

3. Hazard Characterization

3.1. Flood Susceptibility

In terms of flood susceptibility, the areas in the province were assessed in terms of depth and frequency of flood occurrences. The rating parameters are as follows:

High

- More than one (1) meter high
- Turbidity is high to very low
- Occurrence is seasonal

Moderate

- Between 0.5 to 1 meter high
- Turbidity is relatively moderate
- Occurrence is seasonal

Low

- Less than 0.5 meter high
- Turbidity is low
- Frequency of occurrence is rarely low

Flooding hazard in the province usually is present in the low-lying barangays but is more damaging in those that are along the periphery of Ligawasan Marsh.

The Map and Table below show the flood susceptibility of areas in the province. There are instances when a barangay has portions that are considered at high, moderate and low susceptibility rating.

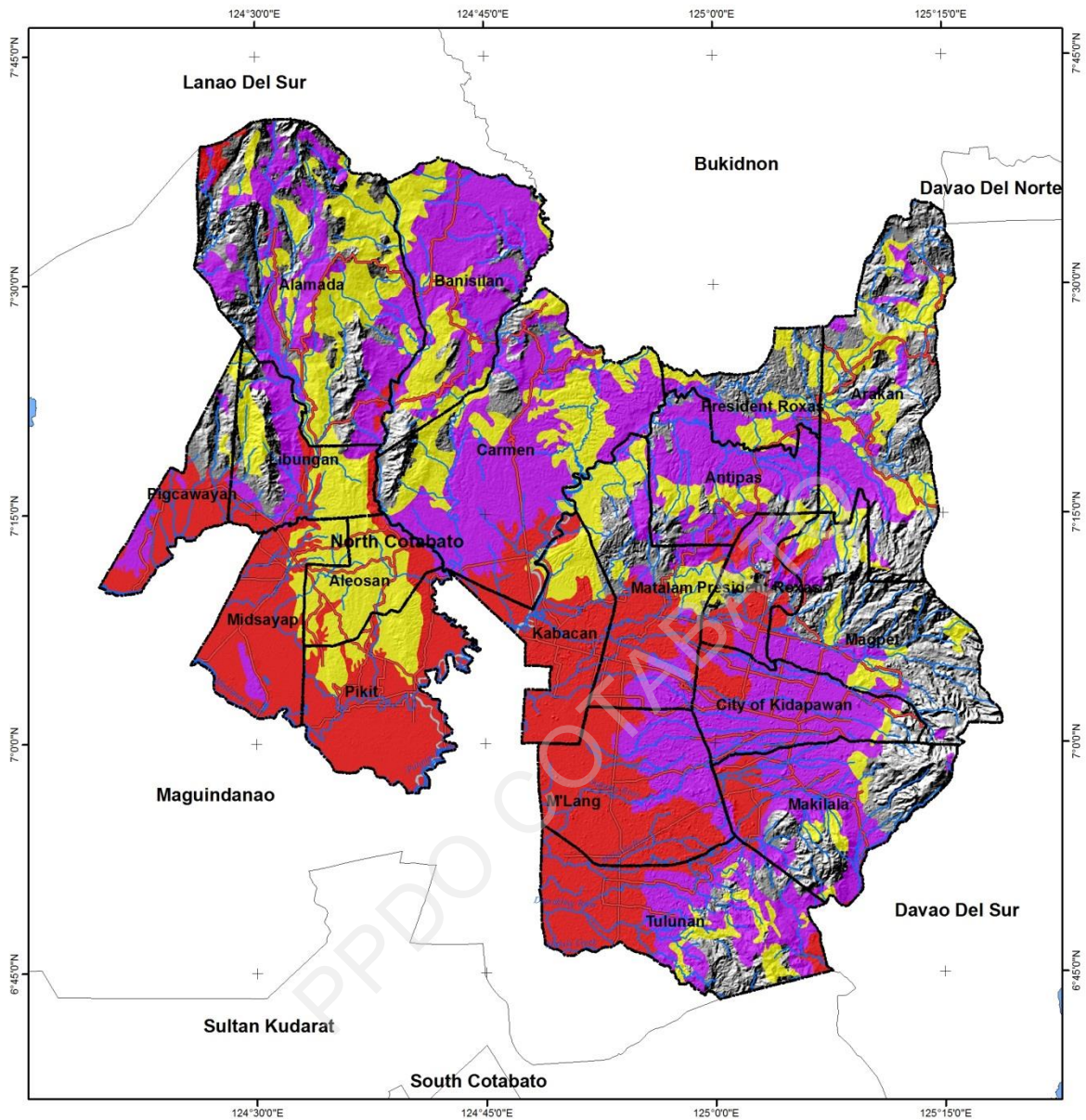
Based on the Hazard Map generated by MGB XII, 341 barangays in the province are highly susceptible to flood. Of the total land area of the province (656,590 hectares 149,345.37 or 22 % is considered highly susceptible to flooding. Most of these barangays are situated in the low lying areas of the municipalities of Carmen, Kabacan, Libungan, Magpet, Kidapawan City, M'lang, Makilala, Matalam, Midsayap, Pikit, Pigcawayan, Pres. Roxas and Tulunan. This is aggravated by the clogging of the Ligawasan Marsh by water hyacinth causing backflow thus flooding areas along the marsh. Most affected are rice farmers and fisherfolk.

Those that are rated as moderately susceptible are some barangays in the municipalities of Matalam, Pigcawayan, Makilala, Magpet, Banisilan, Kidapawan City, Alamada, and Antipas. Most vulnerable are those areas or communities along major tributaries. The siltation of these rivers makes it more prone to overflowing because of their decreased capacity to hold water.

The least that are affected by flooding are municipalities in the higher portions of Mt. Apo, however they are also prone to landslides and erosion.

In some areas, flooding could be attributed to defective drainage system, poor waste management and cultural practices.

Map No. 5: Flood Susceptibility Hazard Map



BASE DATA LEGEND
 Provincial Boundaries
 Rivers
 City/Municipal Boundaries

SUSCEPTIBILITY
 High
 Low
 Moderate
 Not Susceptible
 River

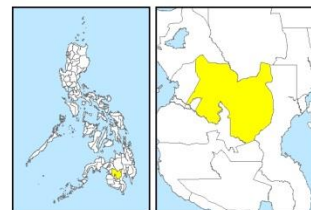
FLOOD HAZARD MAP



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. 3: Flood Susceptibility Hazard Map

Municipalities	Susceptibility						Total Affected Area (Has)
	High		Moderate		Low		
	No. of Brgys.	Area (Has.)	No. of Brgys.	Area (Has.)	No. of Brgys.	Area (Has.)	
Alamada	6	1,748.12	13	23,449.64	17	48,820.16	75,766.03
Aleosan	13	2,503.73	4	632.30	19	12,260.32	15,396.35
Antipas	2	364.38	13	17,235.80	11	4,022.19	21,622.37
Arakan	0	0.00	27	9,503.22	27	13,530.75	23,033.96
Banisilan	2	158.64	20	25,984.09	16	10,959.22	37,101.95
Carmen	16	5,389.54	26	35,586.86	14	17,510.14	58,486.54
Kabacan	22	17,417.49	1	79.38	9	4,189.94	21,686.81
Kidapawan City	10	2,535.03	40	19,387.28	6	550.50	22,472.81
Libungan	19	3,976.35	16	6,533.56	11	8,571.78	19,081.69
Magpet	4	1,014.49	22	8,078.07	16	6,169.90	15,261.46
M'lang	33	24,251.20	20	11,163.80	0	0	35,415.00
Makilala	12	4,215.26	35	15,830.01	13	2,454.08	22,499.36
Matalam	27	11,464.36	25	8,866.73	9	7,970.44	28,301.53
Midsayap	53	19,273.22	7	1,127.67	20	3,867.39	24,268.29
Pigcawayan	38	8,867.35	25	2,650.03	2	742.01	12,259.38
Pikit	42	24,754.89	1	203.58	15	6,676.35	31,774.25
Pres. Roxas	16	4,434.75	15	9,598.06	14	6,595.71	20,628.52
Tulunan	26	16,976.57	15	16,281.35	7	4,469.54	37,727.47
TOTAL	341	149,345.37	325	205,657.87	226	159,360.42	522,783.77

The above-mentioned areas are considered as the Special Area for Agricultural Development Zone of the province mainly planted with major crops like palsy, corn and coconut. Since the occurrence of these floods, agricultural activities were greatly affected and the provincial economy was hampered.