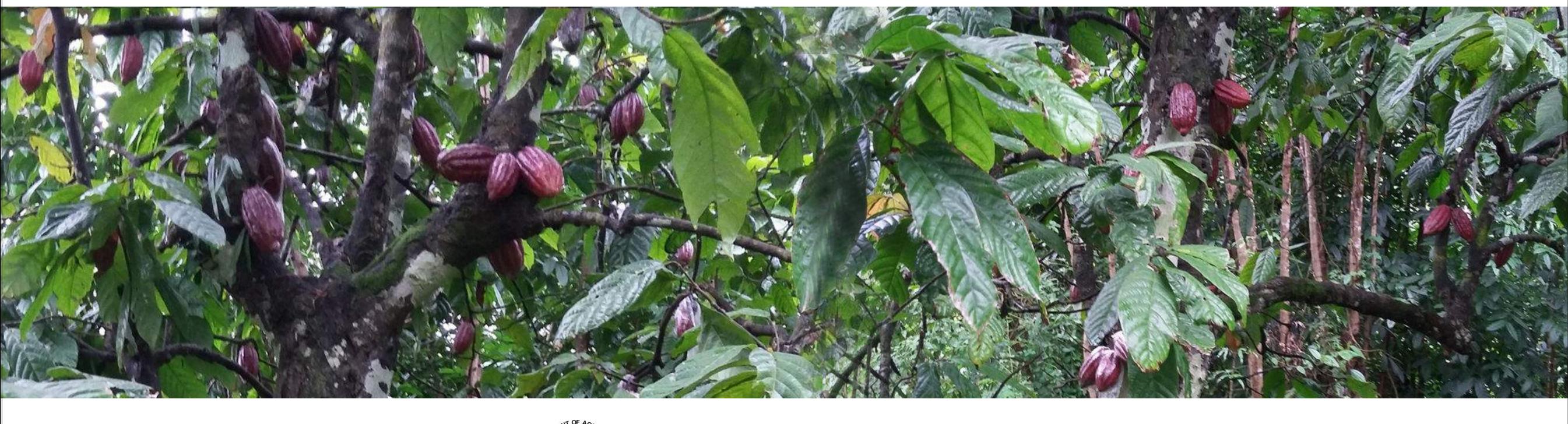


## LAND RESOURCES EVALUATION AND SUITABILITY **ASSESSMENT OF STRATEGIC PRODUCTION AREAS**

# **PROVINCE OF SARANGANI**





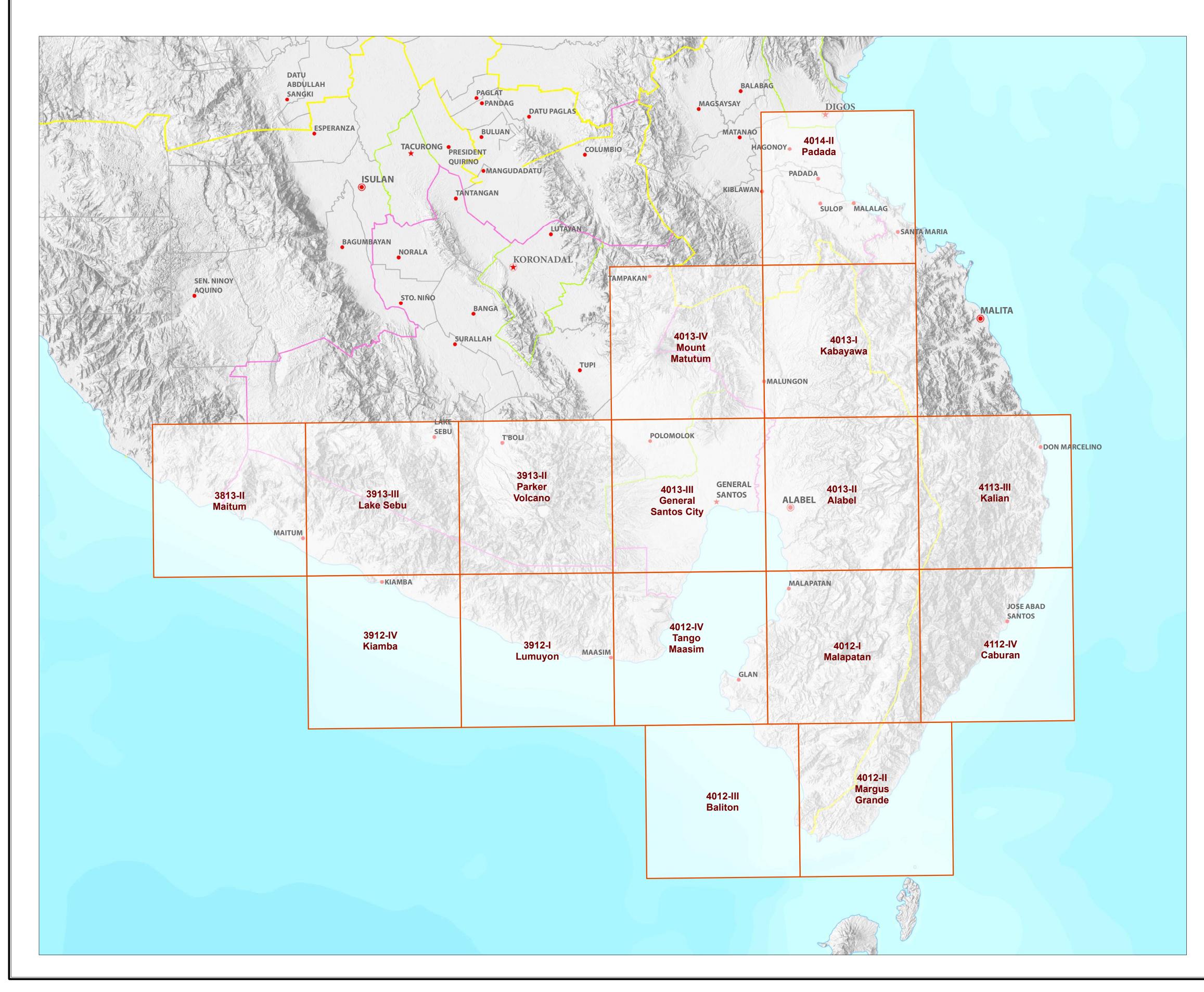
# LAND SUITABILITY MAP

# CACAO



REPUBLIC OF THE PHILIPPINES DEPARTMENT OF AGRICULTURE **BUREAU OF SOILS AND WATER MANAGEMENT** SRDC Bldg., Elliptical Road Cor. Visayas Avenue, Diliman, Quezon City 1101 Tel/Fax No.: (+632) 332-9534 E-mail: bswmclientcenter@yahoo.com

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



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## LAND SUITABILITY MAP FOR CACAO

## LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS **SARANGANI, REGION XII**

### **EXTENT OF SUITABILITY FOR CACAO PRODUCTION BY MUNICIPALITY**

						EX	PANSION	AREA (Ha	a)			CONFLIC	T RESOL	UTION A	REA (Ha)		TOTAL
MUNICIPALITY	EXISTI	NG CACA	0 (Ha)	TOTAL EXISTING AREA (Ha)	Coco	onut	Shrubl unmana		Grassl unmana		Сот	'n	Paddy non-ir	y rice, rigated	Other	crops	POTENTIAL EXPANSION AREA (Ha)
	<b>S1</b>	S2	<b>S</b> 3		<b>S1</b>	<b>S2</b>	<b>S1</b>	S2	<b>S1</b>	S2	<b>S1</b>	S2	<b>S1</b>	S2	<b>S1</b>	S2	AREA (IIA)
ALABEL	-	-	-	-	5,745	564	635	13	3,584	1,290	868	3	-	-	_	-	12,702
GLAN	-	-	-	-	7,445	2,498	90	33	2,421	1,094	211	32	-	-	_	-	13,824
KIAMBA	-	-	-	-	5,250	55	407	131	147	38	1,410	-	-	-	_	-	7,437
MAASIM	-	-	-	-	4,417	956	356	50	1,790	1,645	81	-	-	-	_	-	9,296
MAITUM	-	-	-	-	2,944	670	117	47	90	53	1,441	71	-	-	_	-	5,431
MALAPATAN	-	-	-	-	5,113	889	63	21	1,076	566	27	5	-	-	_	-	7,761
MALUNGON	38	-	14	52	9,327	11	1,798	40	1,793	271	7,151	599	-	-	7	-	20,996
TOTAL	38	-	14	52	40,241	5,643	3,465	336	10,900	4,956	11,189	710	-	-	7	-	77,448

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

### AGRONOMIC REQUIREMENT OF CACAO PRODUCTION

LAND UTILIZATI TYPE	ON SUITABILITY RATING	SLOPE (%)	SOIL DEPT (cm)	H SOIL TEXTURE	SOIL DRAINAGE	SO REAC (pl	TION	INHERENT FERTILITY	FLOODING CLASS		SION ASS	ROCK OUTCROPS	ELEVATION (masl)	ANNU RAINF (mn	ALL	CLIMATIC TYPE
	S1	<8	>100	CL, SiCL, SCL, SC, SiC, C, HC	WD,MWD	5.6 -	7.2	high	none-slight	none	slight	none-few	<1000	2001-4	500	I, III, IV
Cacao	S2	8 - 30	50 - 100		SPD,PD	5.1 - 7.3 -		medium	moderate	mod	erate	common	1000-1500	1000-2	2000	I, II
	S3	>30	<50	S, LS, CSL, SL	VPD,ED	<5.0 -	> 7.9	low	severe	sev	vere	many	>1500	<100 >450		
SLOPE (%)			SOIL DRAI	NAGE		SOIL REA	CTION (p	DH)		SOIL TH	EXTURE				·	
0-3 -	level to gently sloping		ED	<ul> <li>excessively drained</li> </ul>		< 4.5	- extrem	ely acid		Coarse			F	ine		
3-8 -	gently sloping to undu	llating	WD	- well drained		4.5 - 5.0	- very st	rongly acid		S	- sand		S	C ·	- sandy c	lay
8 - 18 -	undulating to rolling		MWD	- moderately well drained	1	5.1 - 5.5	- strongl	y acid		LS	- loan	iy sand	S	iC	silty cla	y
18 - 30 -	rolling to moderately	steep	SPD	- somewhat poorly draine	ed	5.6 - 6.0	- mediun	n acid		CSL	- coar	se sandy loam	C		- clay	
30 - 50 -	steep		PD	<ul> <li>poorly drained</li> </ul>		6.1 - 6.5	- slightly	v acid		SL	- sand	y loam	ŀ	IC ·	heavy c	lay
> 50 -	very steep		VPD	<ul> <li>very poorly drained</li> </ul>		6.6 - 7.2	- neutral	l		Mediur	n					
						7.3 - 7.8	- mildly a	alkaline		FSL	- fine	sandy loam				
SOIL DEPT	H (cm)		SURFACE I	MPEDIMENT		7.9 - 8.4	- modera	ately alkaline		L	- loan	1				
0 - 30 -	very shallow		ROCK OUT	CROPS		> 8.5	- strong	y alkaline		SiL	- silt l	oam				
	shallow		< 10%	- none - few				-		CL	- clay	loam				
	moderately deep			- common						SiCL	-	clay loam				
> 100 -	deep to very deep		> 30%	- many						SCL	- sand	y clay loam				

## LAND LIMITATIONS DESCRIPTION AND COMBINATIONS

ELEVATION El2 - 1000m - 1500m

El3 ->1500m

### SOIL DRAINAGE

D2 - Somewhat poorly drained to poorly drained D3 - Very poorly drained or excessively drained

**SLOPE/TOPOGRAPHY** 

- T2 Undulating to moderately steep T3 - Steep to very steep
- SOIL TEXTURE

Tc - Coarse texture

SOIL DEPTH Sh2 - Moderately deep (50 - 100cm) Sh3 - Very shallow to shallow (< 50cm)

**ROCK OUTCROPS** Rc2 - Common

Rc3 - Many

CODE	LIMITATION	CODE	LIMITATION	CODE	LIMITATION	CODE	LIMITATION	CODE	LIMITATION	CODE	LIMITATION	CODE	LANDUSE
1	E2-Sh2-Rc2	11	Sh2-Rc2	21	T2-El2-E3-Rc3	31	T3-E3-Sh2-Rc3	41	T3-El3-E3-Sh3-Rc2	51	T3-El3-E3-Sh3-Rc3	4	Corn
2	El2	12	T2	22	T2-El2-E3-Sh2-Rc2	32	T3-E3-Sh3-Rc2	42	T3-F2-D2	52	T3-El3	81	Coffee
3	El2-E2-Sh2-Rc3	13	Т2-ЕЗ	23	T2-El2-E3-Sh2-Rc3	33	T3-E3-Sh3-Rc3	43	Т3	53	Тс	82	Сасао
4	El2-E3-Rc3	14	T2-E3-Rc2	24	T2-El3-E3-Rc3	34	T3-El2	44	ТЗ-ЕЗ			85	Mango
5	El2-E3-Sh2-Rc3	15	T2-E3-Rc3	25	T2-El3-E3-Sh2-Rc2	35	T3-El2-E3	45	T3-E3-Rc3			91	Banana
6	El2-Rc2	16	T2-E3-Sh2-Rc2	26	T2-F2-D2	36	T3-El2-E3-Rc2	46	T3-E3-Sh3-Rc3			105	Fruit trees, mixed
7	El2-Sh2-Rc2	17	T2-E3-Sh2-Rc3	27	T2-F3-D2	37	T3-El2-E3-Sh2-Rc3	47	T3-El2			116	Coconut
8	El3-Sh2-Rc2	18	T2-El2	28	Т3	38	T3-El2-E3-Sh3-Rc2	48	T3-El2-E3			126	Grassland
9	F2-D2	19	T2-El2-E3	29	ТЗ-ЕЗ	39	T3-El2-E3-Sh3-Rc3	49	T3-El2-E3-Rc3			134	Shrubs, unmanaged
10	F3-D2	20	T2-El2-E3-Rc2	30	T3-E3-Rc2	40	T3-El3-E3-Sh2-Rc3	50	T3-El2-E3-Sh3-Rc3			~	

### **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.

SOIL	LEROSION
E2	- Moderate erosion
E3	- Severe erosion

FLOODING

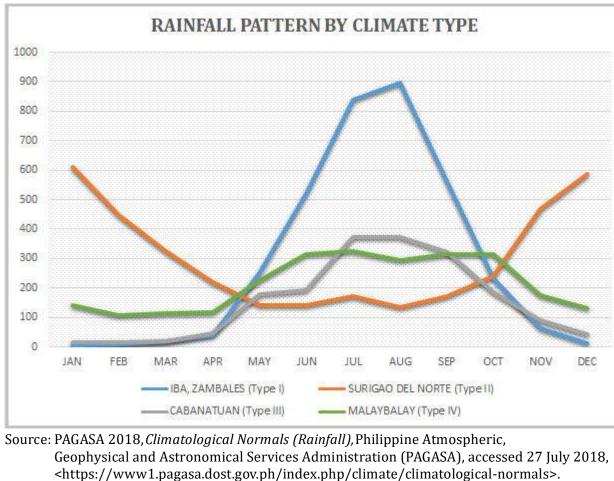
F2 - Moderate seasonal flooding F3 - Severe seasonal flooding

**CLIMATE TYPE** 

**TYPE I** : Two pronouced season, dry from November to April and **TYPE II** : No dry season with a very pronounced maximum rain wet during the rest of the year. Maximum rain period is from June to September

**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.

Sarangani is classified as climatic Type IV.



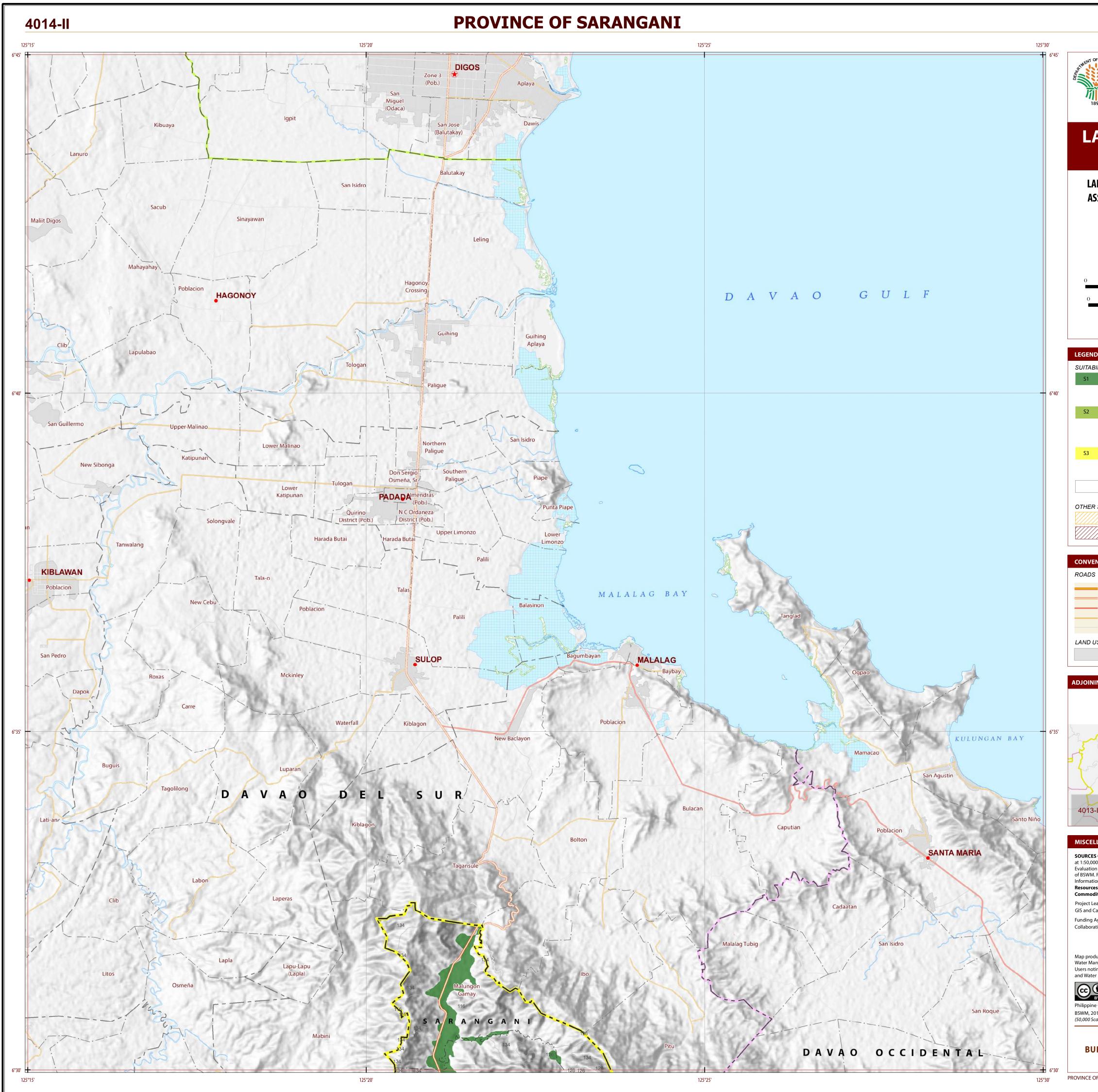


Marginally Suitable (S3) Land having limitations which in aggregate are severe for sustained application of a given use and will so reduce productivity or benefits, or increase required inputs, that this expenditure will be only marginally justified.

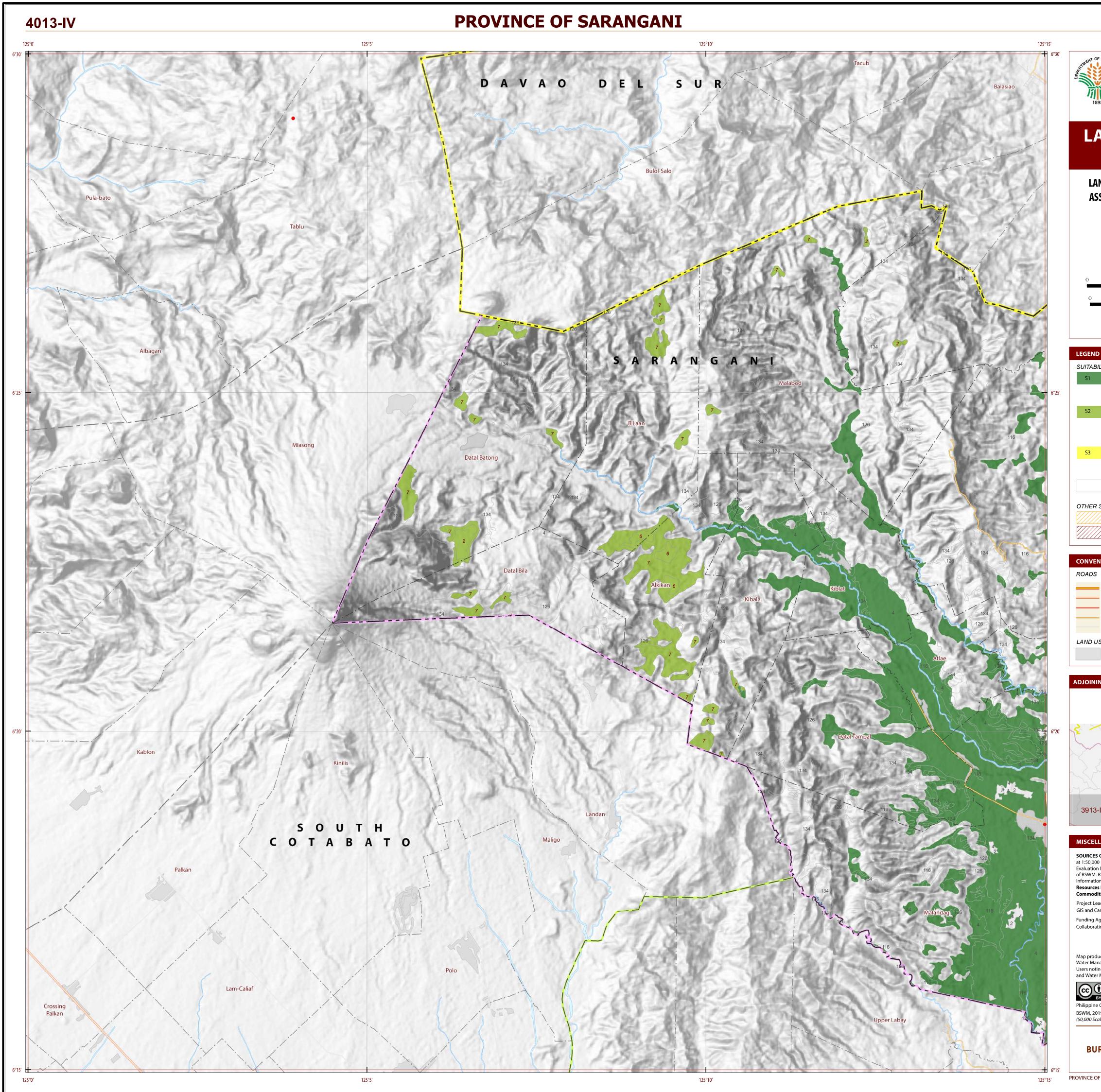
Not Suitable / Not Relevant Land having limitations which may be surmountable in time but which cannot be corrected with existing knowledge at currently acceptable cost; the limitations are so severe as to preclude successful sustained use of the land in the given manner. Existing forest, shrubland greater than 18% slope, irrigated paddy rice and miscellaneous land types such as built up areas, roads, etc are considered as not relevant.

- period from December to February. There is not a single dry month. Maximum monthly rainfall occurs during the period from March to May.
- **TYPE IV** : Rainfall is more or less evenly distributed throughout the year. This type resembles Type II since it has no dry season.

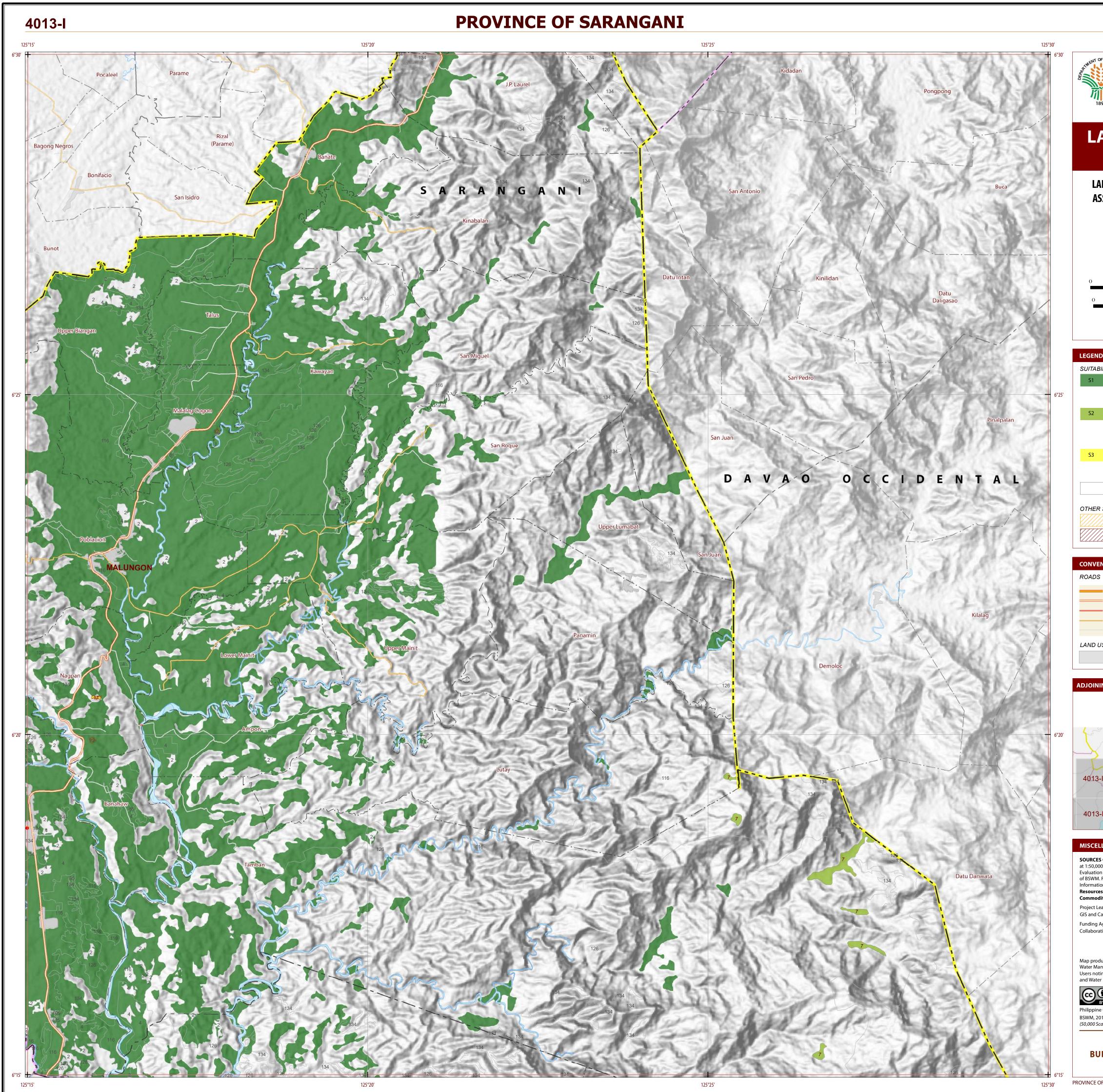




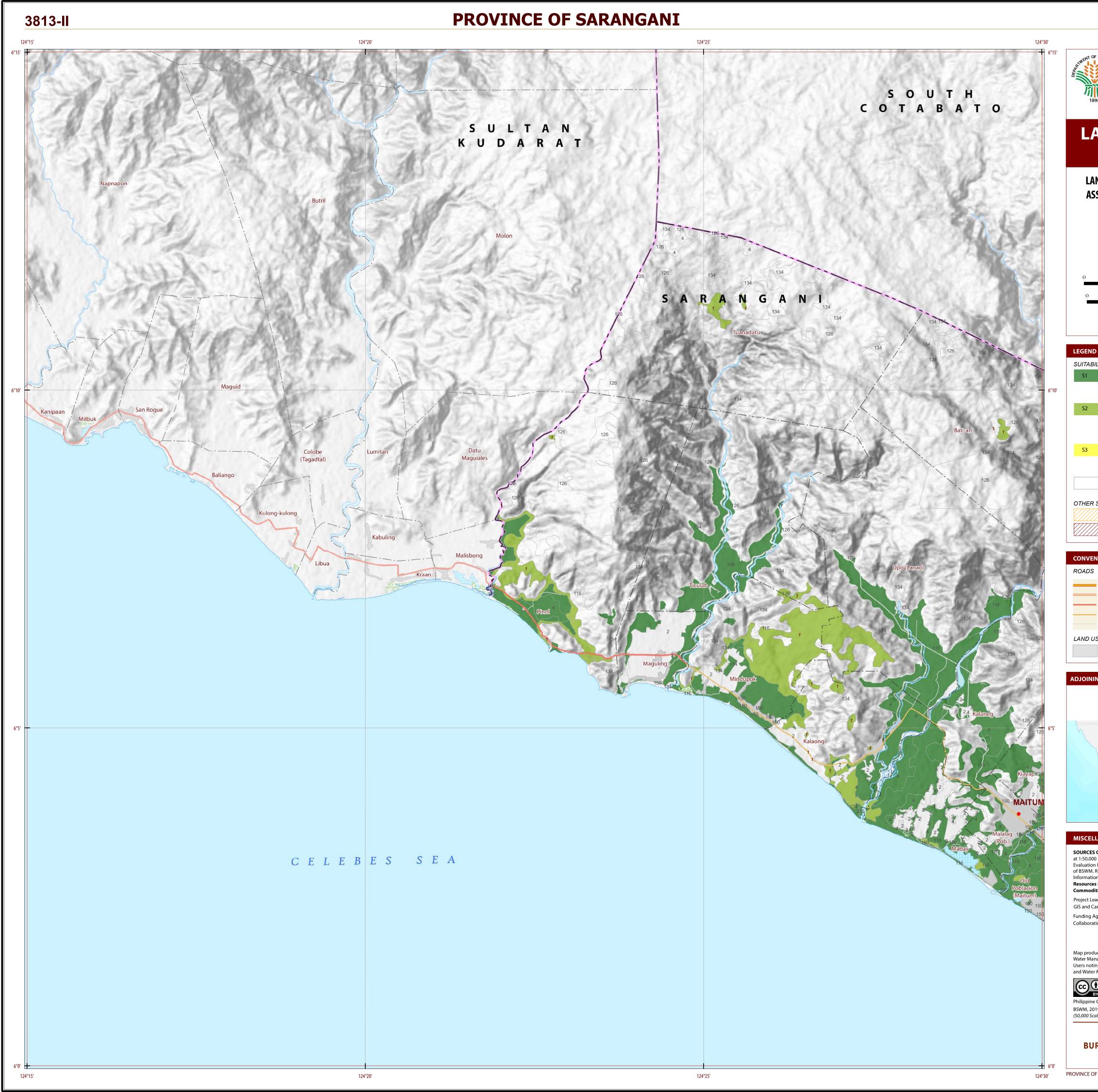
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во		PLACES	Sea / Shoreline Lakes / Rivers
Expressway Trunk line Primary Secondary	Region Province District Municipalit	PLACES y	Sea / Shoreline Lakes / Rivers S Capital City / City
Expressway Trunk line Primary Secondary Tertiary	Region Province District Municipalit Barangay	<i>PLACES</i> y ★ ★ ● •	Sea / Shoreline Lakes / Rivers S Capital City / City Capital Town / Town
Expressway Trunk line Primary Secondary Tertiary JSE Built-up	Region Province District Municipalit Barangay	<i>PLACES</i> y ★ ★ ● •	Sea / Shoreline Lakes / Rivers Capital City / City Capital Town / Town angrove
Expressway Trunk line Primary Secondary Tertiary USE Built-up	Region Province District Municipalit Barangay	<i>PLACES</i> y ★ ★ ● •	Sea / Shoreline Lakes / Rivers Capital City / City Capital Town / Town angrove
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Expressway Trunk line Primary Secondary Tertiary VSE Built-up ING SHEETS 4014-I	<ul> <li>Region</li> <li>Province</li> <li>District</li> <li>Municipalit</li> <li>Barangay</li> </ul>	<i>PLACES</i> y ★ ★ ● •	Sea / Shoreline Lakes / Rivers Capital City / City Capital Town / Town angrove
Expressway Trunk line Primary Secondary Tertiary VSE Built-up ING SHEETS Adold4-I 4014-II 4014-II 4014-II 4014-II 4014-II 4014-II 5 OF INFORMATION : To Do scale. Land resources in Division (ALMED), Soils Rice areas obtained (frort, os system (PRISM) (IRRI, se Evaluation and Suitati tester : ERNAF	Region Province District Municipalit Barangay Fishpond	PLACES PLACES Y   PLACES Y   M II II II II II II II II II	Sea / Shoreline Lakes / Rivers Capital City / City Capital Town / Town angrove
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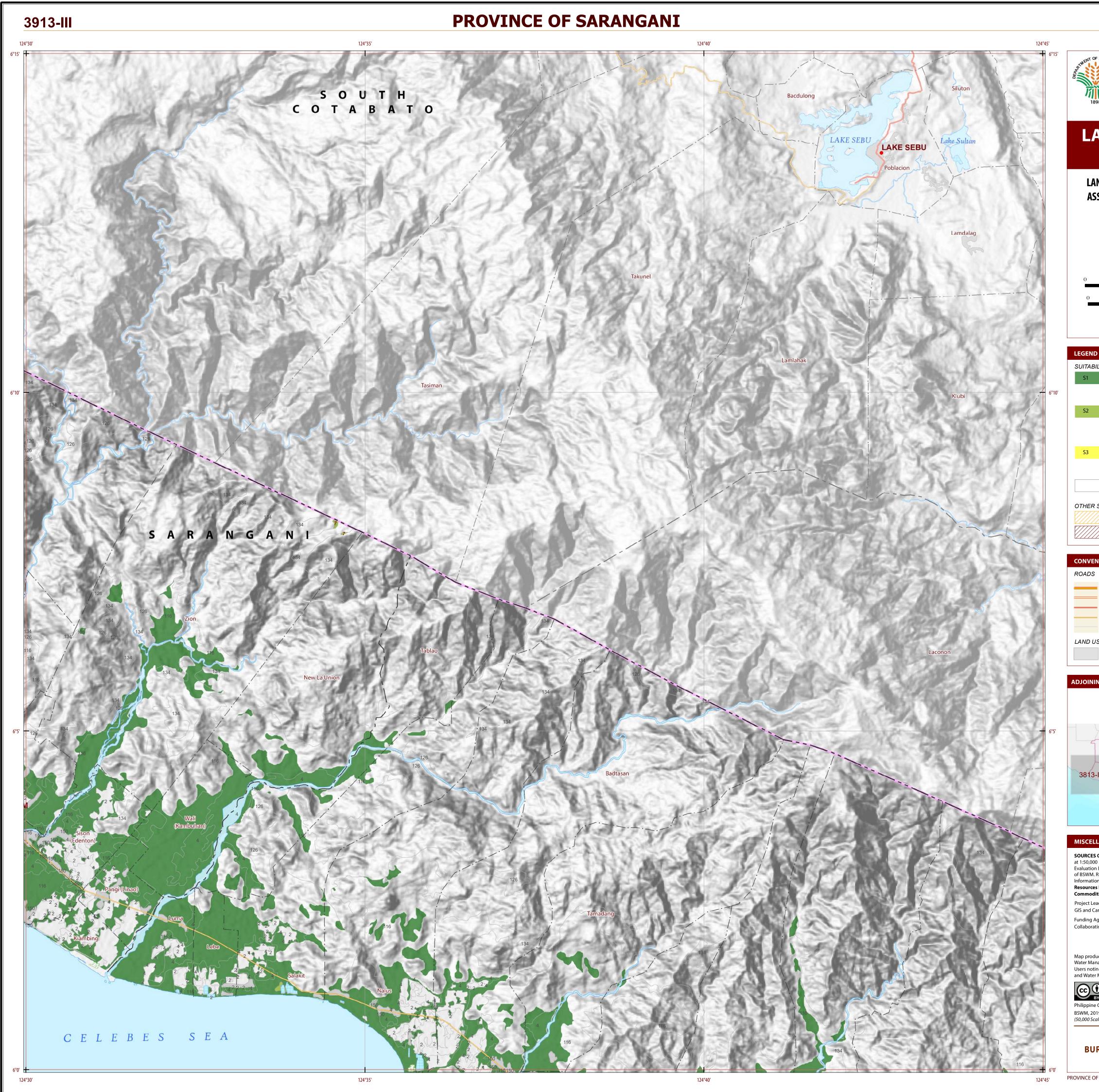
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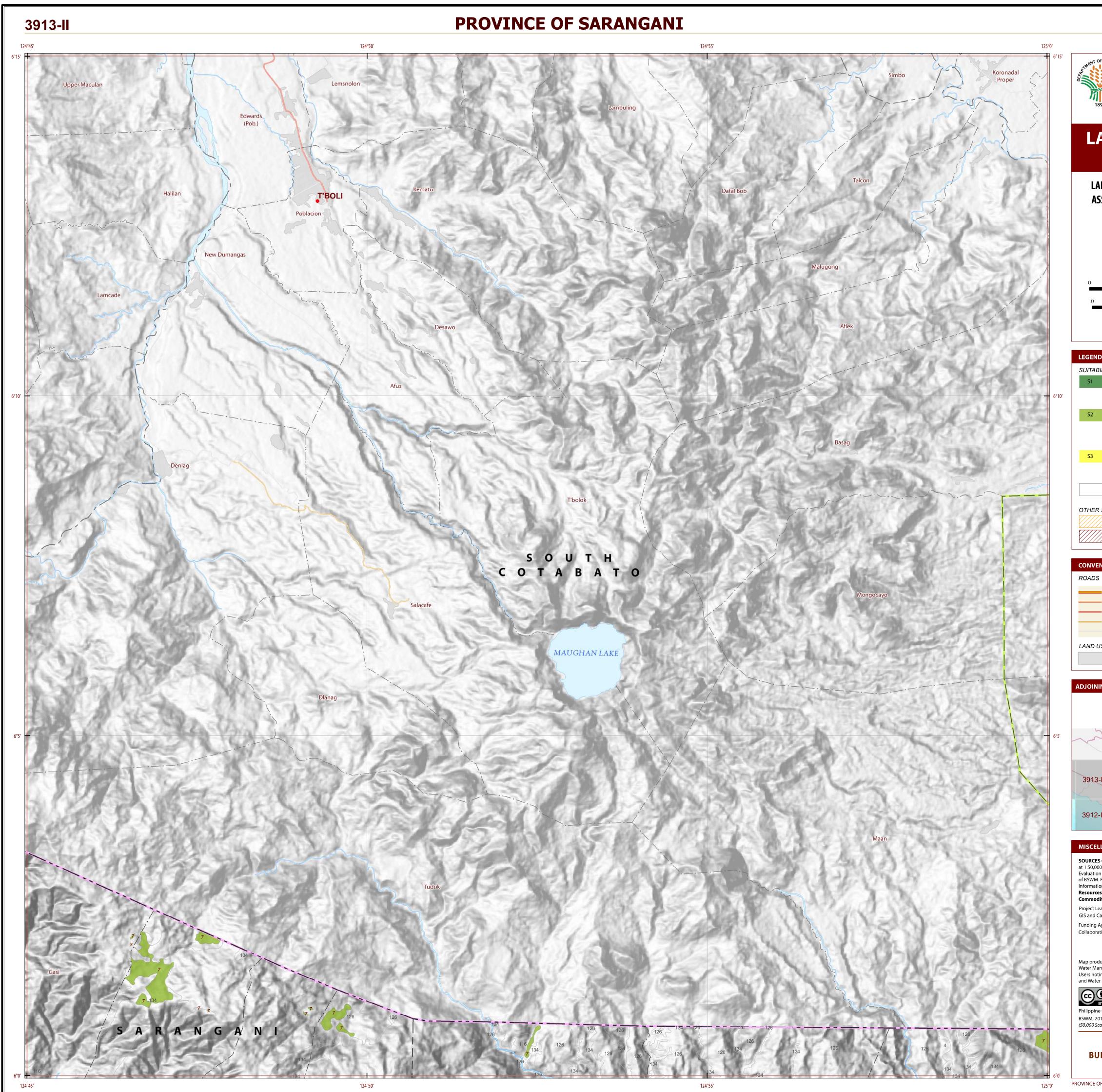
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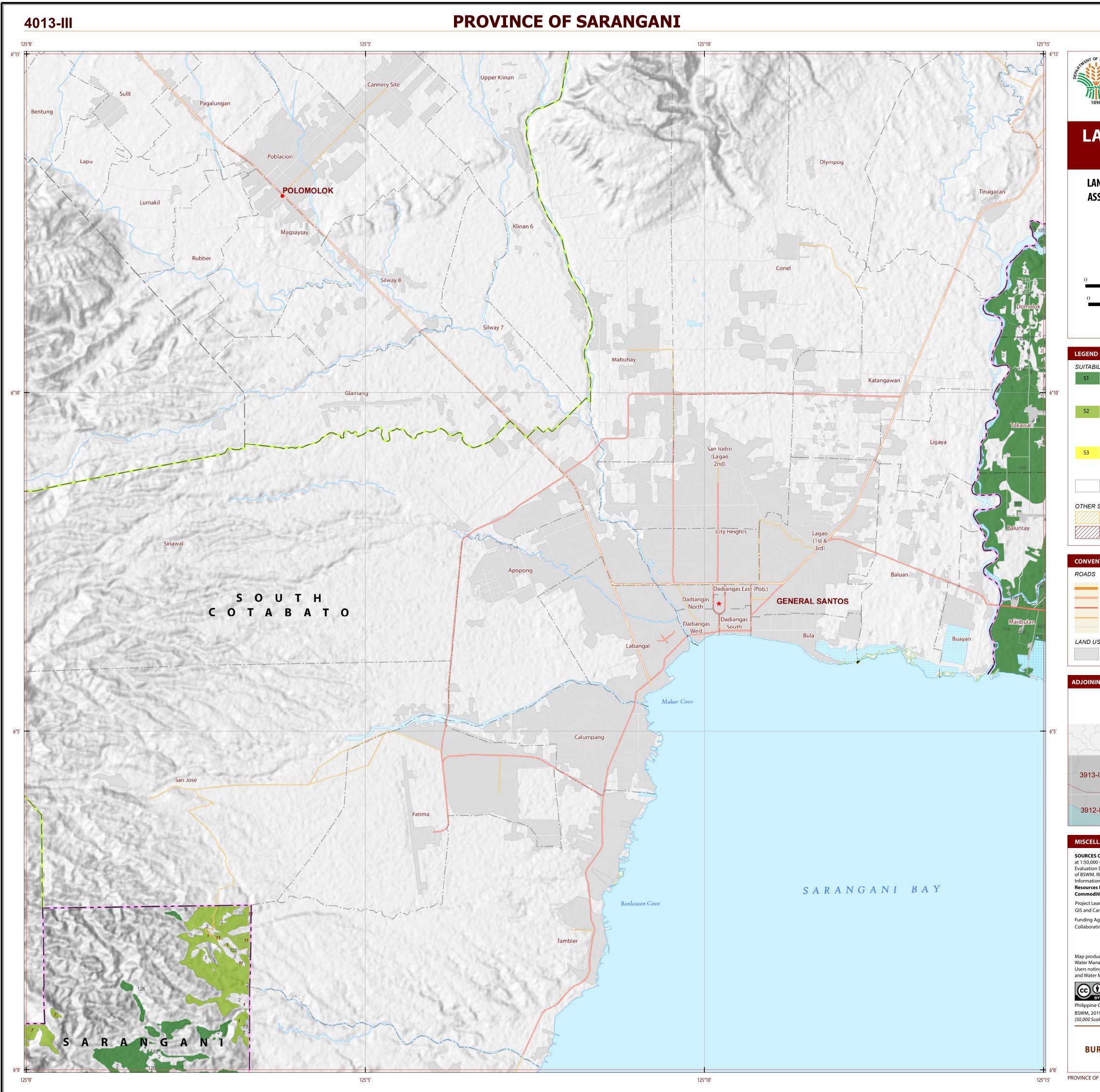
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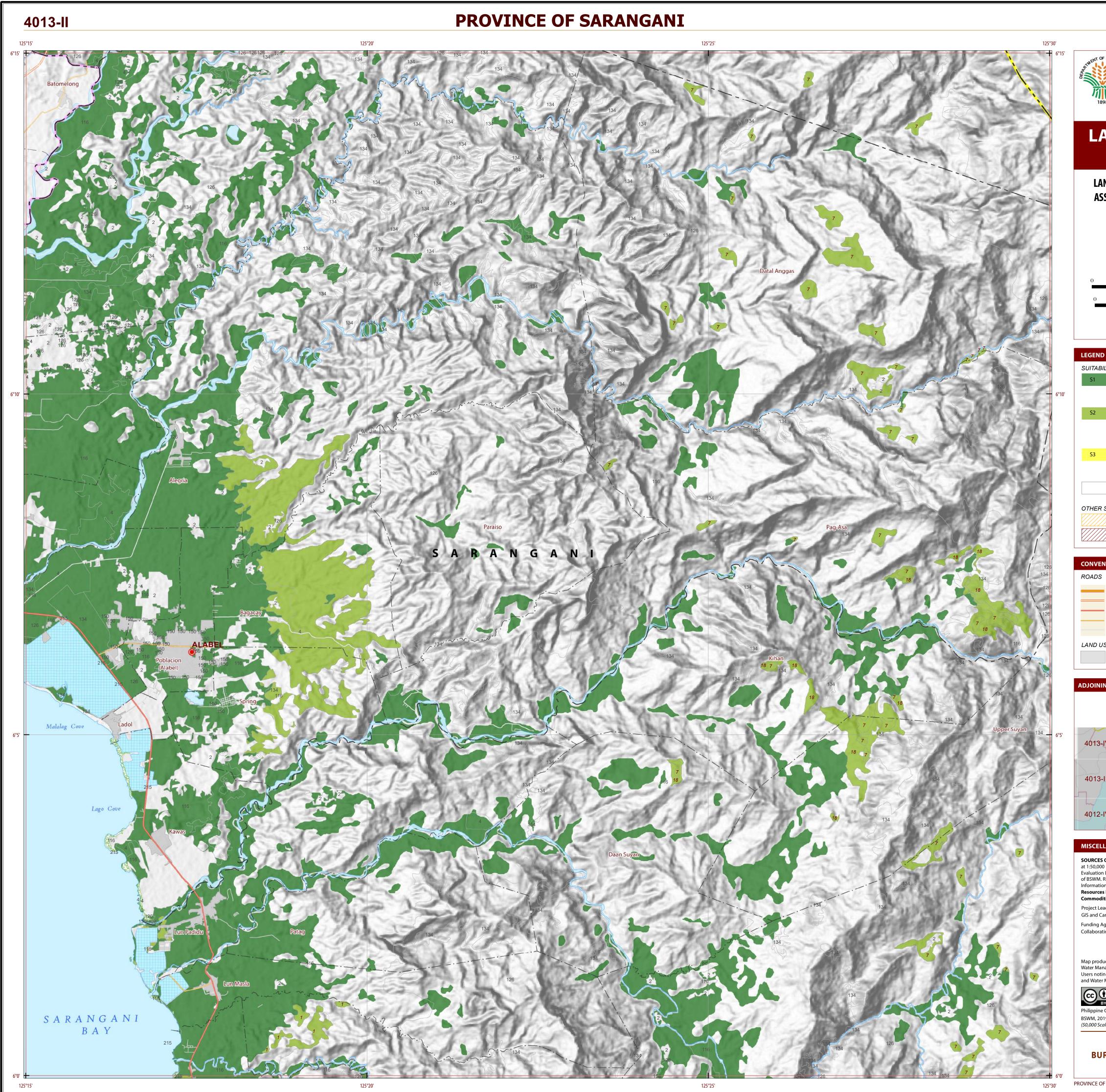
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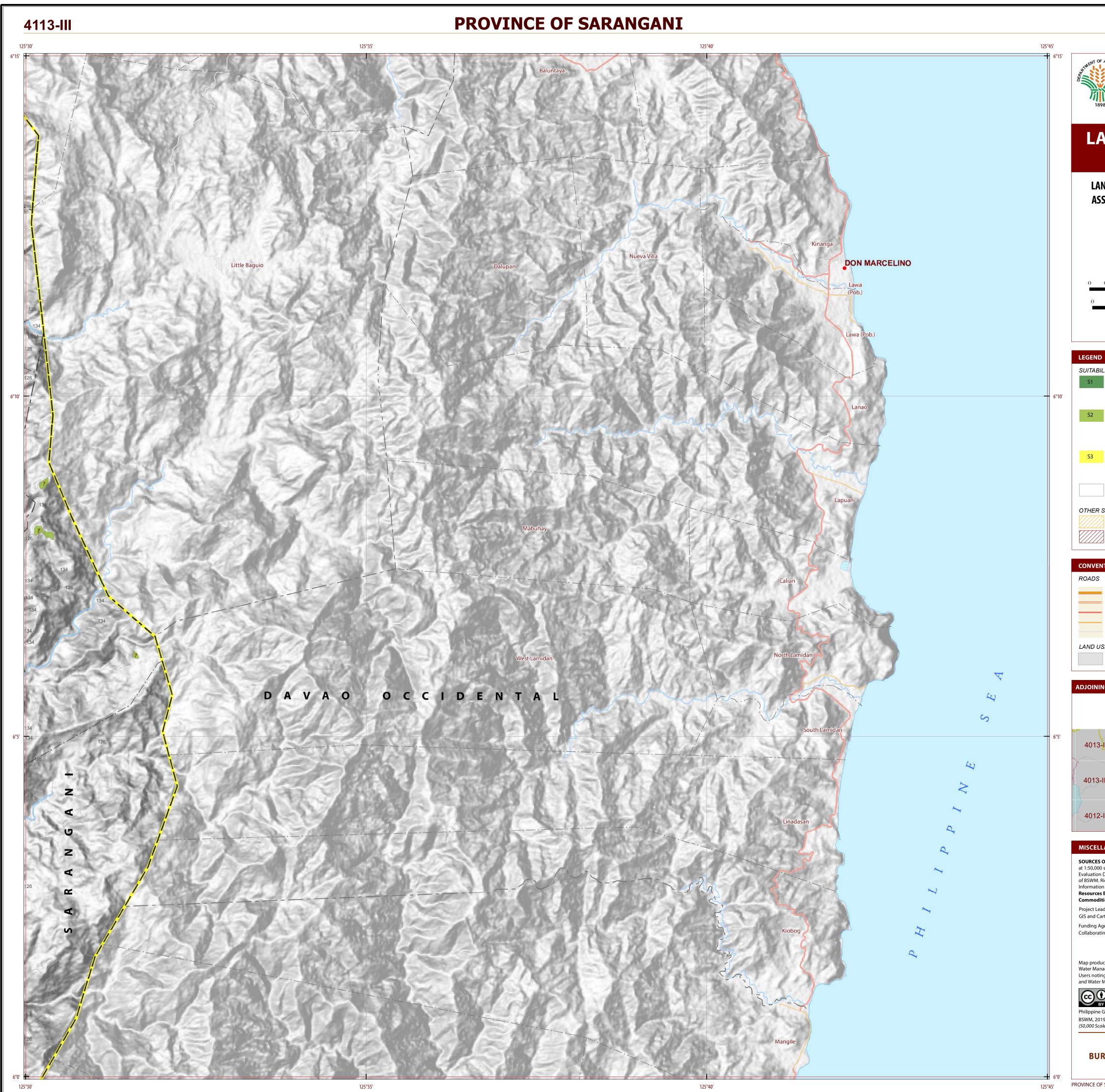
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BILITY CLASSES Highly Suitable - Land having no significant limitations to sustained application of a given use, or only minor limitations that will not signifi- cantly reduce productivity or benefits and will not raise inputs above an acceptable level.
<b>Moderately Suitable</b> - 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.
Marginally Suitable - Land having limitations which in aggregate are severe for sustained application of a given use and will so reduce produc- tivity or benefits, or increase required inputs, that this expenditure will be only marginally justified.Not Suitable/ Not Relevant
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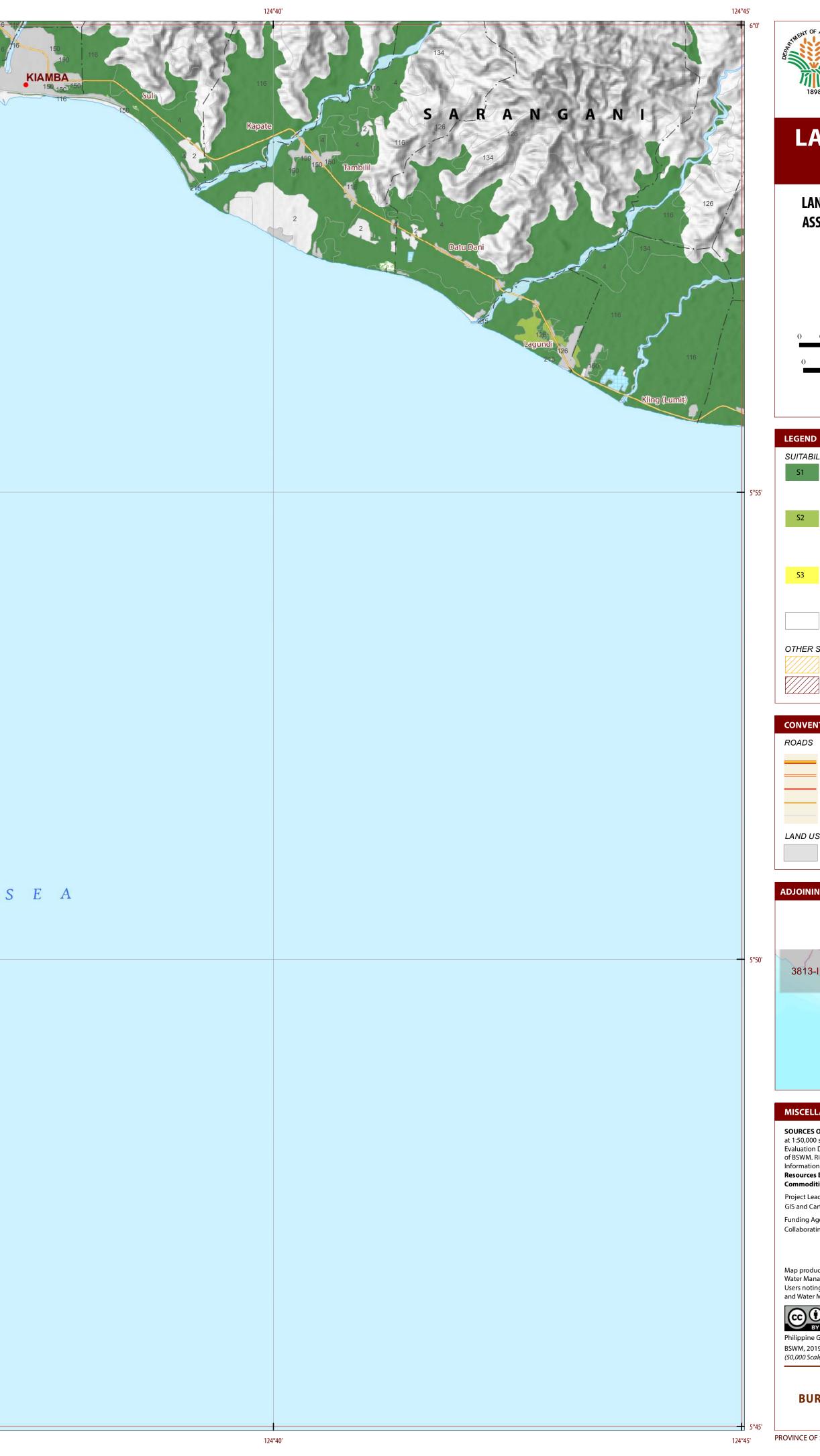
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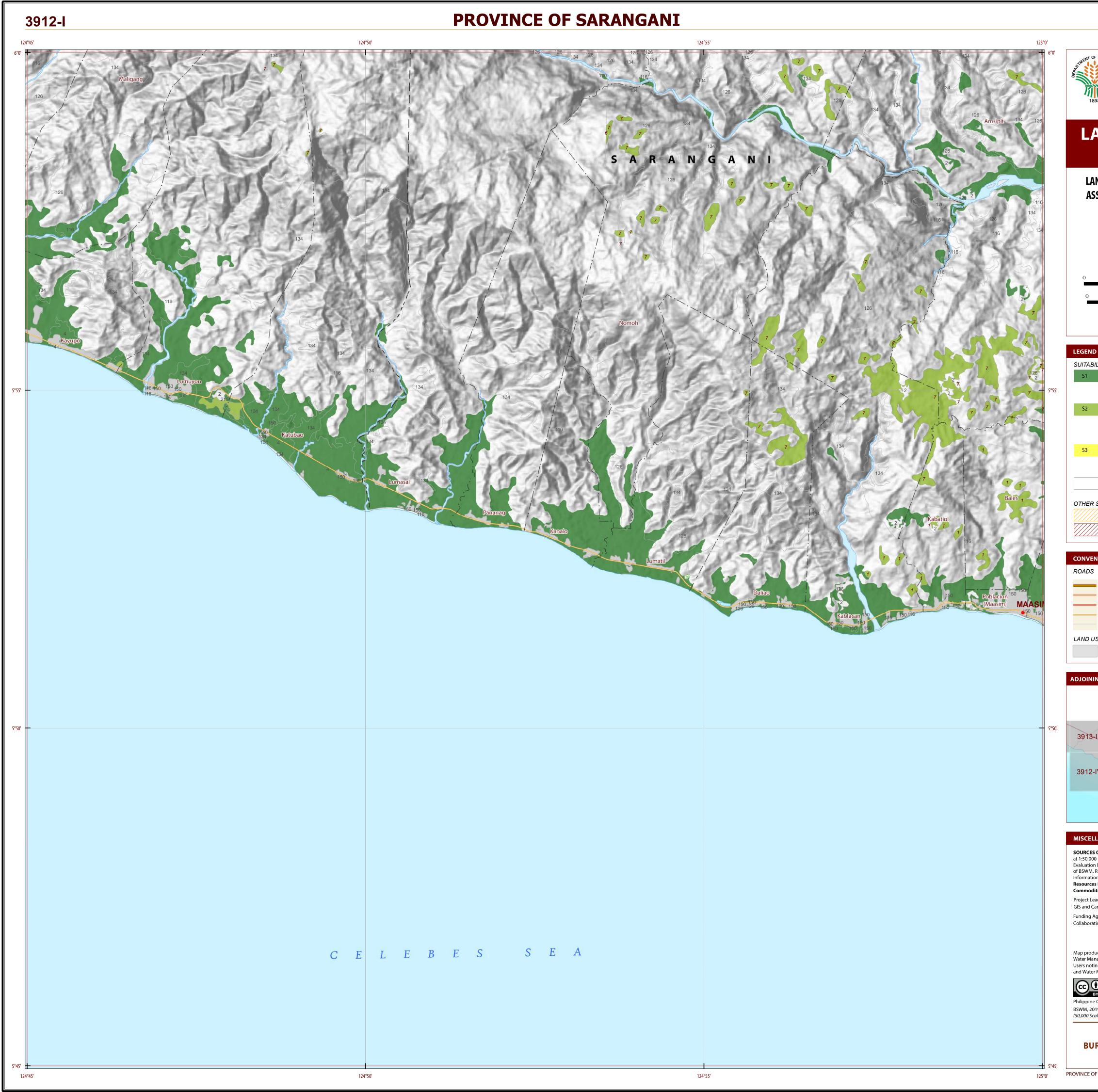
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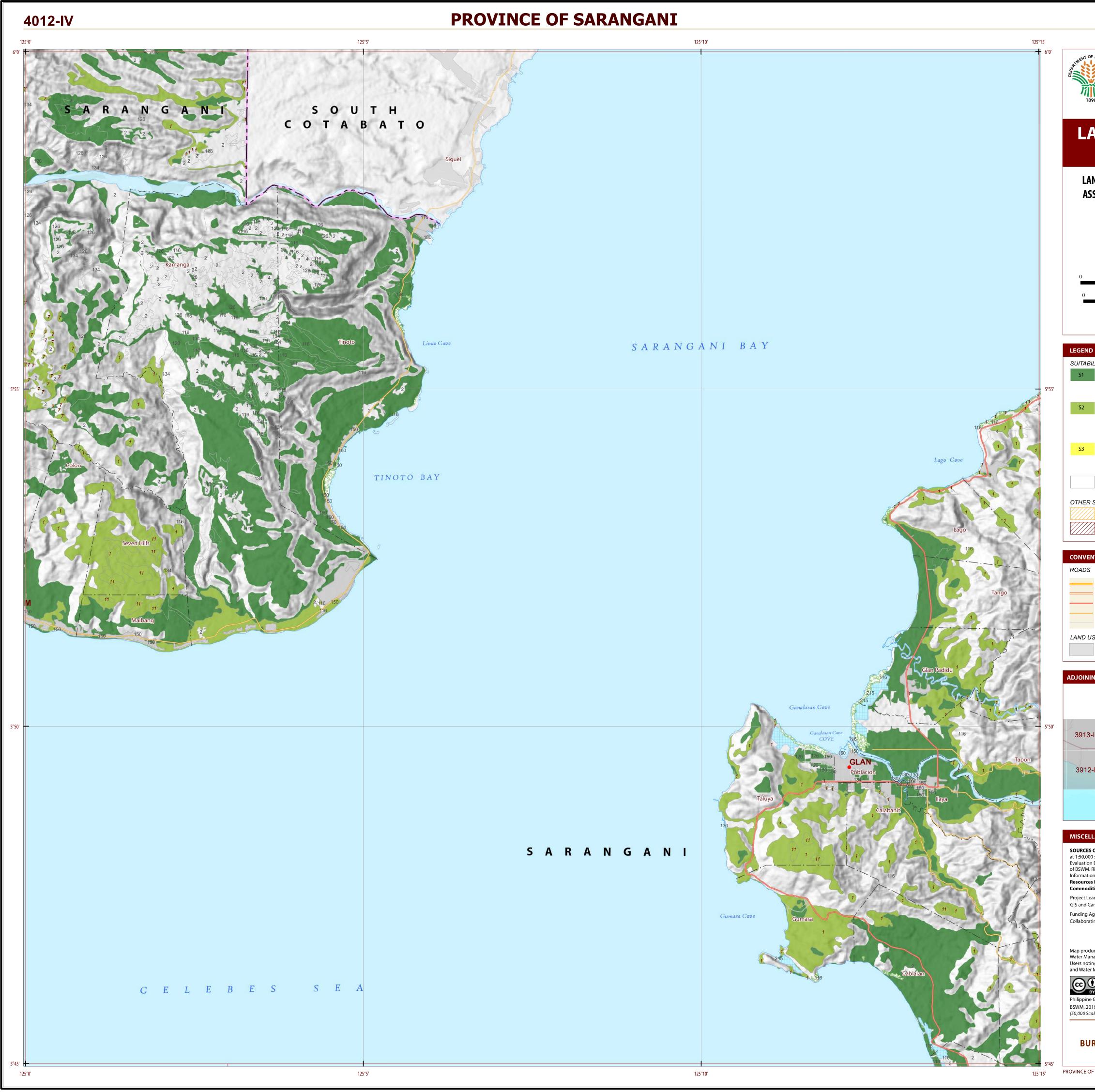
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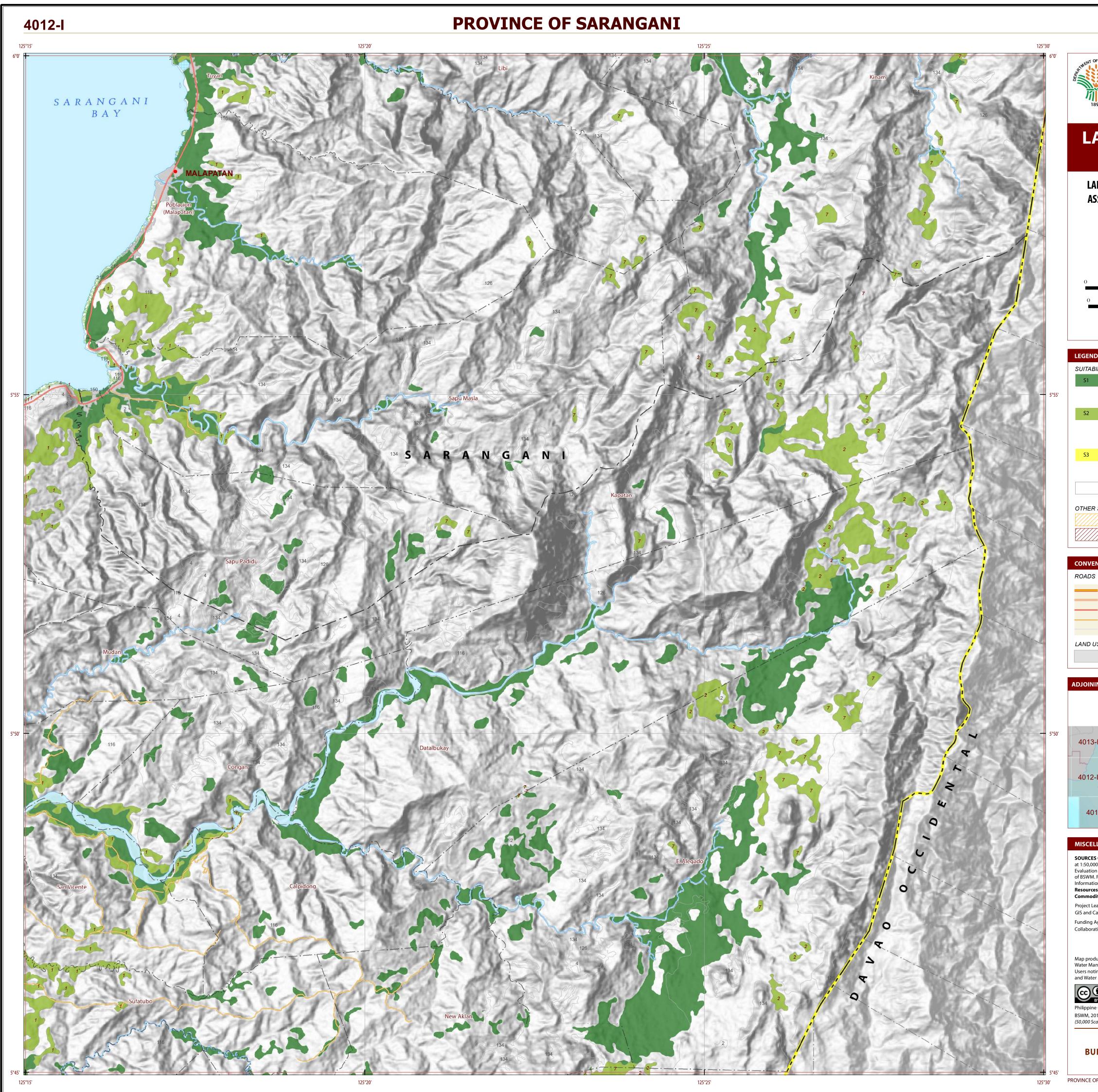
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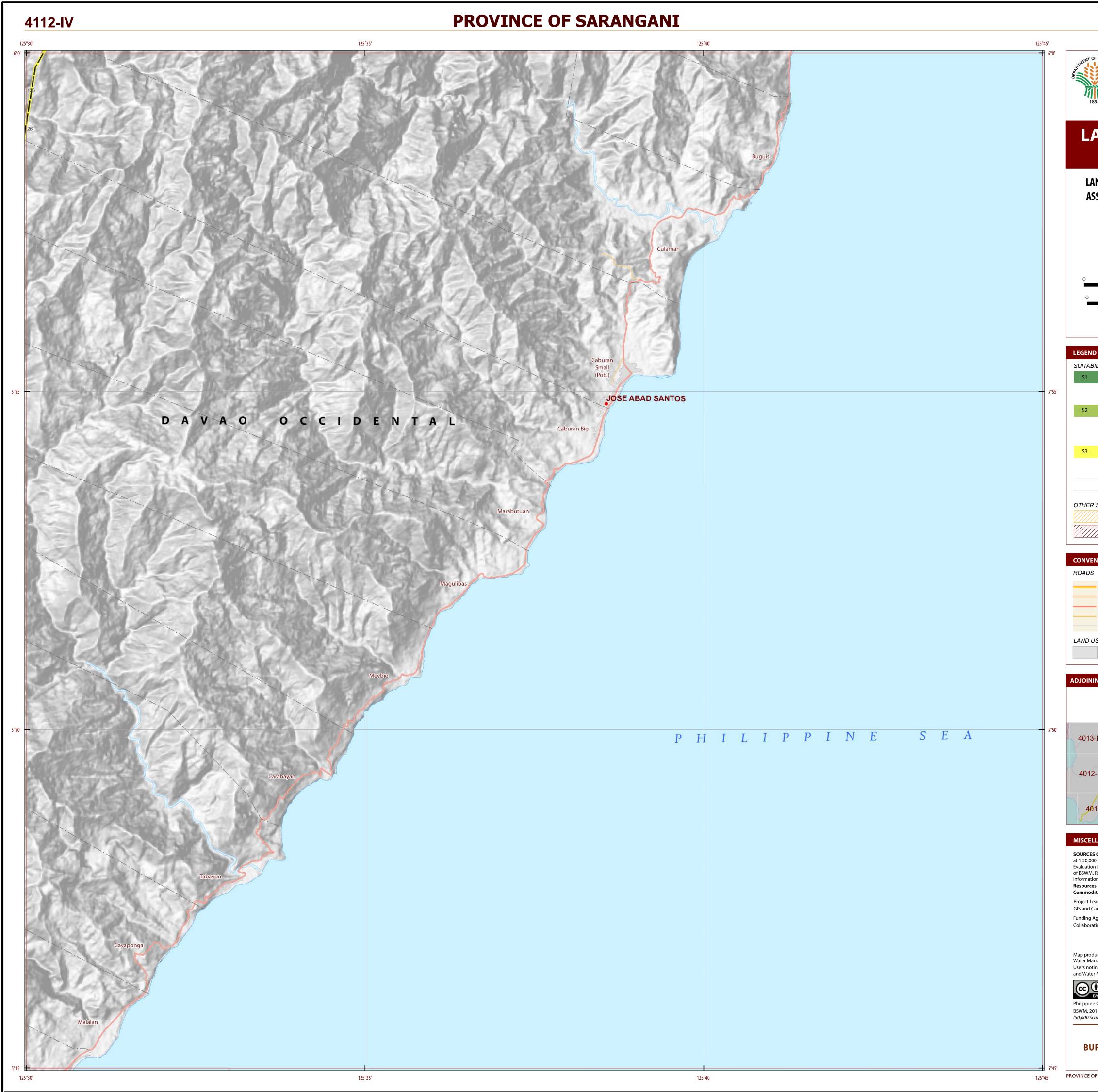
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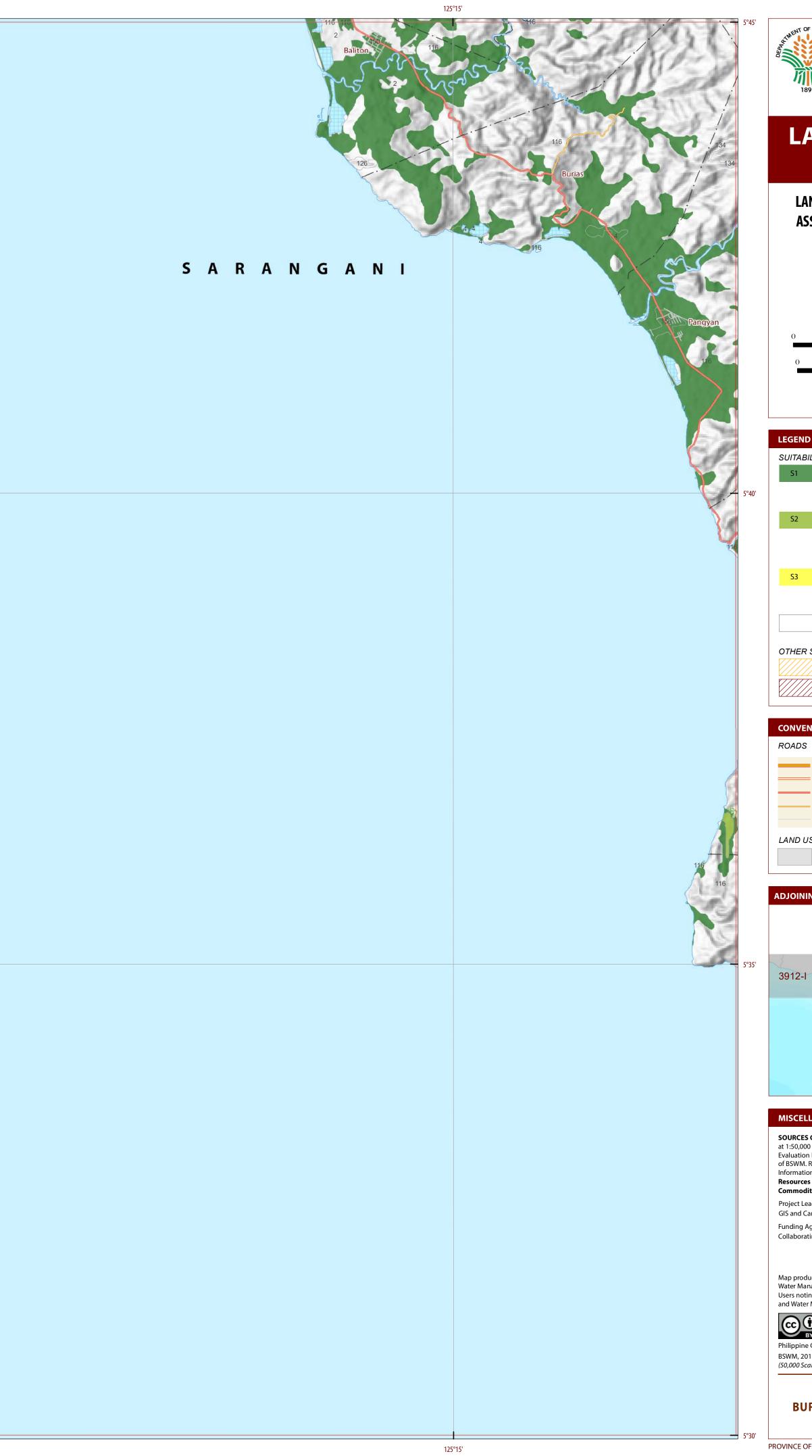
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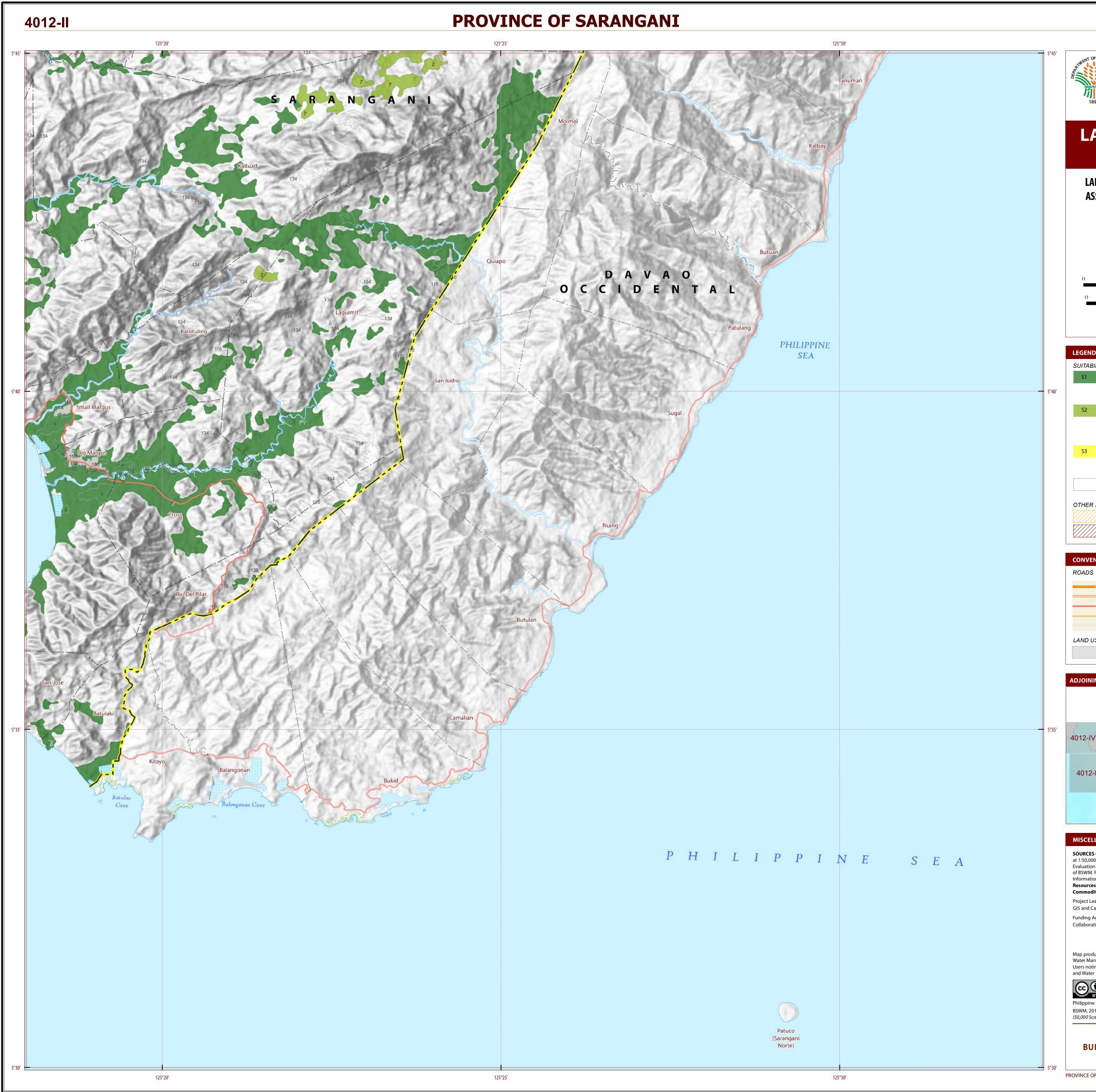
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Expressway Trunk line Primary Secondary Tertiary	OUNDARY Region Province District Municipa Barangay	PLACE	OLOGY Sea / Shoreline Lakes / Rivers ES Capital City / City Capital Town / Town
JSE Built-up	Fishpond		Mangrove
ING SHEETS			INDEX MAP
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LANEOUS INFOR		on taken from l	NAMRIA Topographic Map
0 scale. Land resources n Division (ALMED), So Rice areas obtained fr on System (PRISM) (IRF es Evaluation and Suit lities Project impleme eader : BERN	s information from the ils Survey Division (SSI om the Land Use Syste RI, 2015). Data analysis tability Assessment o	Agricultural La D) and Laborato m (FAO, 2015) and compilatic <b>f Strategic Pro</b>	nd Management and ory Services Division (LSD) and Philippine Rice
Agency : Dep Iting Agencies : Phili : Dep Agri : Loca	ppine Council on Agric artment of Agriculture culture Regional Field al Government Unit (LC	culture and Fish and Fisheries Office of Regio GU) of covered	ricultural Research (DA-BAR) heries (PCAF) • ARMM, Department of n IX, X, XI, XII and XIII (Caraga) provinces and municipalities vision, Bureau of Soils and
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Tel/Fax No. : (+63) DF SARANGANI	2) 332-9534 E-mail : bsw		6 of 16 Sheet No. 4012-II