

3.2. Rain-Induced Landslide

Rain induced landslide usually occurs especially during heavy rains or wet months. Mass movement and erosion are likely to happen in hilly and mountainous terrain due to soil saturation. Farming activities on the slope toes are high risk of being hit by landslide. The down slope movement of masses of earth materials may cause damages to life and property.

The rating parameters are as follows:

High

- Presence of active and/or recent landslides
- Presence of numerous and large tension cracks
- Areas with drainage that are prone to debris damming
- Areas with numerous of landslides/escarpments
- Steep slopes
- Presence of weak/rock slope materials
- Structures (joints, beds) dipping towards the slope face
- Nearness to faults

Moderate

- Areas with indicative and/or landslides
- Presence of small tension cracks
- Moderate slopes

Low

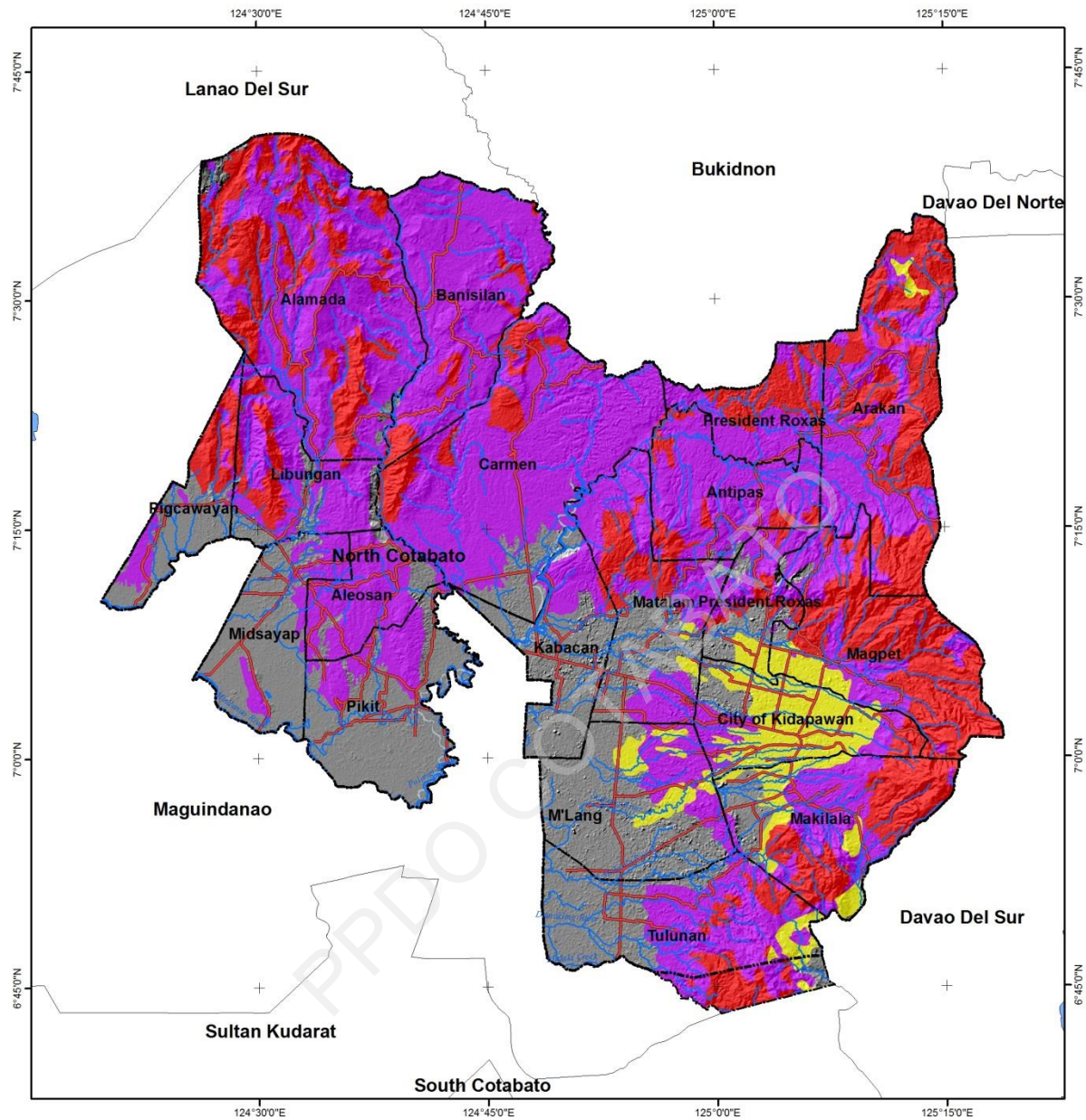
- Low to gently sloping
- No evidence of mass movement

The map and table below show the rain induced susceptibility of areas in the province.

Based on the Hazard Map generated by MGB XII, 171 barangays in the province are highly susceptible to rain-induced landslides. Of the total land area of the province (656,590 has), 141,206.20 has, or 21% is considered highly susceptible to RIL. Most of these barangays are situated in the mountainous areas of the province particularly the municipalities of Arakan (27,135.18 has), Alamada (26,860 has), Magpet (25,540.10 has), and Makilala (13,419.90 has). These high rating could also be attributed to the presence of areas with steep slopes and degradation of forest cover making them less capable of holding more water.

The recent typhoons that hit the country have caused considerable damage to properties, infrastructure and displacement of population in the above-mentioned municipalities. Most of the barangays in the province fall under the moderate and low susceptibility categories.

Map No. 6: Rain-Induced Landslide Hazard Map



RAIN INDUCED LANDSLIDE HAZARD MAP

- | | |
|---------------------------|-----------------------|
| BASE DATA LEGEND | SUSCEPTIBILITY |
| Provincial Boundaries | High |
| Rivers | Low |
| City/Municipal Boundaries | Moderate |
| | Not Susceptible |
| | River |

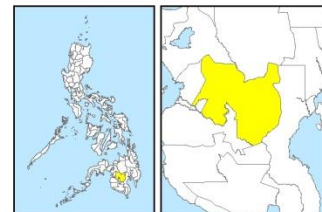


PROVINCE OF COTABATO
REGION XII - SOCCSKSARGEN

1:450,000



SPHEROID..... CLARKE 1866
PROJECTION..... UNIVERSAL TRANSVERSE MERCATOR
VERTICAL DATUM..... MEAN SEA LEVEL
HORIZONTAL DATUM..... LUZON DATUM



Map Source:
DENR - Mines and Geosciences Bureau (MGB) Region XII



Table No. 4: Rain-Induced Landslide (RIL) Susceptibility

Municipalities	Susceptibility						Total Land Area (Has)
	High		Moderate		Low		
	No. of Brgys.	Area (Has,)	No. of Brgys.	Area (Has,)	No. of Brgys.	Area (Has,)	
Alamada	11	26,860.29	17	45,412.25	0	0.00	72,269.80
Aleosan	0	0.00	19	12,892.61	0	0.00	12,892.61
Antipas	8	3,964.00	13	21,257.98	0	0.00	25,222.07
Arakan	25	27,135.18	28	22,314.67	4	719.31	50,169.16
Banisilan	12	3,529.47	20	36,943.32	0	0.00	40,472.79
Carmen	6	7,574.98	27	53,097.00	0	0.00	60,671.98
Kabacan	4	350.55	10	4,269.31	0	0.00	4,619.86
Kidapawan City	4	1,508.44	16	4,509.94	34	15,427.85	21,446.23
Libungan	12	4,658.09	19	15,104.93	0	0	19,763.02
Magpet	23	25,540.19	20	10,908.89	10	3,338.08	39,787.16
M'lang	0	0.00	15	7,046.94	15	4,116.86	11,163.80
Makilala	24	13,419.90	32	12,299.76	23	5,984.34	31,704.00
Matalam	9	5,724.92	22	16,102.90	8	734.29	22,562.11
Midsayap	0	0.00	26	4,995.04	0	0.00	4,995.04
Pigcawayan	9	4,304.75	26	3,392.02	0	0.00	7,696.77
Pikit	0	0.00	15	6,879.94	0	0.00	6,879.94
Pres. Roxas	16	9,297.40	16	14,488.04	4	1,705.73	25,491.17
Tulunan	8	7,338.04	15	18,523.85	4	2,227.03	28,088.92
TOTAL	171	141,206.20	356	310,439.39	102	34,253.49	485,896.43

Based on data presented, 356 barangays with a total land area of 310,439.39 belonged to moderately susceptible to RIL. The Municipality of Carmen has the highest at 53,097.00 has., followed by the three municipalities of Alamada, Banisilan, Arakan and Antipas. The province's total moderately susceptible area is posted at 310,439.39 has.

The lowest RIL susceptible areas are the 102 barangays with a total land area of 34,253.49 has.

The total RIL susceptible area in the province is 485,896.43 has or 74%, of which 21 % is high, 47 % moderate and .05 % low.