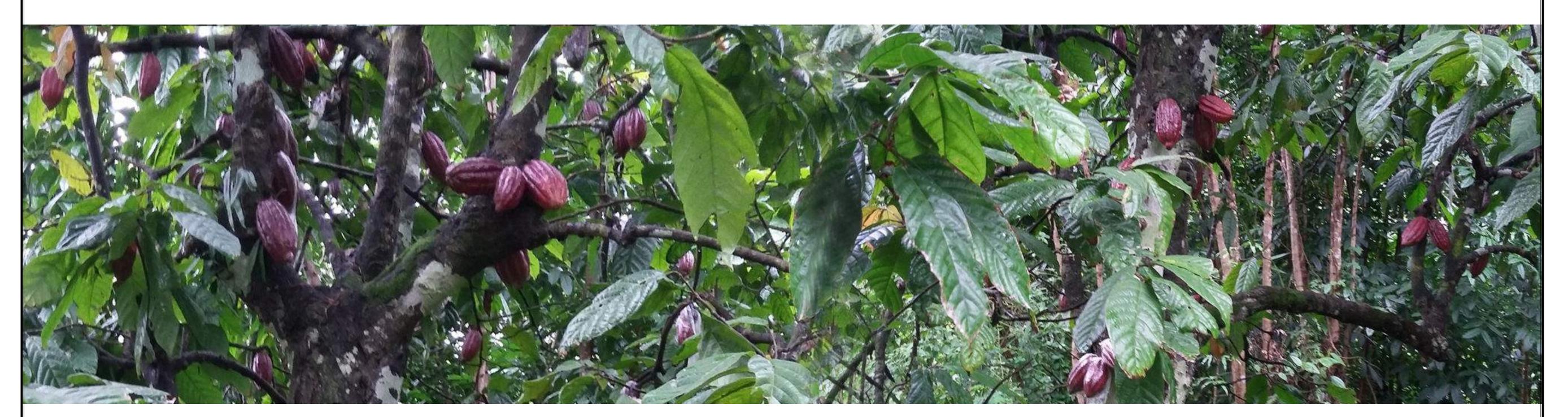
LAND SUITABILITY MAP

CACAO

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS

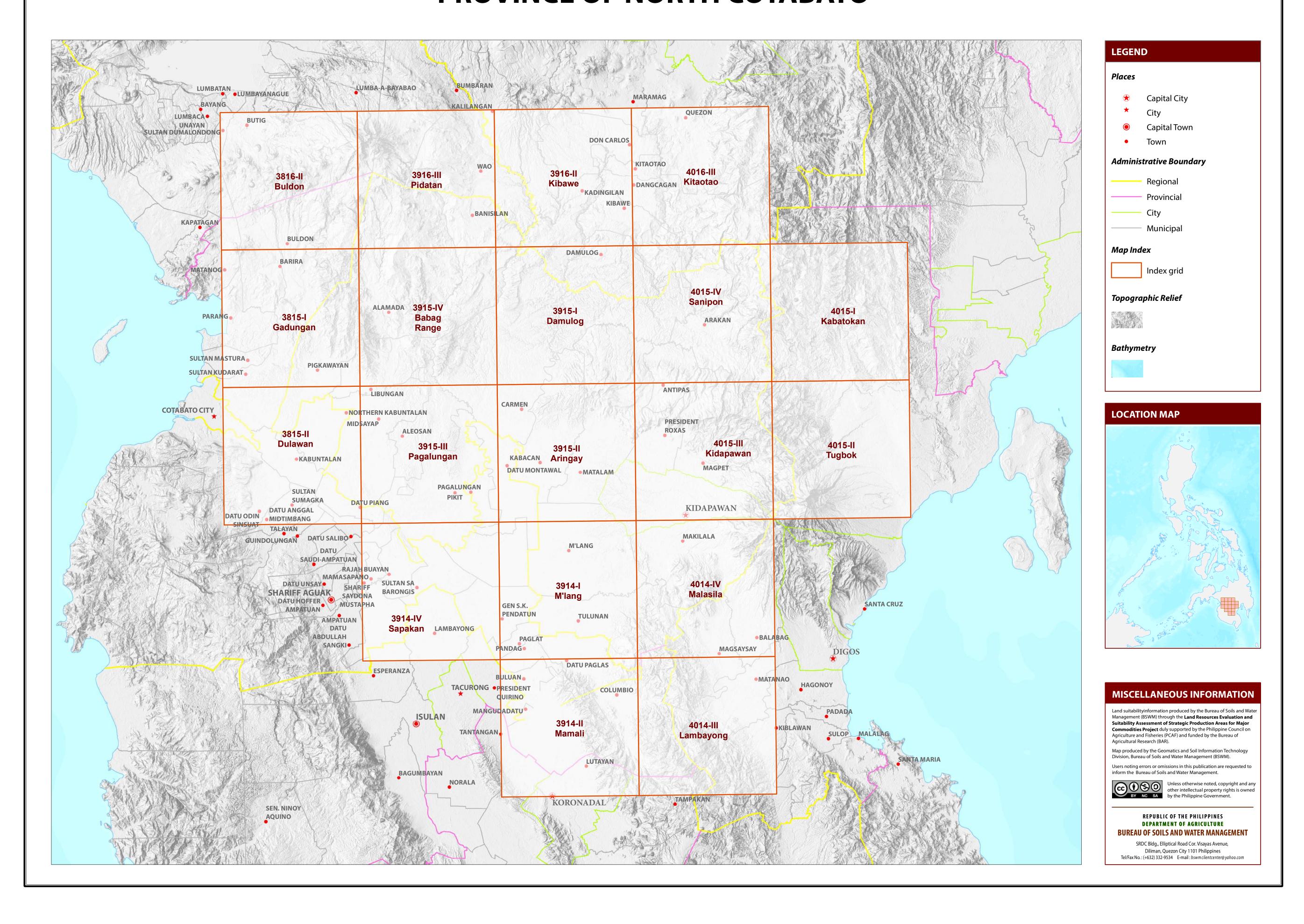
PROVINCE OF NORTH COTABATO





MAP INDEX

LAND RESOURCES EVALUATION AND SUITABILITY ASSESSMENT OF STRATEGIC PRODUCTION AREAS PROVINCE OF NORTH COTABATO



LAND SUITABILITY MAP FOR **CACAO**

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

EXTENT OF SUITABILITY FOR CACAO PRODUCTION BY MUNICIPALITY

						EXI	PANSION	AREA (H	la)				CONFLIC	T RESOLU	JTION AR	EA (Ha)			TOTAL
MUNICIPALITY	EXIST	NG CACA	0 (Ha)	TOTAL EXISTING AREA (Ha)	Coco	nut	Shrub unman	•	Grass unman		Coi	rn	Sugar	cane	Pinea	pple	Other	crops	POTENTIAL EXPANSION
	S1	S2	S 3	, ,	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	AREA (Ha)
ALAMADA	-	-	-	-	1,169	673	-	1,147	1,479	7,263	5,411	7,275	-	-	-	-	-	-	24417
ALEOSAN	-	1	1	-	724	798	87	511	7	640	2,229	1,246	3,156	3,685	-	-	1,036	1,168	15288
ANTIPAS	-	-	-	-	1,141	4,518	-	-	3	170	334	788	-	-	-	-	-	-	6955
ARAKAN	-	-	-	-	682	4,355	84	92	225	1,961	914	4,412	37	-	-	-	-	1	12765
BANISILAN	-	-	-	-	13	31	2	690	21	2,621	207	3,082	19	10,143	-	-	-	-	16830
CARMEN	-	-	-	-	1,405	532	270	1,208	5,304	2,239	19,987	2,812	135	162	-	-	47	1	34102
CITY OF KIDAPAWAN	-	1	-	-	16,097	3,329	-	-	-	-	2,183	299	-	-	1,349	180	-	-	23437
KABACAN	-	-	-	-	635	3	11	528	455	2,347	5,358	718	-	-	-	-	-	-	10055
LIBUNGAN	-	-	-	-	289	1,115	-	-	1,628	92	1,905	390	972	86	-	-	944	770	8191
MAGPET	-	1	-	-	4,357	1,284	-	4	55	868	921	884	-	-	-	-	1	-	8374
MAKILALA	-	4	-	4	6,155	3,237	335	59	639	-	3,049	84	-	-	4,262	101	-	-	17920
MATALAM	-	1	1	-	2,098	3,361	87	221	269	3,184	13,413	3,393	-	-	-	-	-	-	26027
MIDSAYAP	-	1	-	-	632	-	494	-	-	-	6,726	611	450	576	-	-	1,873	2,073	13436
M'LANG	-	1	-	-	5,764	41	-	-	-	-	11,117	24	-	-	2,489	-	-	-	19436
PIGKAWAYAN	-	-	-	-	4,955	158	82	65	1,484	381	1,829	108	-	-	-	-	218	-	9279
PIKIT	-	-	-	-	3,657	377	720	171	44	1,220	9,509	568	10	49	-	-	-	-	16326
PRESIDENT ROXAS	-	-	-	-	2,337	2,362	34	357	4,624	2,987	4,974	1,399	-	1	-	-	20	-	19095
TULUNAN	-	-	-	-	2,509	3	19	-	3,789	147	7,569	-	-	-	701	-	-	-	14737
TOTA	L -	4	-	4	54,621	26,177	2,223	5,053	20,027	26,121	97,636	28,094	4,779	14,703	8,802	281	4,139	4,013	296,670

Note: Delivery of cacao planting materials must be started on the onset of rainy season.

*establishment of shade trees prior to planting of cacao.

10 F2-D2

AGRONOMIC REQUIREMENT OF CACAO PRODUCTION

20 T2-El2-E3-Rc2

30 T3-El2-E3

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
	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
Cacao	S2	8 - 30	50 - 100	FSL, L, SiL	SPD,PD	5.1 - 5.5 7.3 - 7.8	medium	moderate	moderate	common	1000-1500	1000-2000	I, II
	S3	>30	<50	S, LS, CSL, SL	VPD,ED	<5.0 - > 7.9	low	severe	severe	many	>1500	<1000 >4500	

SLOPE (%	6)	SOIL DRAINAGE	SOIL REA	ACTION (pH)	SOIL TH	EXTURE		
0 - 3	- level to gently sloping	ED - excessively drai	ined < 4.5	- extremely acid	Coarse		Fine	
3 - 8	- gently sloping to undulating	WD - well drained	4.5 - 5.0	 very strongly acid 	S	- sand	SC	- sandy clay
8 - 18	- undulating to rolling	MWD - moderately well	ll drained 5.1 - 5.5	- strongly acid	LS	- loamy sand	SiC	- silty clay
18 - 30	- rolling to moderately steep	SPD - somewhat poor	ly drained 5.6 - 6.0	- medium acid	CSL	- coarse sandy loam	С	- clay
30 - 50	- steep	PD - poorly drained	6.1 - 6.5	- slightly acid	SL	- sandy loam	HC	- heavy clay
> 50	- very steep	VPD - very poorly drai	ined 6.6 - 7.2	- neutral	Mediur	n		
			7.3 - 7.8	- mildly alkaline	FSL	- fine sandy loam		
SOIL DEP	РТН (ст)	SURFACE IMPEDIMENT	7.9 - 8.4	- moderately alkaline	L	- loam		
0 - 30	- very shallow	ROCK OUTCROPS	> 8.5	- strongly alkaline	SiL	- silt loam		
30 - 50	- shallow	< 10% - none - few			CL	- clay loam		
50 - 100	- moderately deep	10 - 30% - common			SiCL	- silty clay loam		
> 100	- deep to very deep	> 30% - many			SCL	- sandy clay loam		

ELEVA	TION		SOIL	DRAINAGE			SOIL I	DEPTH		SO	IL EROSION
El2 -	1000m - 1500m		D2	- Somewhat	t poorly drained to poorly	y drained	l Sh2	- Moderate	ly deep (50 - 100cm)	E2	- Moderate erosion
El3 -	> 1500m		D3	- Very poor	ly drained or excessively	drained	Sh3	- Very shall	ow to shallow (< 50cm)	Е3	- Severe erosion
SLOPE	/TOPOGRAPHY		SOIL	TEXTURE			ROCK	OUTCROP	S	FL	OODING
T2 -	Undulating to moderately	steep	Tc	- Coarse tex	ture		Rc2	- Common		F2	- Moderate seasonal floor
T3 -	Steep to very steep						D 0	1 /		FO	Corrore account floodin
	out provide a series of the se						Rc3	- Many		F3	- Severe seasonal floodin
CODE	1	CODE	LIMITATION	CODE	LIMITATION	CODE		- Many	LIMITATION	CODE	- Severe seasonal floodin
	1	CODE 11	LIMITATION F3-D2	CODE 21	LIMITATION T2-E12-E3-Sh2-Rc2	CODE 31			LIMITATION T3-E12-E3-Sh3-Rc3		
	LIMITATION						LIMITATION	CODE			LANDUSE
CODE 1	LIMITATION E2-Sh2-Rc2	11	F3-D2	21	T2-El2-E3-Sh2-Rc2	31	LIMITATION T3-El2-E3-Rc2	CODE 41	T3-El2-E3-Sh3-Rc3	4 34	LANDUSE Corn
CODE 1	LIMITATION E2-Sh2-Rc2 E12	11 12	F3-D2 Sh2-Rc2	21 22	T2-El2-E3-Sh2-Rc2 T2-El2-E3-Sh2-Rc3	31 32	LIMITATION T3-El2-E3-Rc2 T3-El2-E3-Sh3-Rc2	CODE 41	T3-El2-E3-Sh3-Rc3	4 34 84	LANDUSE Corn Diversified crops
CODE 1	LIMITATION E2-Sh2-Rc2 E12 E12-E2-Sh2-Rc3	11 12 13	F3-D2 Sh2-Rc2 T2	21 22 23	T2-El2-E3-Sh2-Rc2 T2-El2-E3-Sh2-Rc3 T2-El3-E3-Sh2-Rc2	31 32 33	LIMITATION T3-E12-E3-Rc2 T3-E12-E3-Sh3-Rc2 T3-E12-E3-Sh3-Rc3	CODE 41	T3-El2-E3-Sh3-Rc3	CODE 4 34 84 91	LANDUSE Corn Diversified crops Pineapple
CODE 1 2 3 4	LIMITATION E2-Sh2-Rc2 E12 E12-E2-Sh2-Rc3 E12-E3-Sh2-Rc3	11 12 13 14	F3-D2 Sh2-Rc2 T2 T2-E3	21 22 23 24	T2-El2-E3-Sh2-Rc2 T2-El2-E3-Sh2-Rc3 T2-El3-E3-Sh2-Rc2 T3	31 32 33 34	LIMITATION T3-El2-E3-Rc2 T3-El2-E3-Sh3-Rc2 T3-El2-E3-Sh3-Rc3 T3-El3-E3-Sh3-Rc2	CODE 41	T3-El2-E3-Sh3-Rc3	CODE 4 34 84 91 105	LANDUSE Corn Diversified crops Pineapple Banana
1 2 3 4 5	LIMITATION E2-Sh2-Rc2 E12 E12-E2-Sh2-Rc3 E12-E3-Sh2-Rc3 E12-Rc2	11 12 13 14 15	F3-D2 Sh2-Rc2 T2 T2-E3 T2-E3-Rc3	21 22 23 24 25	T2-El2-E3-Sh2-Rc2 T2-El2-E3-Sh2-Rc3 T2-El3-E3-Sh2-Rc2 T3 T3-E3	31 32 33 34 35	LIMITATION T3-El2-E3-Rc2 T3-El2-E3-Sh3-Rc2 T3-El2-E3-Sh3-Rc3 T3-El3-E3-Sh3-Rc2 T3	CODE 41	T3-El2-E3-Sh3-Rc3	CODE 4 34 84 91 105 112	LANDUSE Corn Diversified crops Pineapple Banana Fruit trees, mixed
CODE 1 2 3 4 5	LIMITATION E2-Sh2-Rc2 E12 E12-E2-Sh2-Rc3 E12-E3-Sh2-Rc3 E12-Rc2 E12-Rc2	11 12 13 14 15 16	F3-D2 Sh2-Rc2 T2 T2-E3 T2-E3-Rc3 T2-E3-Sh2-Rc2	21 22 23 24 25 26	T2-El2-E3-Sh2-Rc2 T2-El2-E3-Sh2-Rc3 T2-El3-E3-Sh2-Rc2 T3 T3-E3 T3-E3-Sh2-Rc3	31 32 33 34 35 36	LIMITATION T3-El2-E3-Rc2 T3-El2-E3-Sh3-Rc2 T3-El2-E3-Sh3-Rc3 T3-El3-E3-Sh3-Rc2 T3 T3-E3	CODE 41	T3-El2-E3-Sh3-Rc3	CODE 4 34 84 91 105 112 116	LANDUSE Corn Diversified crops Pineapple Banana Fruit trees, mixed Sugarcane

40 T3-El2-E3-Rc3

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.

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.

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.

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

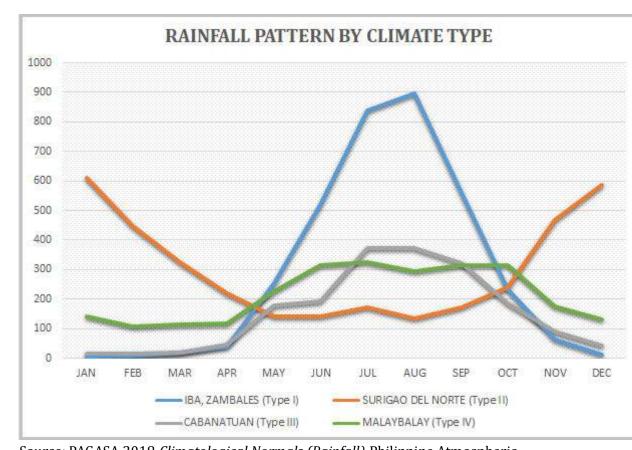
TYPE I: Two pronouced season, dry from November to April and **TYPE II**: No dry season with a very pronounced maximum rain wet during the rest of the year. Maximum rain period is from June to September

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.

