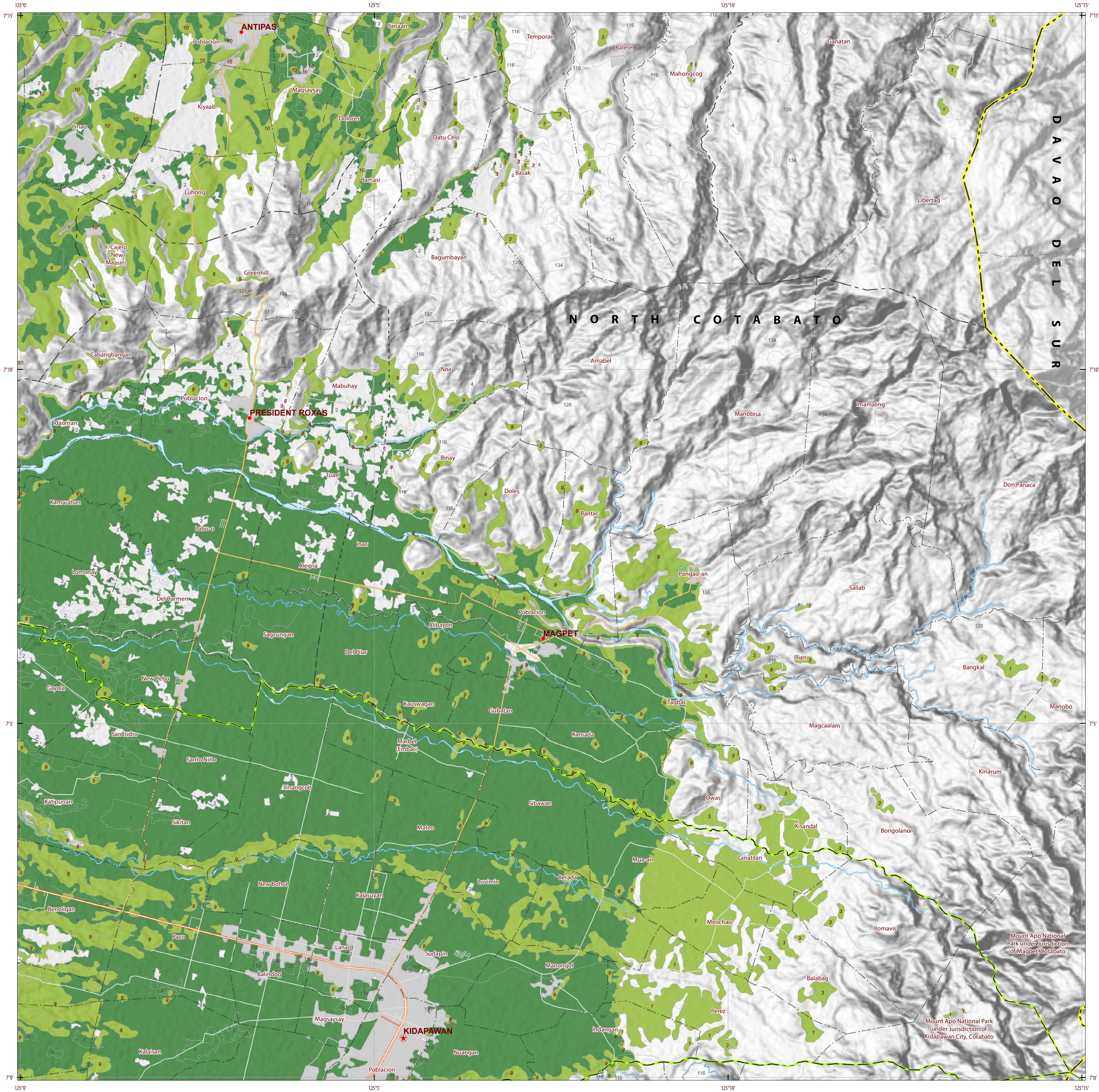
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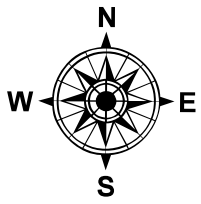
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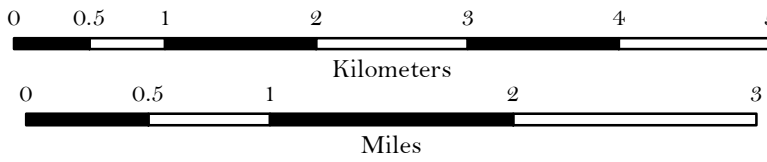


LAND SUITABILITY MAP
CASSAVA

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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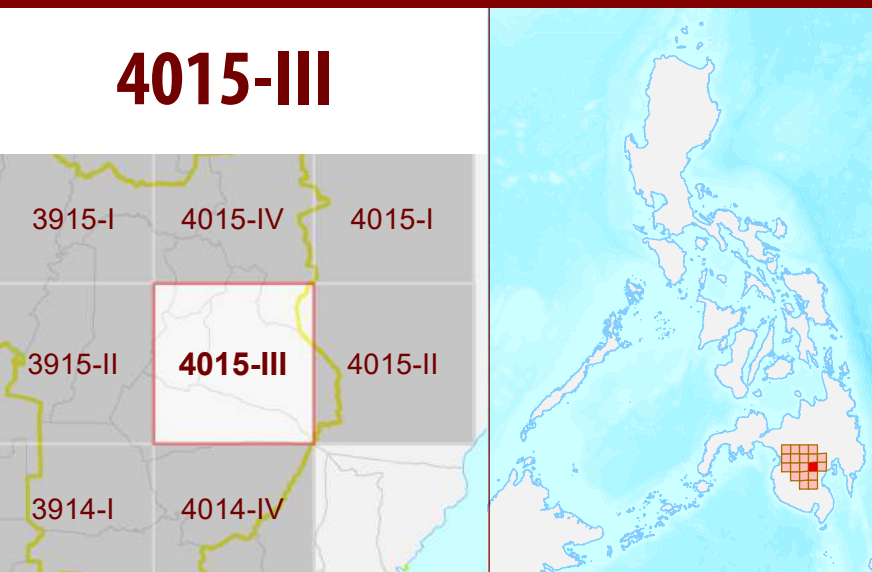
OTHER SIGNS

- 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
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 - Fishpond
 - Mangrove

ADJOINING SHEETS



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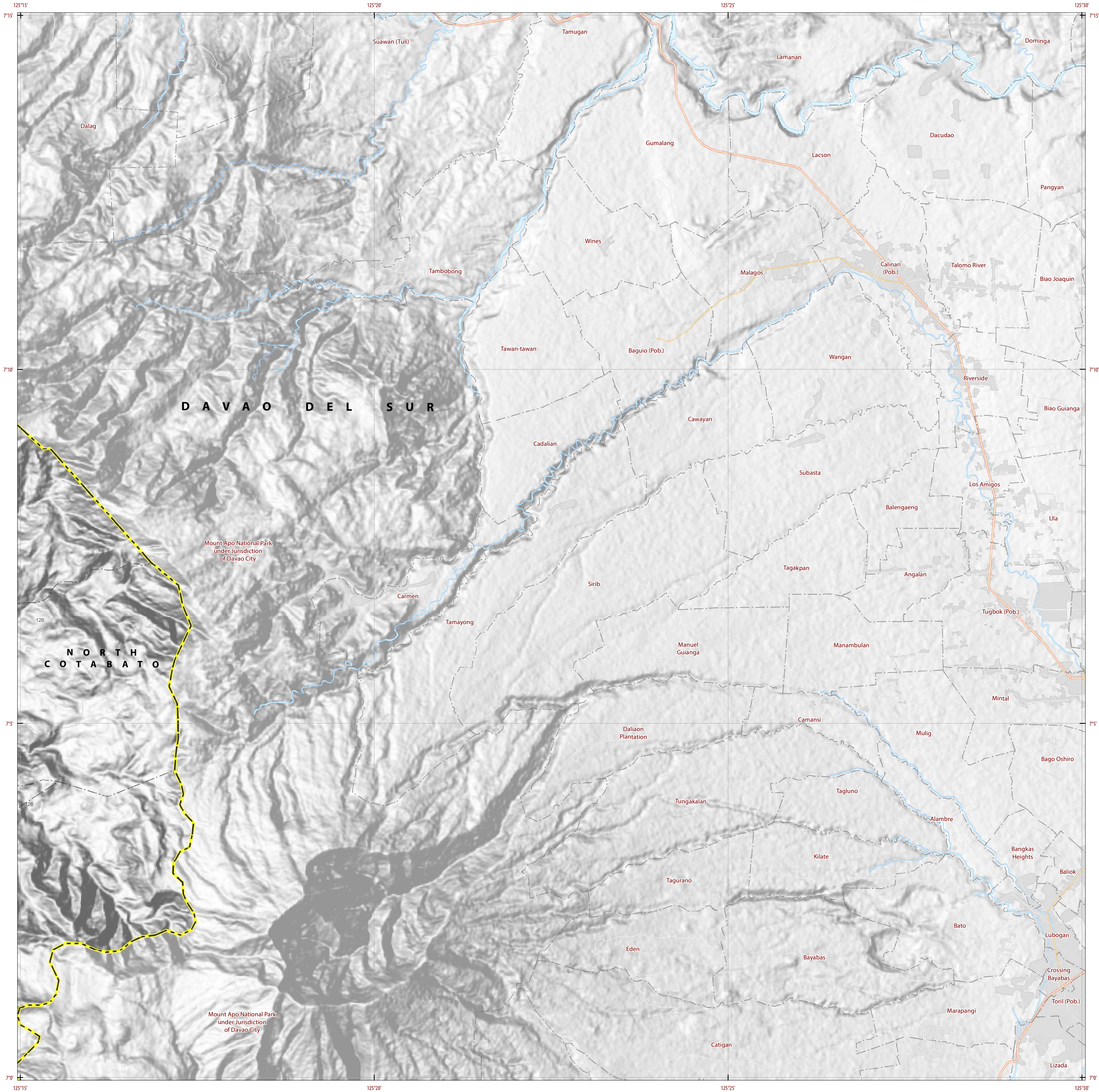
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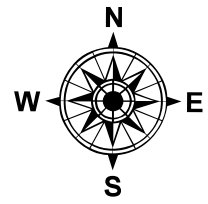
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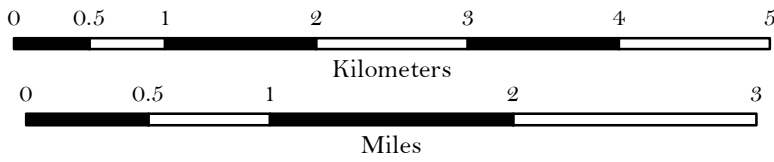


LAND SUITABILITY MAP CASSAVA

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SCALE 1 : 50 000



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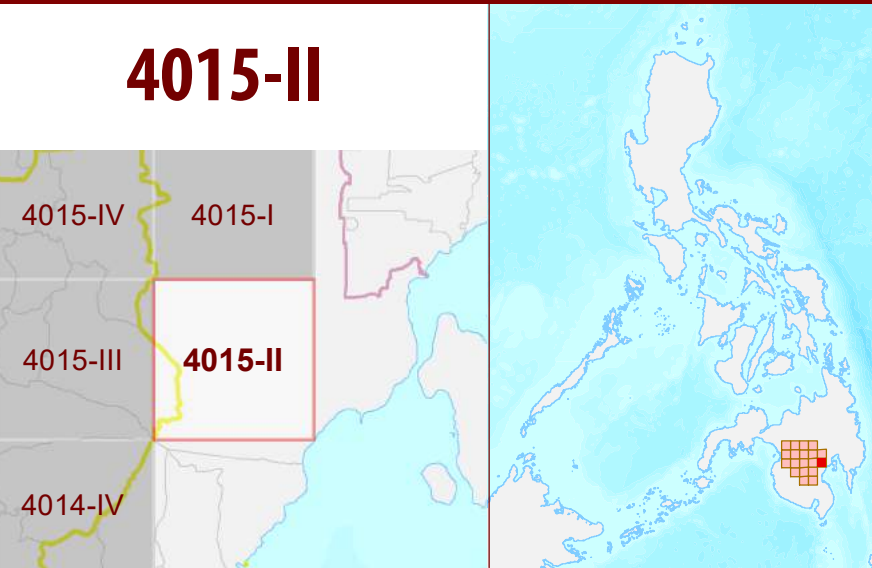
OTHER SIGNS

- NGP Areas
- Cacao
- Land limitation
- Land use

CONVENTIONAL SIGNS

- ROADS**
 - Expressway
 - Trunk line
 - Primary
 - Secondary
 - Tertiary
- BOUNDARY**
 - Region
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 - Capital City / City
 - Capital Town / Town
- LAND USE**
 - Built-up
 - Fishpond
 - Mangrove

ADJOINING SHEETS



MISCELLANEOUS INFORMATION

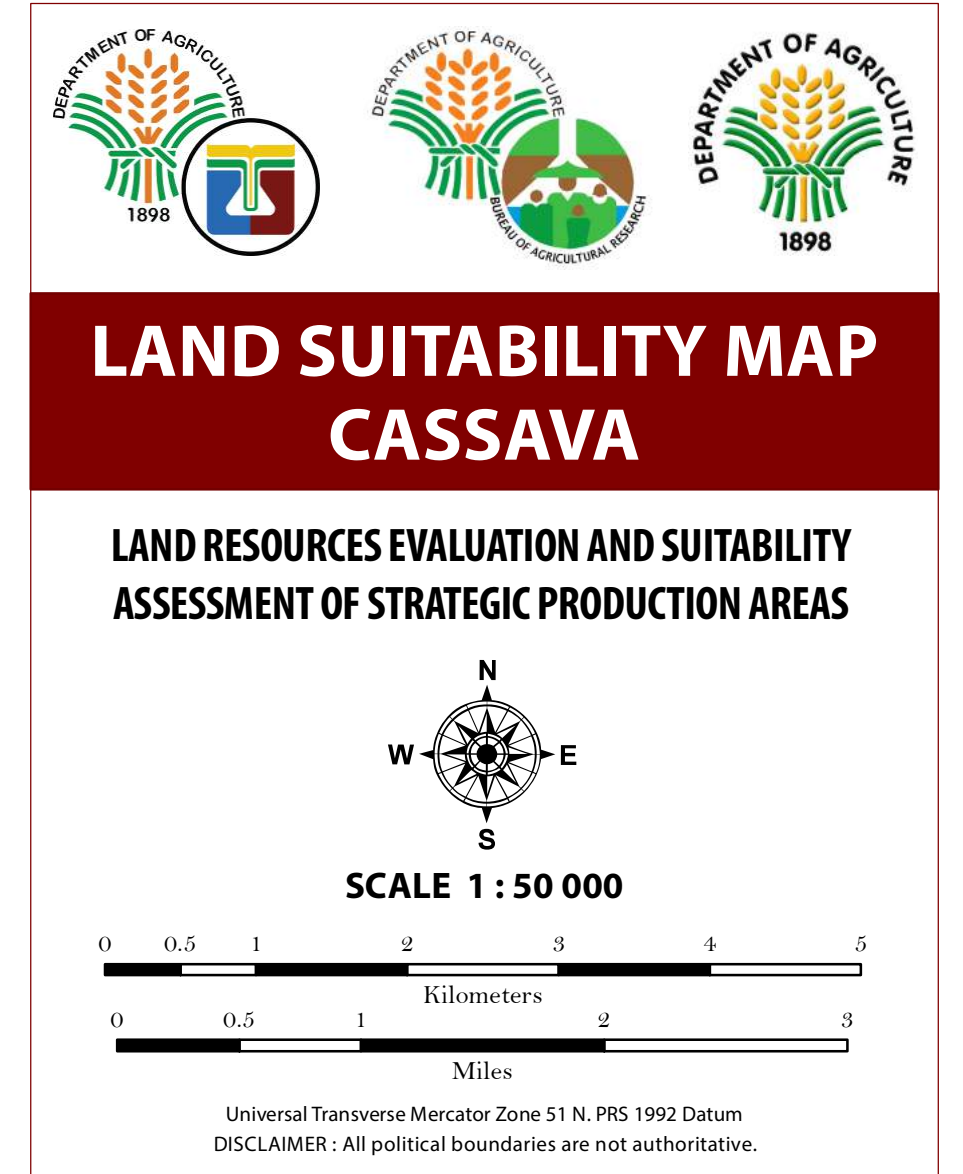
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The map shows the spatial distribution of land use and land limitation. A legend on the left indicates that orange diagonal lines represent 'NGP Areas' and red diagonal lines represent 'Cacao'. The map itself shows a green area with a red '1' and a green '116', indicating land limitation and land use respectively.

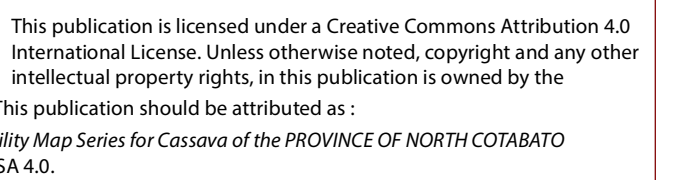
ROADS	BOUNDARY	HYDROLOGY
Expressway	Region	Sea / Shoreline
Trunk line	Province	Lakes / Rivers
Primary	District	PLACES
Secondary	Municipality	Capital City / City
Tertiary	Barangay	Capital Town / Town
LAND USE		
Built-up	Fishpond	Mangrove

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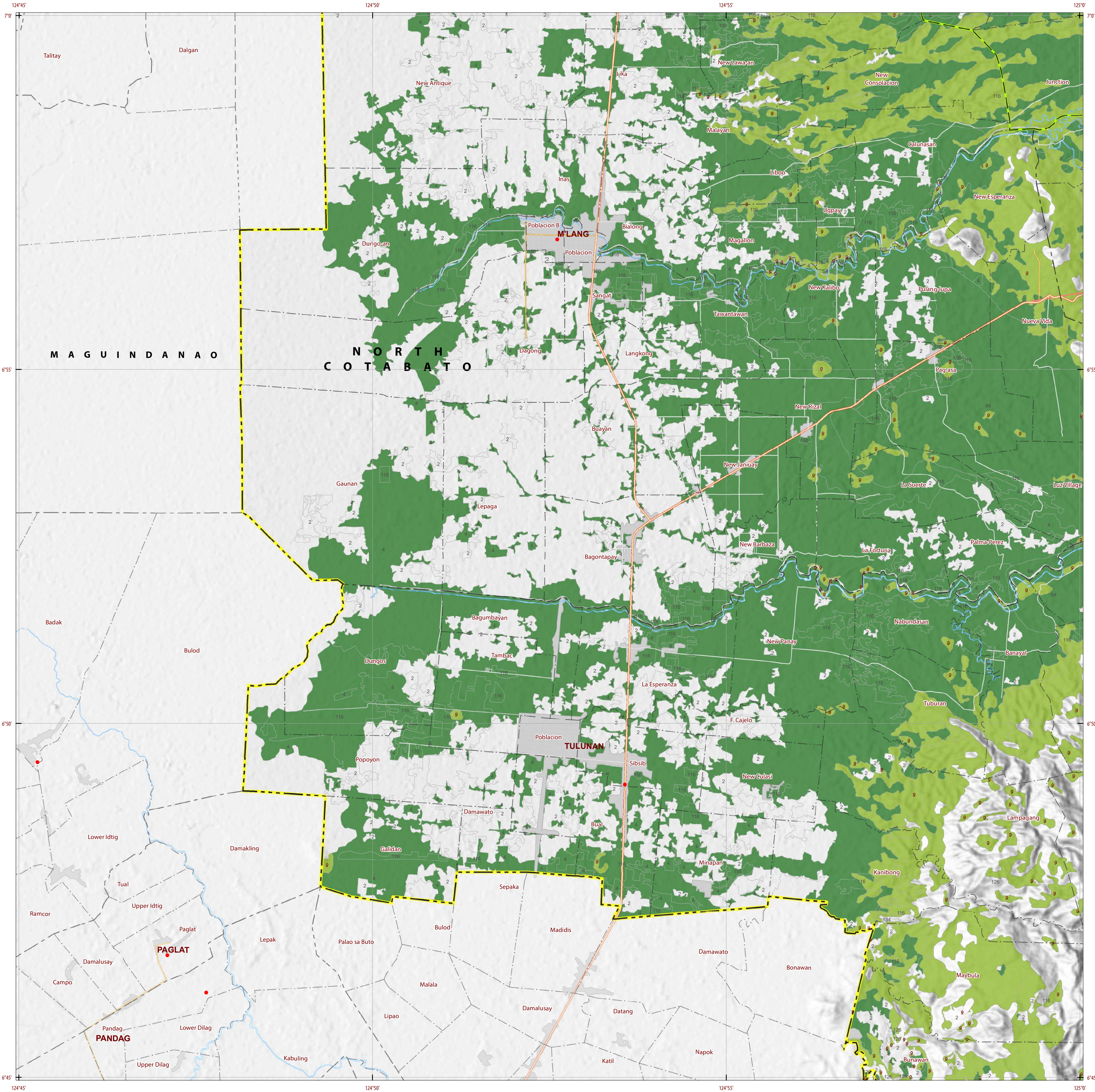
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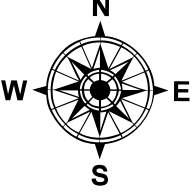
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LAND SUITABILITY MAP
CASSAVA

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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SUITABILITY CLASSES

S1

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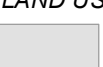
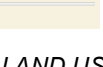
Not Suitable/ Not Relevant

OTHER SIGNS



CONVENTIONAL SIGNS

ROADS



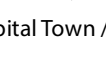
BOUNDARY



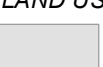
HYDROLOGY



PLACES

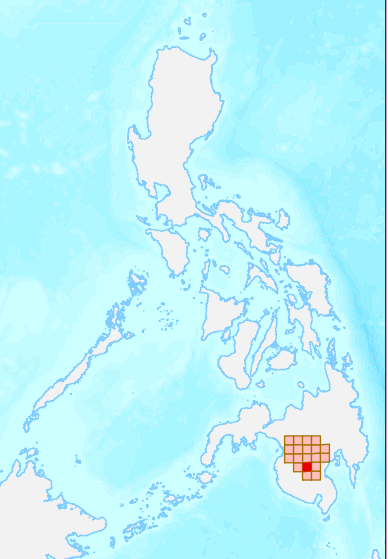


LAND USE



ADJOINING SHEETS

3914-I



MISCELLANEOUS INFORMATION

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GIS and Cartography : IRVIN K. SAMALCA
Funding Agency : Department of Agriculture - Bureau of Agricultural Research (DA-BAR)
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PROVINCE OF NORTH COTABATO

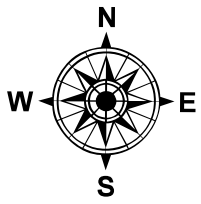
Sheet 16 of 19

Sheet No. 3914-I

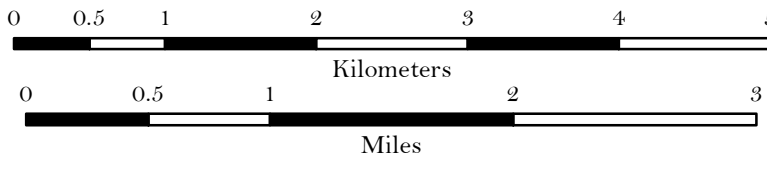


LAND SUITABILITY MAP CASSAVA

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

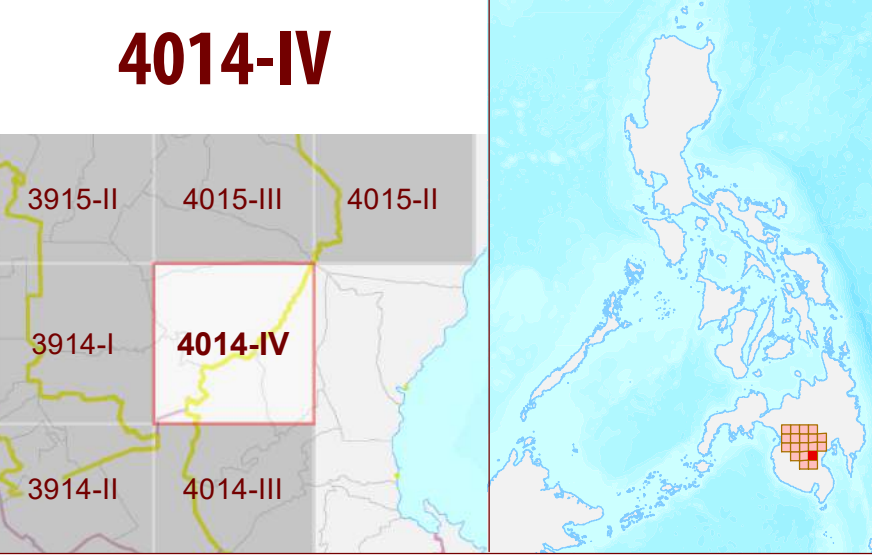
OTHER SIGNS

- 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



MISCELLANEOUS INFORMATION

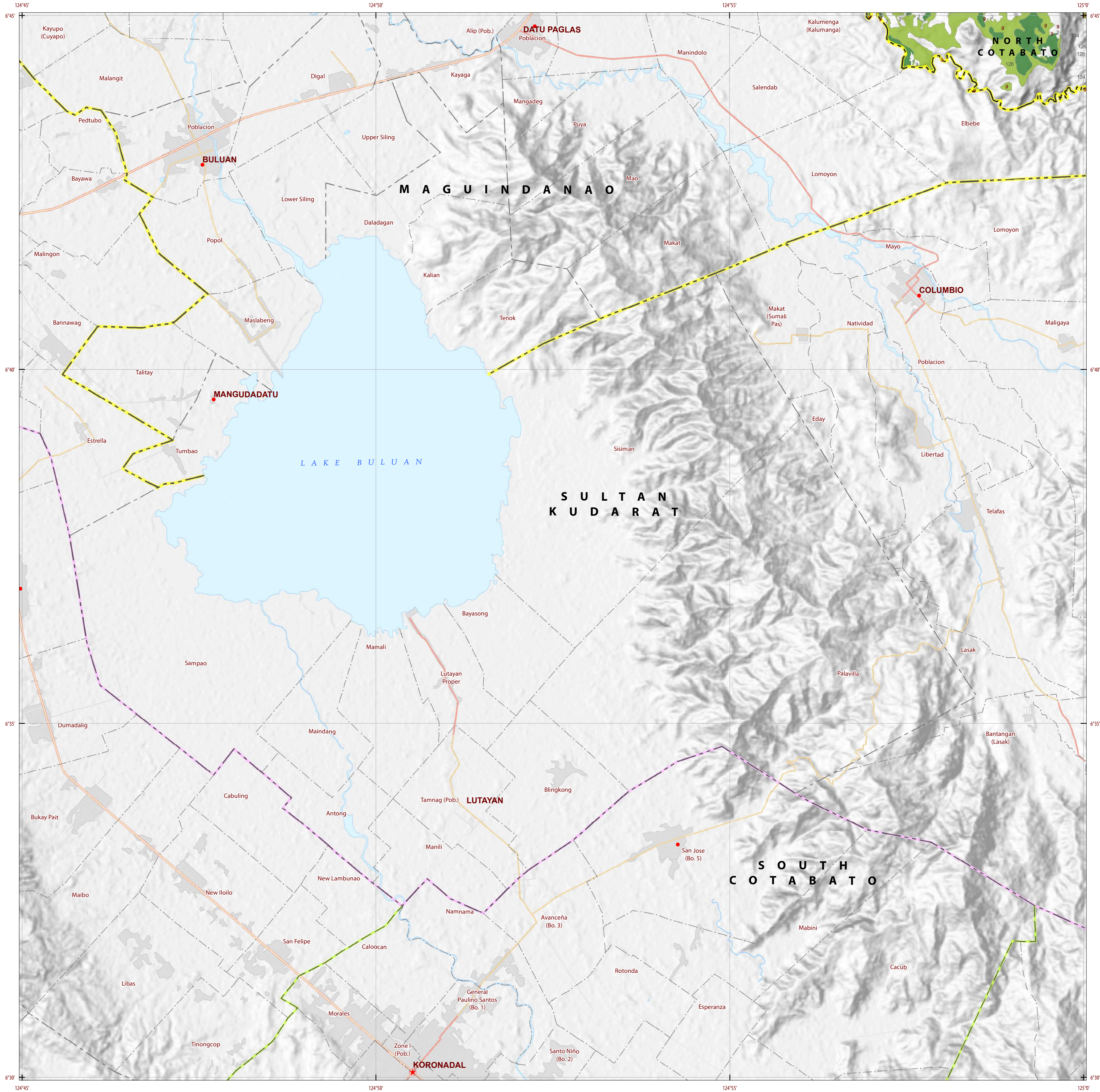
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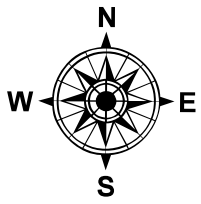
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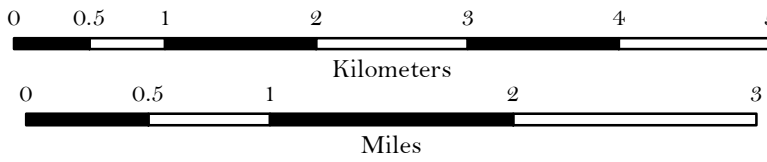


LAND SUITABILITY MAP
CASSAVA

LAND RESOURCES EVALUATION AND SUITABILITY
ASSESSMENT OF STRATEGIC PRODUCTION AREAS



SCALE 1 : 50 000



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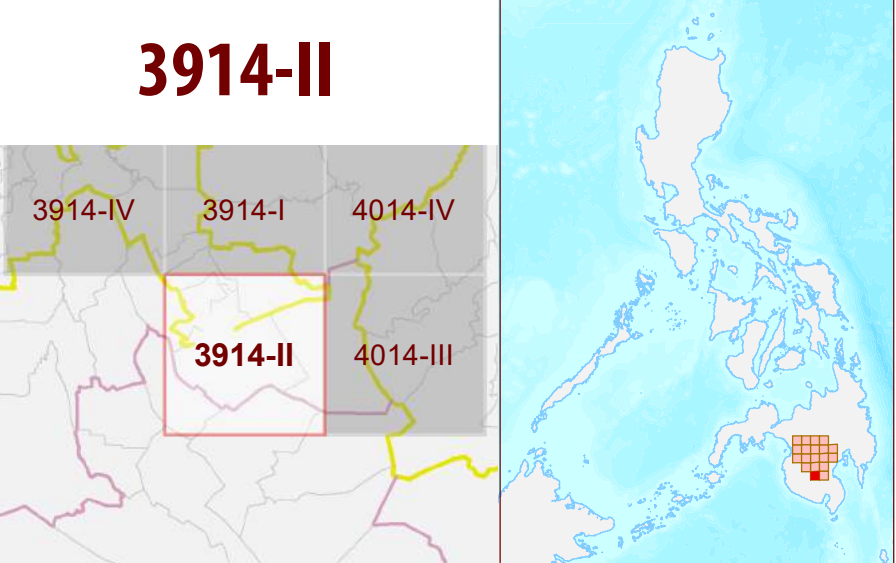
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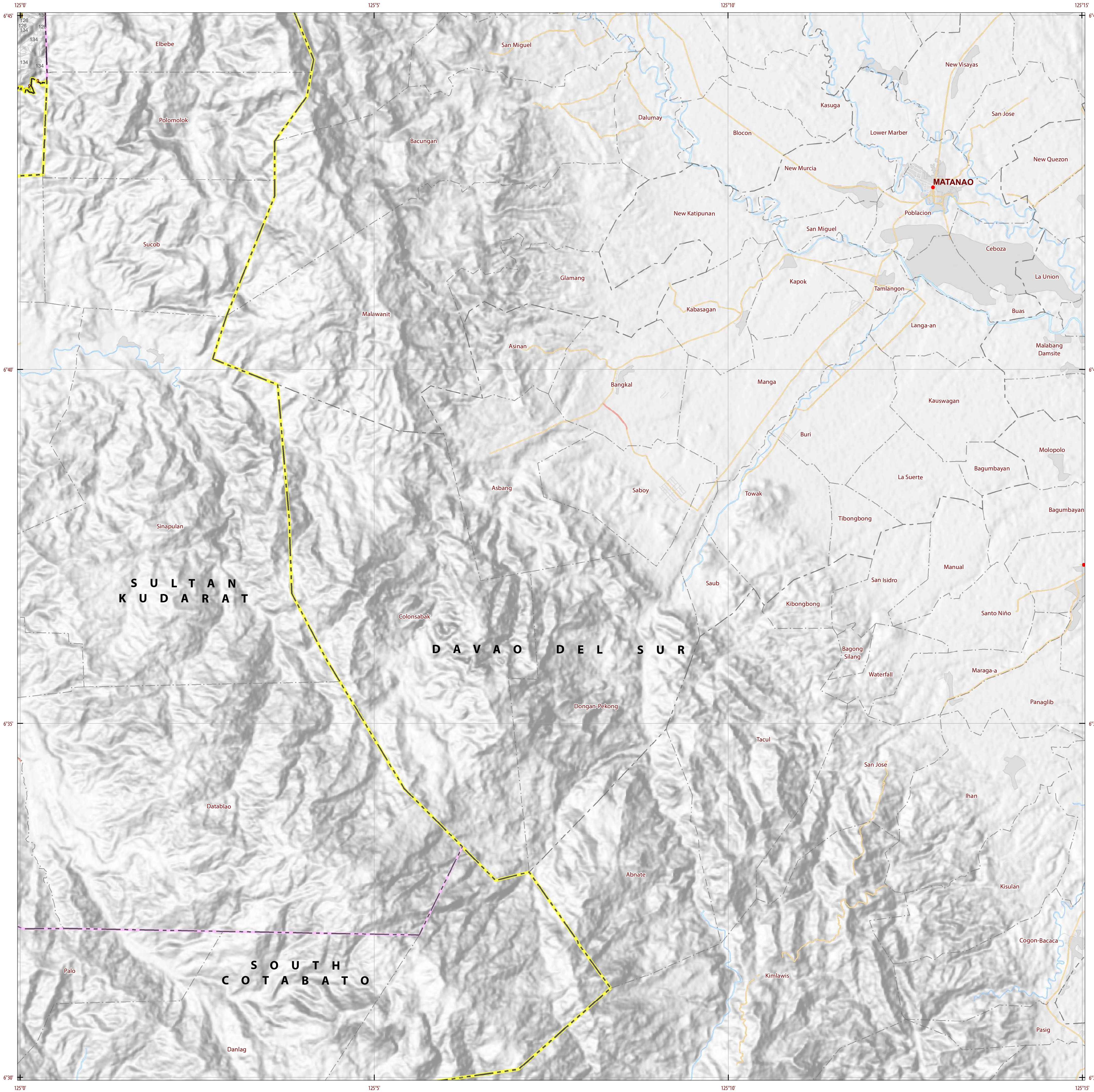
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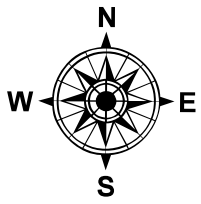
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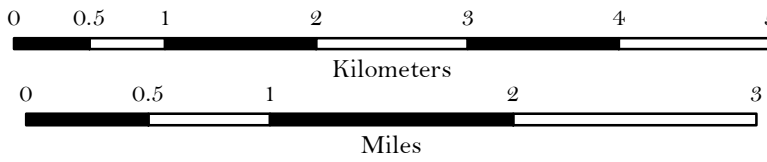


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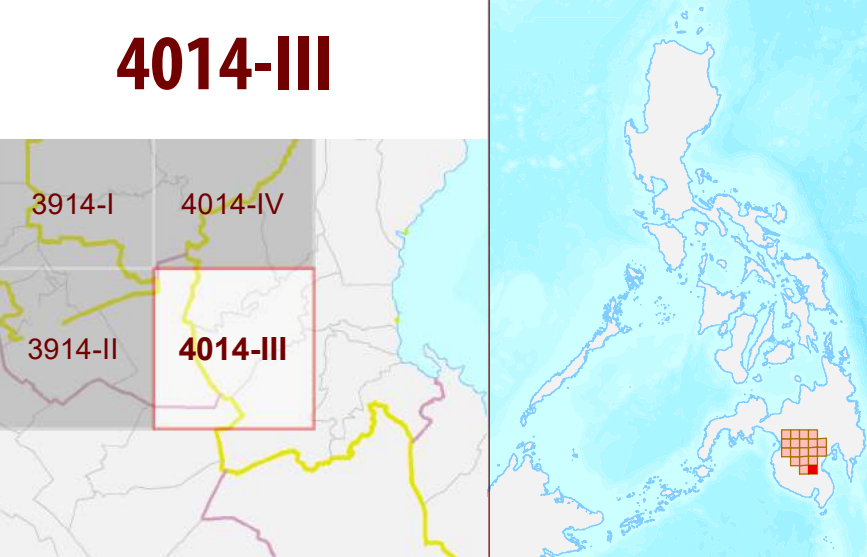
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