

CLIMATE AND DISASTER RISK ASSESSMENT

PROVINCE OF MISAMIS OCCIDENTAL
MUNICIPALITY OF TUDELA

Climate and Disaster Risk Assessment of Tudela

Annex to the Comprehensive Land Use Plan
Planning period 2025-2031
Generated 8 September 2026

SAMPLE DATA - NOT FOR SUBMISSION

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This document contains seeded sample data (adaptive_capacity, cbms, costs, facilities, land_use). It is for testing o

1. Introduction

This Climate and Disaster Risk Assessment covers the 33 barangays of the Municipality of Tudela, Province of Misamis Occidental (PSGC 1004216000). It is prepared as an annex to the Comprehensive Land Use Plan in accordance with the Department of Human Settlements and Urban Development Supplemental Guidelines (DHSUD-2025.1), and follows the eight-table scoring sequence those guidelines set out.

Every figure in this document is traceable to a named source and a dated request. The source register in the final section lists each dataset, the agency that publishes it, the service endpoint it was retrieved from, and what it was used for. Nothing here is entered by hand except the datasets the local government supplied, and those are identified as such.

1.1 Status of this assessment

Table A. Completeness of this assessment at the time of generation

Measure	Value
Hazards applicable to this municipality	10
Hazards with computed exposure	4
Datasets still outstanding	11
Stage reached	Partial exposure
Risk assessment	Scored
Ready for submission	No

This is a working draft. It is not submittable until the LGU datasets are loaded, risk is scored, and the MPDO has signed off.

2. The Municipality

Table B. Profile of the municipality

Attribute	Value
Municipality	Tudela
Classification	Municipality
Province	Misamis Occidental
Region	Region X (Northern Mindanao)
PSGC code	1004216000
Barangays	33
Has a coastline	Yes

Attribute	Value
Land area, GIS extent	11,501.5 ha
Boundary source	faeldon/philippines-json-maps PSGC 2023-12-31 (PSA/NAMRIA via faeldon, MIT)

2.1 Barangays

Table C. Barangays, land area and population

Barangay	Class	Area (ha)	Population	Households
Balon	Urban	543.5	3,488	758
Barra	Urban	35.6	369	80
Basirang	Urban	282.5	4,049	880
Bongabong	Urban	318.2	2,757	599
Buenavista	Rural	493.0	6,223	1,353
Cabol-anonan	Rural	60.7	422	92
Cahayag	Rural	165.1	1,802	392
Calambutan Bajo	Rural	376.4	5,596	1,217
Calambutan Settlement	Rural	392.3	3,609	785
Camating	Rural	445.5	5,861	1,274
Canibungan Proper	Rural	412.1	3,085	671
Casilak San Agustin	Rural	453.3	5,188	1,128
Centro Hulpa	Rural	33.5	516	112
Centro Napu	Rural	59.3	577	125
Centro Upper	Rural	21.7	300	65
Duanguican	Rural	227.4	1,824	397
Gala	Rural	1,643.6	19,692	4,281
Gumbil	Rural	236.8	3,775	821
Locso-on	Rural	186.1	1,911	415
Maikay	Rural	193.4	2,751	598
Maribojoc	Rural	232.2	1,987	432
Mitugas	Rural	796.7	9,971	2,168
Nailon	Rural	157.4	1,077	234
Namut	Rural	2,214.3	23,923	5,201
Napurog	Rural	157.9	2,331	507
Pan-ay Diot	Rural	74.3	676	147
San Nicolas	Rural	287.1	3,746	814
Sebac	Rural	57.8	427	93
Silongon	Rural	394.2	4,470	972

Barangay	Class	Area (ha)	Population	Households
Sinuza	Rural	282.1	4,316	938
Taguima	Rural	69.4	668	145
Tigdok	Rural	94.6	1,285	279
Yahong	Rural	100.7	797	173

Source: Barangay outlines and areas from the national administrative boundary dataset; population and households as supplied by the local government.

Total population across the barangays with figures supplied is 129,469 in 28,146 households.

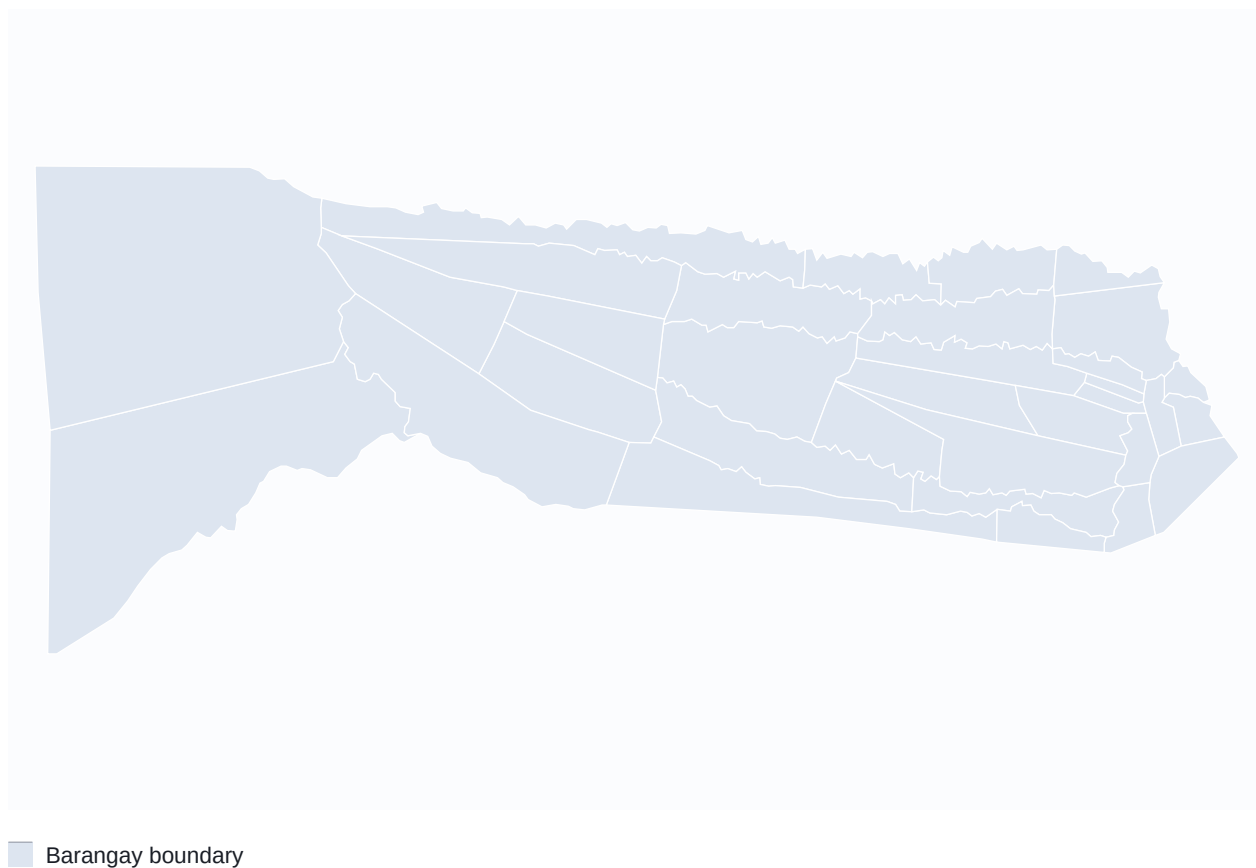


Figure 1. Barangay boundaries of the municipality.

3. Methodology

The assessment follows the DHSUD scoring sequence. Each barangay is scored for exposure to each hazard, for sensitivity and adaptive capacity, and those combine into a vulnerability score. Exposure and vulnerability give the severity of consequence, and severity multiplied by the likelihood of the hazard gives the risk score, which falls into one of four land-use control categories. The tables reproduced below are the published DHSUD thresholds, not this system's own.

severity of consequence = (exposure + vulnerability) / 2. risk score = likelihood x severity of consequence. Adaptive capacity is inverted: A is the strongest and scores 1. The severity table published by DHSUD is reproduced exactly by the formula above at all sixteen cells, which the test suite asserts cell by cell.

3.1 Likelihood of occurrence

Table 1. Indicative likelihood of occurrence (temporal probability) scores

Score	Rating	Return period	Probability in 50 years	Description
4	Likely	1-25 years	87%-100%	This event has occurred several times in your lifetime; it is expected to occur again within a short span.
3	Possible	25-100 years	40%-86%	The event may have occurred once or twice in your lifetime; it is possible to occur within a generation.
2	Unlikely	10-30 years	22.1%-39%	The event is unlikely to be experienced within a lifetime, but records show it has occurred before.
1	Rare	30-100 years	2%-22%	The event is possible but not expected to occur except under exceptional circumstances.

Source: DHSUD

3.2 Exposure

Table 2. Exposure scores by share of the unit affected

Score	Rating	Area or population affected	Nominal
4	Very high	>15% affected	Yes
3	High	11-15% affected	-
2	Moderate	6-10% affected	-
1	Low	0-5% affected	No

Source: DHSUD

Table 3. Exposure thresholds by exposure unit

Exposure unit	Parameter	Score	Threshold
Population	Affected population	4	>20%
Population	Affected population	3	10.01-20%
Population	Affected population	2	5.01-10%
Population	Affected population	1	<=5%
Critical Point Facilities	Affected facility	4	100% (yes)
Critical Point Facilities	Affected facility	1	0% (no)
Lifeline Utilities	Affected area	4	>40%
Lifeline Utilities	Affected area	3	20.01-40%
Lifeline Utilities	Affected area	2	10.01-20%
Lifeline Utilities	Affected area	1	<=10%
Urban Use Areas	Affected area	4	>40%
Urban Use Areas	Affected area	3	20.01-40%
Urban Use Areas	Affected area	2	10.01-20%
Urban Use Areas	Affected area	1	<=10%

Exposure unit	Parameter	Score	Threshold
Natural Resource-based Production	Affected area	4	>40%
Natural Resource-based Production	Affected area	3	20.01-40%
Natural Resource-based Production	Affected area	2	10.01-20%
Natural Resource-based Production	Affected area	1	<=10%

Source: DHSUD

3.3 Sensitivity and adaptive capacity

Table 4. Sensitivity scores

Score	Rating	Share of the unit that is sensitive
4	Very high	>15% sensitive
3	High	11-15% sensitive
2	Moderate	6-10% sensitive
1	Low	0-5% sensitive

Source: DHSUD

Table 5. Adaptive capacity scores

Code	Score	Rating	Descriptive criterion
A	1	Very high	Local government is implementing existing regulations on hazard mitigation and structural design and monitors compliance thereof
B	2	High	Local government is implementing existing regulations on hazard mitigation and structural design
C	3	Moderate	Local government has existing regulations on hazard mitigation and structural design
D	4	Low	Local government has no regulations on hazard mitigation and structural design

Source: DHSUD. Note the inversion: code A is the strongest capacity and scores 1, because the score feeds a vulnerability index in which a higher number is worse.

3.4 Vulnerability, severity and risk

Table 6. Vulnerability index converted to a vulnerability score

Index	Score	Rating
up to 0.50	0.25	Very low vulnerability
up to 1.00	0.50	Low vulnerability
up to 2.00	0.75	Moderate vulnerability
up to 4.00	1.00	High vulnerability

Source: DHSUD

Table 7. Severity of consequence, by exposure and vulnerability score

	Vulnerability 4	Vulnerability 3	Vulnerability 2	Vulnerability 1
Exposure 4	4.00	3.50	3.00	2.50
Exposure 3	3.50	3.00	2.50	2.00
Exposure 2	3.00	2.50	2.00	1.50
Exposure 1	2.50	2.00	1.50	1.00

Source: DHSUD

Table 8. Risk categories and the corresponding land-use control

Risk score	Category	Land-use control
12.00 - 16.00	Very High-Risk Areas	Prohibited
7.00 - 11.99	High Risk Areas	Discretionary
3.00 - 6.99	Moderate Risk Areas	Conditional
1.00 - 2.99	Low Risk Areas	Permitted

Source: DHSUD

4. Hazards

Every hazard applicable to this municipality appears below, whether or not its exposure could be computed. A hazard omitted because its data could not be retrieved would be indistinguishable from a hazard that does not occur here, and those are opposite conclusions.

Table D. Hazards assessed, their sources and their status

Hazard	Group	Publishing agency	Status	Coverage
Flood	hydrometeorological	DENR-MGB	Computed	32 of 33 barangays
Rain-induced Landslide	hydrometeorological	DENR-MGB	Computed	29 of 33 barangays
Drought	hydrometeorological	DAAGASA	Pending	-
Storm Surge	hydrometeorological	DAAGASA / Project NOAH	Pending	-
Sea Level Rise	hydrometeorological	DAAGASA	Pending	-
Ground Shaking	geological	PHIVOLCS	Computed	33 of 33 barangays
Liquefaction	geological	PHIVOLCS	Computed	17 of 33 barangays
Earthquake-induced Landslide	geological	PHIVOLCS	Pending	-
Ground Rupture	geological	PHIVOLCS	Pending	-
Tsunami	geological	PHIVOLCS	Manual	-

4.1 Flood

Susceptibility polygons published by DENR-MGB were clipped to each barangay and the share of the barangay in each susceptibility class measured. 32 of the 33 barangays carry at least one susceptibility class. The measurement used 18 features retrieved on 2026-09-08 from the FloodSusc field.

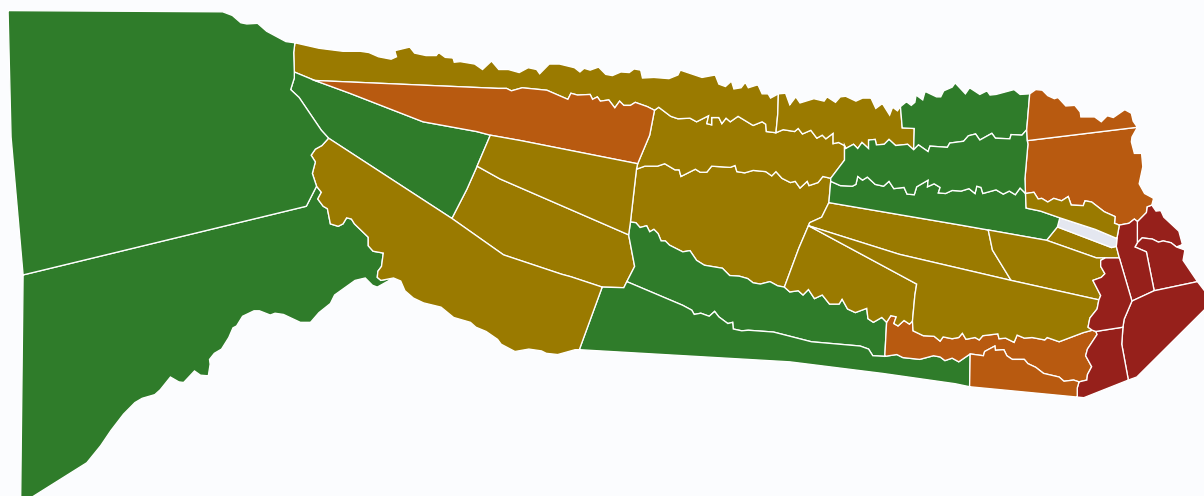


Figure 2. Flood susceptibility by barangay, banded to the DHSUD exposure scores.

Table 4.1. Flood: susceptible share by barangay

Barangay	Area (ha)	Susceptible share	Worst class	Exposure score
Balon	543.5	14.8%	HF	2
Barra	35.6	94.6%	HF	4
Basirang	282.5	32.8%	HF	3
Bongabong	318.2	17.3%	HF	2
Buenavista	493.0	17.3%	HF	2
Cabol-anonan	60.7	98.7%	HF	4
Cahayag	165.1	10.6%	HF	2
Calambutan Bajo	376.4	16.6%	HF	2
Calambutan Settlement	392.3	6.3%	HF	1
Camating	445.5	20.6%	HF	3
Canibungan Proper	412.1	8.8%	HF	1
Casilak San Agustin	453.3	8.5%	HF	1
Centro Hulpa	33.5	18.7%	HF	2
Centro Napu	59.3	99.0%	HF	4

Barangay	Area (ha)	Susceptible share	Worst class	Exposure score
Duanguican	227.4	11.5%	HF	2
Gala	1,643.6	4.3%	HF	1
Gumbil	236.8	7.6%	HF	1
Locso-on	186.1	22.8%	HF	3
Maikay	193.4	7.3%	HF	1
Maribojoc	232.2	16.5%	HF	2
Mitugas	796.7	15.0%	HF	2
Nailon	157.4	99.6%	HF	4
Namut	2,214.3	4.8%	HF	1
Napurog	157.9	15.4%	HF	2
Pan-ay Diot	74.3	100.0%	HF	4
San Nicolas	287.1	9.3%	HF	1
Sebac	57.8	12.5%	HF	2
Silongon	394.2	13.3%	HF	2
Sinuza	282.1	18.6%	HF	2
Taguima	69.4	99.9%	HF	4
Tigdok	94.6	29.3%	HF	3
Yahong	100.7	21.2%	HF	3

Source: DENR-Mines and Geosciences Bureau

4.2 Rain-induced Landslide

Susceptibility polygons published by DENR-MGB were clipped to each barangay and the share of the barangay in each susceptibility class measured. 29 of the 33 barangays carry at least one susceptibility class. The measurement used 205 features retrieved on 2026-09-08 from the LndslideSusc field.

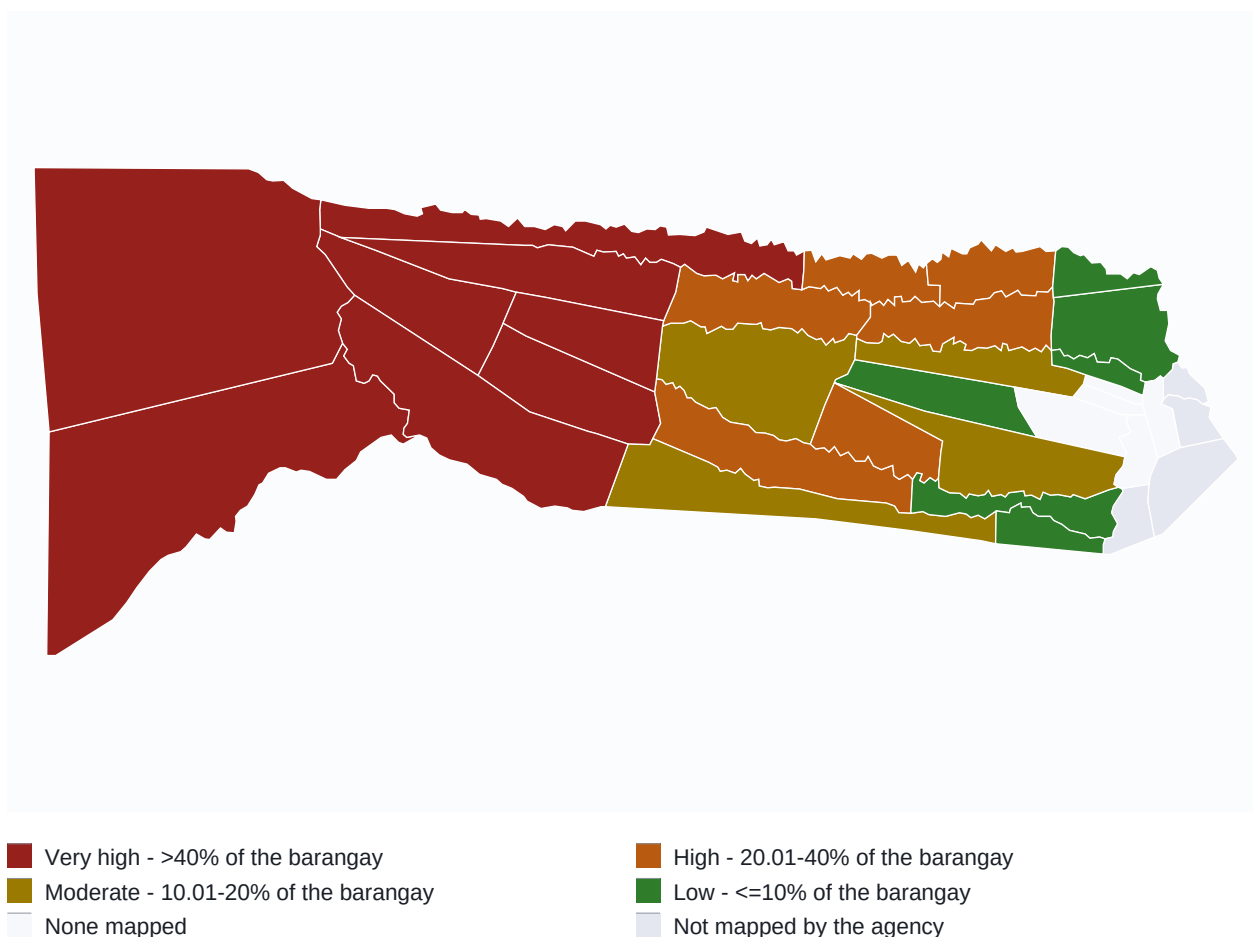


Figure 3. Rain-induced Landslide susceptibility by barangay, banded to the DHSUD exposure scores.

Table 4.2. Rain-induced Landslide: susceptible share by barangay

Barangay	Area (ha)	Susceptible share	Worst class	Exposure score
Balon	543.5	15.6%	HL	2
Basirang	282.5	3.7%	HL	1
Bongabong	318.2	38.7%	HL	3
Buenavista	493.0	56.6%	HL	4
Cahayag	165.1	32.6%	HL	3
Calambutan Bajo	376.4	81.6%	HL	4
Calambutan Settlement	392.3	93.7%	HL	4
Camating	445.5	69.9%	HL	4
Canibungan Proper	412.1	21.6%	HL	3
Casilak San Agustin	453.3	16.6%	HL	2
Centro Hulpa	33.5	0.0%	LL	1
Centro Napu	59.3	0.0%	LL	1
Centro Upper	21.7	0.0%	LL	1
Duanguican	227.4	3.0%	HL	1

Barangay	Area (ha)	Susceptible share	Worst class	Exposure score
Gala	1,643.6	95.7%	HL	4
Gumbil	236.8	13.8%	HL	2
Locso-on	186.1	9.3%	HL	1
Maikay	193.4	20.4%	HL	3
Maribojoc	232.2	34.1%	HL	3
Mitugas	796.7	84.5%	HL	4
Namut	2,214.3	95.2%	HL	4
Napurog	157.9	0.0%	LL	1
San Nicolas	287.1	23.8%	HL	3
Sebac	57.8	9.5%	HL	1
Silongon	394.2	18.5%	HL	2
Sinuza	282.1	51.7%	HL	4
Taguima	69.4	0.0%	LL	1
Tigdok	94.6	7.7%	HL	1
Yahong	100.7	4.5%	ML	1

Source: DENR-Mines and Geosciences Bureau

4.3 Drought

No automated source is wired up for this hazard yet.

4.4 Storm Surge

No automated source is wired up for this hazard yet.

4.5 Sea Level Rise

No automated source is wired up for this hazard yet.

4.6 Ground Shaking

Susceptibility polygons published by PHIVOLCS were clipped to each barangay and the share of the barangay in each susceptibility class measured. 33 of the 33 barangays carry at least one susceptibility class. The measurement used 0 features retrieved on 2026-09-08 from the peiscode field.

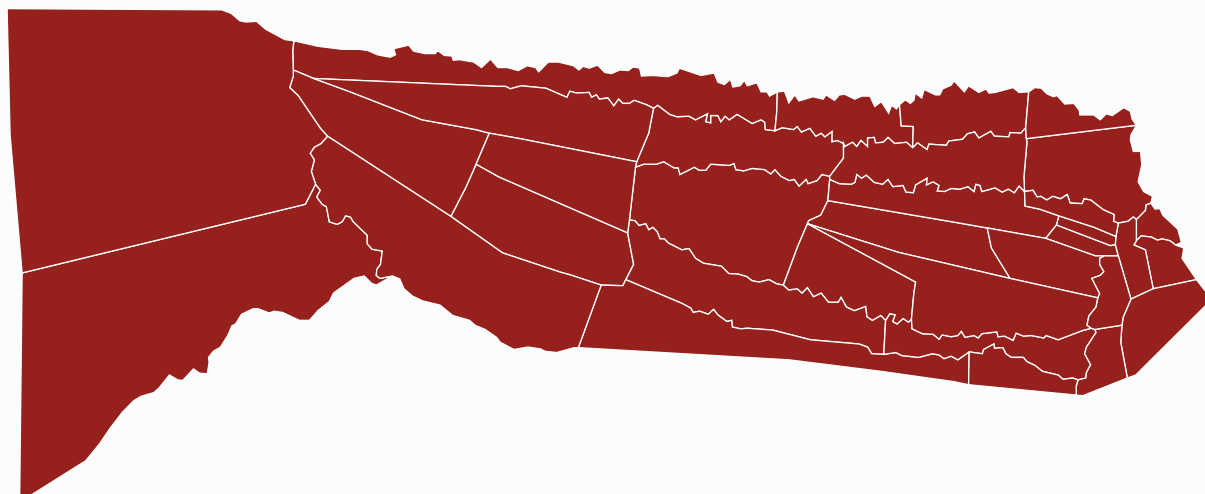


Figure 4. Ground Shaking susceptibility by barangay, banded to the DHSUD exposure scores.

Table 4.6. Ground Shaking: susceptible share by barangay

Barangay	Area (ha)	Susceptible share	Worst class	Exposure score
Balon	543.5	100.0%	VIII	4
Barra	35.6	100.0%	VIII	4
Basirang	282.5	100.0%	VIII	4
Bongabong	318.2	100.0%	VIII	4
Buenavista	493.0	100.0%	VIII	4
Cabol-anonan	60.7	100.0%	VIII	4
Cahayag	165.1	100.0%	VIII	4
Calambutan Bajo	376.4	100.0%	VIII	4
Calambutan Settlement	392.3	100.0%	VIII	4
Camating	445.5	100.0%	VIII	4
Canibungan Proper	412.1	100.0%	VIII	4
Casilak San Agustin	453.3	100.0%	VIII	4
Centro Hulpa	33.5	100.0%	VIII	4
Centro Napu	59.3	100.0%	VIII	4

Barangay	Area (ha)	Susceptible share	Worst class	Exposure score
Centro Upper	21.7	100.0%	VIII	4
Duanguican	227.4	100.0%	VIII	4
Gala	1,643.6	100.0%	VII	4
Gumbil	236.8	100.0%	VIII	4
Locso-on	186.1	100.0%	VIII	4
Maikay	193.4	100.0%	VIII	4
Maribojoc	232.2	100.0%	VIII	4
Mitugas	796.7	100.0%	VIII	4
Nailon	157.4	100.0%	VIII	4
Namut	2,214.3	100.0%	VIII	4
Napurog	157.9	100.0%	VIII	4
Pan-ay Diot	74.3	100.0%	VIII	4
San Nicolas	287.1	100.0%	VIII	4
Sebac	57.8	100.0%	VIII	4
Silongon	394.2	100.0%	VIII	4
Sinuzza	282.1	100.0%	VIII	4
Taguima	69.4	100.0%	VIII	4
Tigdok	94.6	100.0%	VIII	4
Yahong	100.7	100.0%	VIII	4

Source: DOST-PHIVOLCS

4.7 Liquefaction

Susceptibility polygons published by PHIVOLCS were clipped to each barangay and the share of the barangay in each susceptibility class measured. 17 of the 33 barangays carry at least one susceptibility class. The measurement used 1 features retrieved on 2026-09-08 from the lccode field.

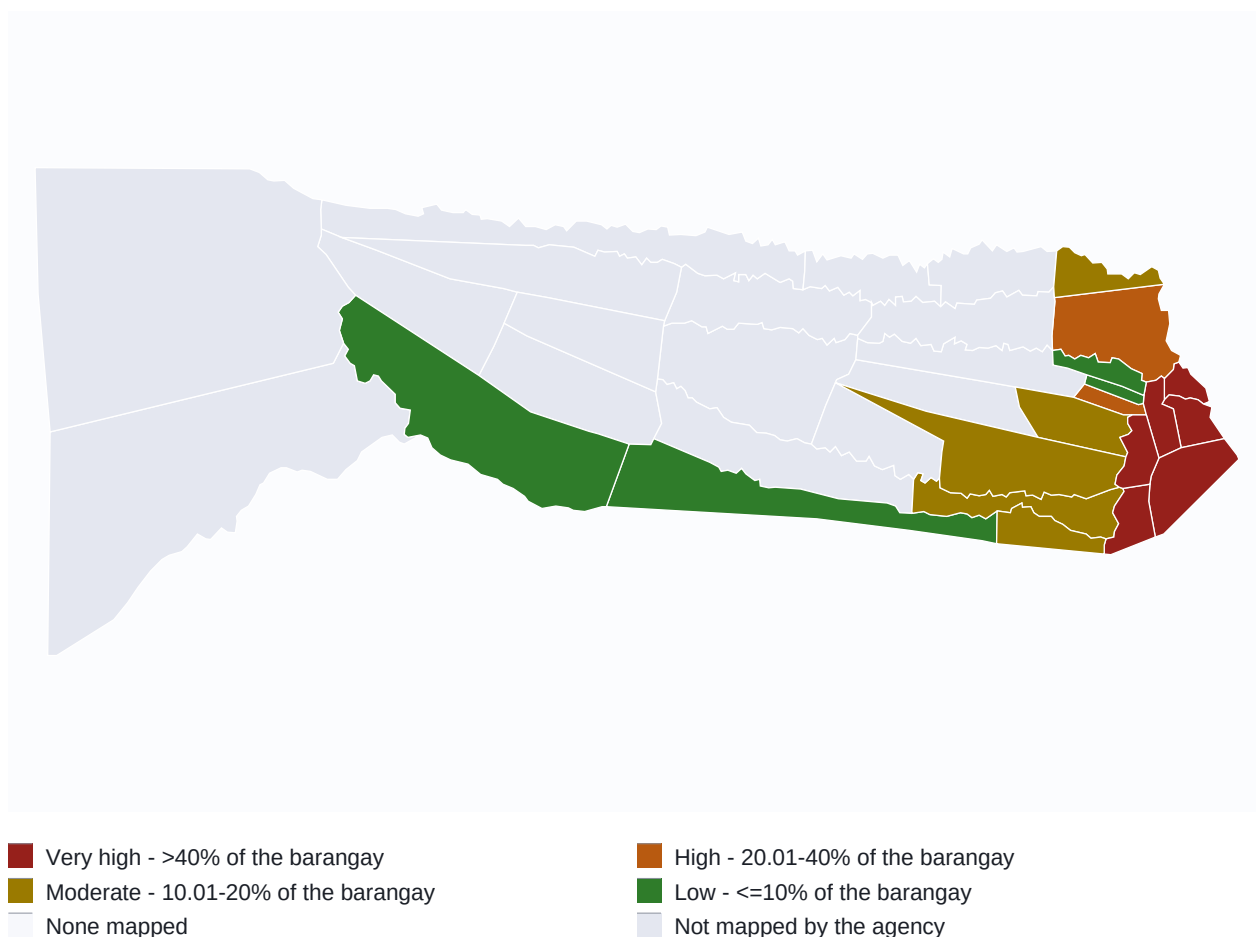


Figure 5. Liquefaction susceptibility by barangay, banded to the DHSUD exposure scores.

Table 4.7. Liquefaction: susceptible share by barangay

Barangay	Area (ha)	Susceptible share	Worst class	Exposure score
Barra	35.6	100.0%	Generally Susceptible	4
Basirang	282.5	29.0%	Generally Susceptible	3
Cabol-anonan	60.7	99.7%	Generally Susceptible	4
Casilak San Agustin	453.3	0.0%	Generally Susceptible	1
Centro Hulpa	33.5	21.7%	Generally Susceptible	3
Centro Napu	59.3	100.0%	Generally Susceptible	4
Centro Upper	21.7	5.1%	Generally Susceptible	1
Locso-on	186.1	17.3%	Generally Susceptible	2
Mitugas	796.7	1.1%	Generally Susceptible	1
Nailon	157.4	100.0%	Generally Susceptible	4
Napurog	157.9	13.7%	Generally Susceptible	2
Pan-ay Diot	74.3	100.0%	Generally Susceptible	4
Sebac	57.8	1.2%	Generally Susceptible	1
Silongon	394.2	10.4%	Generally Susceptible	2

Barangay	Area (ha)	Susceptible share	Worst class	Exposure score
Taguima	69.4	100.0%	Generally Susceptible	4
Tigdok	94.6	16.8%	Generally Susceptible	2
Yahong	100.7	11.4%	Generally Susceptible	2

Source: DOST-PHIVOLCS (as of July 2018)

4.8 Earthquake-induced Landslide

No automated source is wired up for this hazard yet.

4.9 Ground Rupture

No automated source is wired up for this hazard yet.

4.10 Tsunami

The publishing agency will not serve this layer for computation, so susceptibility has to be entered per barangay by the planner.

5. Exposure Database

The exposure database is the barangay-by-hazard matrix the rest of the assessment is built on. A dash means the agency publishes no polygon covering that barangay for that hazard; it does not mean the barangay is not susceptible.

Table E. Susceptible share and exposure score, by barangay and hazard

Barangay	Flood	Rain-induced Landslide	Ground Shaking	Liquefaction
Balon	14.8% (2)	15.6% (2)	100.0% (4)	-
Barra	94.6% (4)	-	100.0% (4)	100.0% (4)
Basirang	32.8% (3)	3.7% (1)	100.0% (4)	29.0% (3)
Bongabong	17.3% (2)	38.7% (3)	100.0% (4)	-
Buenavista	17.3% (2)	56.6% (4)	100.0% (4)	-
Cabol-anonan	98.7% (4)	-	100.0% (4)	99.7% (4)
Cahayag	10.6% (2)	32.6% (3)	100.0% (4)	-
Calambutan Bajo	16.6% (2)	81.6% (4)	100.0% (4)	-
Calambutan Settlement	6.3% (1)	93.7% (4)	100.0% (4)	-
Camating	20.6% (3)	69.9% (4)	100.0% (4)	-
Canibungan Proper	8.8% (1)	21.6% (3)	100.0% (4)	-
Casilak San Agustin	8.5% (1)	16.6% (2)	100.0% (4)	0.0% (1)
Centro Hulpa	18.7% (2)	0.0% (1)	100.0% (4)	21.7% (3)
Centro Napu	99.0% (4)	0.0% (1)	100.0% (4)	100.0% (4)
Centro Upper	-	0.0% (1)	100.0% (4)	5.1% (1)

Barangay	Flood	Rain-induced Landslide	Ground Shaking	Liquefaction
Duanguican	11.5% (2)	3.0% (1)	100.0% (4)	-
Gala	4.3% (1)	95.7% (4)	100.0% (4)	-
Gumbil	7.5% (1)	13.8% (2)	100.0% (4)	-
Locso-on	22.8% (3)	9.3% (1)	100.0% (4)	17.3% (2)
Maikay	7.3% (1)	20.4% (3)	100.0% (4)	-
Maribojoc	16.5% (2)	34.1% (3)	100.0% (4)	-
Mitugas	15.0% (2)	84.5% (4)	100.0% (4)	1.1% (1)
Nailon	99.6% (4)	-	100.0% (4)	100.0% (4)
Namut	4.8% (1)	95.2% (4)	100.0% (4)	-
Napurog	15.4% (2)	0.0% (1)	100.0% (4)	13.7% (2)
Pan-ay Diot	100.0% (4)	-	100.0% (4)	100.0% (4)
San Nicolas	9.3% (1)	23.8% (3)	100.0% (4)	-
Sebac	12.4% (2)	9.5% (1)	100.0% (4)	1.2% (1)
Silongon	13.3% (2)	18.5% (2)	100.0% (4)	10.4% (2)
Sinuza	18.6% (2)	51.7% (4)	100.0% (4)	-
Taguima	99.9% (4)	0.0% (1)	100.0% (4)	100.0% (4)
Tigdok	29.3% (3)	7.7% (1)	100.0% (4)	16.8% (2)
Yahong	21.2% (3)	4.5% (1)	100.0% (4)	11.4% (2)

Source: Computed from the agency hazard polygons clipped to the barangay outlines. The figure in brackets is the DHSUD exposure score that share earns.

6. Risk Assessment

Population and land-use exposure apply the barangay's susceptible AREA share to its population and its built-up area, because no source publishes where within a barangay people live. That is the standard simplification and the published CDRA makes it too, but it is an assumption rather than a measurement. Critical-facility exposure is the exception: those have coordinates, so it is a real point-in-polygon test.

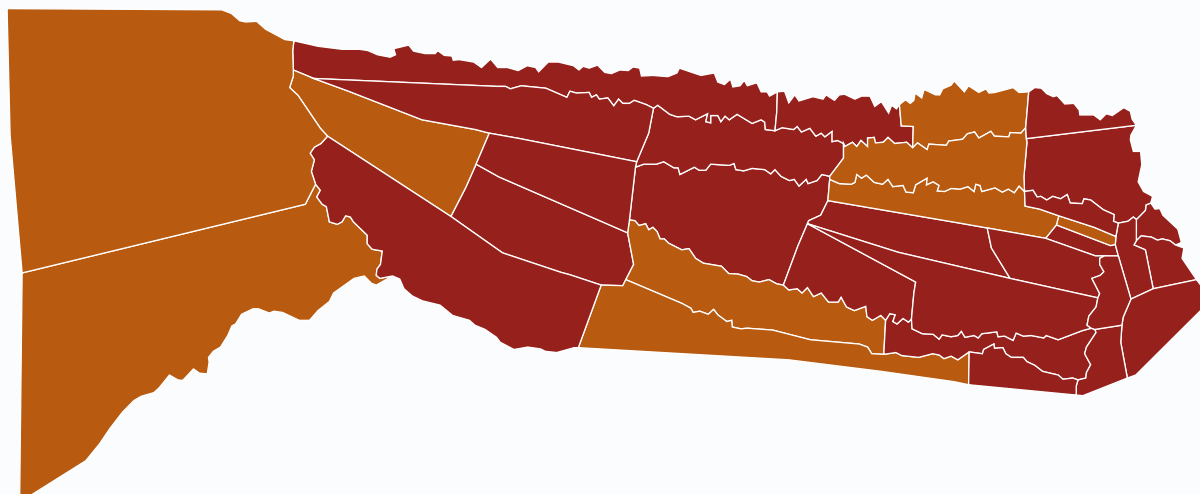


Figure R. Highest risk category reached in each barangay, across all hazards and exposure units.

Table F. Risk scores by barangay, hazard and exposure unit

Barangay	Hazard	Unit	E	S	AC	V	L	Sev	Risk	Category
Balon	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Balon	Flood	Urban Use Areas	2	1	3	0.25	4	1.50	6.00	Moderate
Barra	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Barra	Flood	Urban Use Areas	4	2	3	0.50	4	3.00	12.00	Very High
Basirang	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Basirang	Flood	Urban Use Areas	3	2	3	0.50	4	2.50	10.00	High
Bongabong	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Bongabong	Flood	Urban Use Areas	2	3	3	0.50	4	2.00	8.00	High
Buenavista	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Buenavista	Flood	Urban Use Areas	2	3	3	0.50	4	2.00	8.00	High
Cabol-anonan	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Cabol-anonan	Flood	Urban Use Areas	4	3	3	0.50	4	3.00	12.00	Very High
Cahayag	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Cahayag	Flood	Urban Use Areas	2	4	3	0.75	4	2.50	10.00	High
Calambutan Bajo	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Calambutan Bajo	Flood	Urban Use Areas	2	3	3	0.50	4	2.00	8.00	High

Barangay	Hazard	Unit	E	S	AC	V	L	Sev	Risk	Category
Calambutan Settlement	Flood	Population	2	4	3	0.75	4	2.50	10.00	High
Calambutan Settlement	Flood	Urban Use Areas	1	3	3	0.50	4	1.50	6.00	Moderate
Camating	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Camating	Flood	Urban Use Areas	3	3	3	0.50	4	2.50	10.00	High
Canibungan Proper	Flood	Population	2	4	3	0.75	4	2.50	10.00	High
Canibungan Proper	Flood	Urban Use Areas	1	4	3	0.75	4	2.00	8.00	High
Casilak San Agustin	Flood	Population	2	4	3	0.75	4	2.50	10.00	High
Casilak San Agustin	Flood	Urban Use Areas	1	2	3	0.50	4	1.50	6.00	Moderate
Centro Hulpa	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Centro Hulpa	Flood	Urban Use Areas	2	2	3	0.50	4	2.00	8.00	High
Centro Napu	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Centro Napu	Flood	Urban Use Areas	4	3	3	0.50	4	3.00	12.00	Very High
Duanguican	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Duanguican	Flood	Urban Use Areas	2	2	3	0.50	4	2.00	8.00	High
Gala	Flood	Population	1	4	3	0.75	4	2.00	8.00	High
Gala	Flood	Urban Use Areas	1	3	3	0.50	4	1.50	6.00	Moderate
Gumbil	Flood	Population	2	4	3	0.75	4	2.50	10.00	High
Gumbil	Flood	Urban Use Areas	1	3	3	0.50	4	1.50	6.00	Moderate
Locso-on	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Locso-on	Flood	Urban Use Areas	3	4	3	0.75	4	3.00	12.00	Very High
Maikay	Flood	Population	2	4	3	0.75	4	2.50	10.00	High
Maikay	Flood	Urban Use Areas	1	4	3	0.75	4	2.00	8.00	High
Maribojoc	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Maribojoc	Flood	Urban Use Areas	2	4	3	0.75	4	2.50	10.00	High
Mitugas	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Mitugas	Flood	Urban Use Areas	2	3	3	0.50	4	2.00	8.00	High
Nailon	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Nailon	Flood	Urban Use Areas	4	2	3	0.50	4	3.00	12.00	Very High
Namut	Flood	Population	1	4	3	0.75	4	2.00	8.00	High
Namut	Flood	Urban Use Areas	1	2	3	0.50	4	1.50	6.00	Moderate
Napurog	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Napurog	Flood	Urban Use Areas	2	2	3	0.50	4	2.00	8.00	High
Pan-ay Diot	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Pan-ay Diot	Flood	Urban Use Areas	4	3	3	0.50	4	3.00	12.00	Very High
San Nicolas	Flood	Population	2	4	3	0.75	4	2.50	10.00	High
San Nicolas	Flood	Urban Use Areas	1	3	3	0.50	4	1.50	6.00	Moderate
Sebac	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Sebac	Flood	Urban Use Areas	2	4	3	0.75	4	2.50	10.00	High
Silongon	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High

Barangay	Hazard	Unit	E	S	AC	V	L	Sev	Risk	Category
Silongon	Flood	Urban Use Areas	2	2	3	0.50	4	2.00	8.00	High
Sinuza	Flood	Population	3	4	3	0.75	4	3.00	12.00	Very High
Sinuza	Flood	Urban Use Areas	2	3	3	0.50	4	2.00	8.00	High
Taguima	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Taguima	Flood	Urban Use Areas	4	3	3	0.50	4	3.00	12.00	Very High
Tigdok	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Tigdok	Flood	Urban Use Areas	3	4	3	0.75	4	3.00	12.00	Very High
Yahong	Flood	Population	4	4	3	0.75	4	3.50	14.00	Very High
Yahong	Flood	Urban Use Areas	3	4	3	0.75	4	3.00	12.00	Very High
Balon	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Balon	Ground Shaking	Urban Use Areas	4	1	3	0.25	3	2.50	7.50	High
Barra	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Barra	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Basirang	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Basirang	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Bongabong	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Bongabong	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Buenavista	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Buenavista	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Cabol-anonan	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Cabol-anonan	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Cahayag	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Cahayag	Ground Shaking	Urban Use Areas	4	4	3	0.75	3	3.50	10.50	High
Calambutan Bajo	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Calambutan Bajo	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Calambutan Settlement	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Calambutan Settlement	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Camating	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Camating	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Canibungan Proper	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Canibungan Proper	Ground Shaking	Urban Use Areas	4	4	3	0.75	3	3.50	10.50	High
Casilak San Agustin	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Casilak San Agustin	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Centro Hulpa	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Centro Hulpa	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Centro Napu	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Centro Napu	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Centro Upper	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Centro Upper	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High

Barangay	Hazard	Unit	E	S	AC	V	L	Sev	Risk	Category
Duangucan	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Duangucan	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Gala	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Gala	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Gumbil	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Gumbil	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Locso-on	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Locso-on	Ground Shaking	Urban Use Areas	4	4	3	0.75	3	3.50	10.50	High
Maikay	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Maikay	Ground Shaking	Urban Use Areas	4	4	3	0.75	3	3.50	10.50	High
Maribojoc	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Maribojoc	Ground Shaking	Urban Use Areas	4	4	3	0.75	3	3.50	10.50	High
Mitugas	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Mitugas	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Nailon	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Nailon	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Namut	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Namut	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Napurog	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Napurog	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Pan-ay Diot	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Pan-ay Diot	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
San Nicolas	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
San Nicolas	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Sebac	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Sebac	Ground Shaking	Urban Use Areas	4	4	3	0.75	3	3.50	10.50	High
Silongon	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Silongon	Ground Shaking	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Sinuza	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Sinuza	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Taguima	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Taguima	Ground Shaking	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Tigdok	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Tigdok	Ground Shaking	Urban Use Areas	4	4	3	0.75	3	3.50	10.50	High
Yahong	Ground Shaking	Population	4	4	3	0.75	3	3.50	10.50	High
Yahong	Ground Shaking	Urban Use Areas	4	4	3	0.75	3	3.50	10.50	High
Barra	Liquefaction	Population	4	4	3	0.75	3	3.50	10.50	High
Barra	Liquefaction	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Basirang	Liquefaction	Population	4	4	3	0.75	3	3.50	10.50	High

Barangay	Hazard	Unit	E	S	AC	V	L	Sev	Risk	Category
Basirang	Liquefaction	Urban Use Areas	3	2	3	0.50	3	2.50	7.50	High
Cabol-anonan	Liquefaction	Population	4	4	3	0.75	3	3.50	10.50	High
Cabol-anonan	Liquefaction	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Casilak San Agustin	Liquefaction	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Casilak San Agustin	Liquefaction	Urban Use Areas	1	2	3	0.50	3	1.50	4.50	Moderate
Centro Hulpa	Liquefaction	Population	4	4	3	0.75	3	3.50	10.50	High
Centro Hulpa	Liquefaction	Urban Use Areas	3	2	3	0.50	3	2.50	7.50	High
Centro Napu	Liquefaction	Population	4	4	3	0.75	3	3.50	10.50	High
Centro Napu	Liquefaction	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Centro Upper	Liquefaction	Population	2	4	3	0.75	3	2.50	7.50	High
Centro Upper	Liquefaction	Urban Use Areas	1	2	3	0.50	3	1.50	4.50	Moderate
Locso-on	Liquefaction	Population	3	4	3	0.75	3	3.00	9.00	High
Locso-on	Liquefaction	Urban Use Areas	2	4	3	0.75	3	2.50	7.50	High
Mitugas	Liquefaction	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Mitugas	Liquefaction	Urban Use Areas	1	3	3	0.50	3	1.50	4.50	Moderate
Nailon	Liquefaction	Population	4	4	3	0.75	3	3.50	10.50	High
Nailon	Liquefaction	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Napurog	Liquefaction	Population	3	4	3	0.75	3	3.00	9.00	High
Napurog	Liquefaction	Urban Use Areas	2	2	3	0.50	3	2.00	6.00	Moderate
Pan-ay Diot	Liquefaction	Population	4	4	3	0.75	3	3.50	10.50	High
Pan-ay Diot	Liquefaction	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Sebac	Liquefaction	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Sebac	Liquefaction	Urban Use Areas	1	4	3	0.75	3	2.00	6.00	Moderate
Silongon	Liquefaction	Population	3	4	3	0.75	3	3.00	9.00	High
Silongon	Liquefaction	Urban Use Areas	2	2	3	0.50	3	2.00	6.00	Moderate
Taguima	Liquefaction	Population	4	4	3	0.75	3	3.50	10.50	High
Taguima	Liquefaction	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Tigdok	Liquefaction	Population	3	4	3	0.75	3	3.00	9.00	High
Tigdok	Liquefaction	Urban Use Areas	2	4	3	0.75	3	2.50	7.50	High
Yahong	Liquefaction	Population	3	4	3	0.75	3	3.00	9.00	High
Yahong	Liquefaction	Urban Use Areas	2	4	3	0.75	3	2.50	7.50	High
Balon	Rain-induced Landslide	Population	3	4	3	0.75	3	3.00	9.00	High
Balon	Rain-induced Landslide	Urban Use Areas	2	1	3	0.25	3	1.50	4.50	Moderate
Basirang	Rain-induced Landslide	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Basirang	Rain-induced Landslide	Urban Use Areas	1	2	3	0.50	3	1.50	4.50	Moderate
Bongabong	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High

Barangay	Hazard	Unit	E	S	AC	V	L	Sev	Risk	Category
Bongabong	Rain-induced Landslide	Urban Use Areas	3	3	3	0.50	3	2.50	7.50	High
Buenavista	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Buenavista	Rain-induced Landslide	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Cahayag	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Cahayag	Rain-induced Landslide	Urban Use Areas	3	4	3	0.75	3	3.00	9.00	High
Calambutan Bajo	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Calambutan Bajo	Rain-induced Landslide	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Calambutan Settlement	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Calambutan Settlement	Rain-induced Landslide	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Camating	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Camating	Rain-induced Landslide	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Canibungan Proper	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Canibungan Proper	Rain-induced Landslide	Urban Use Areas	3	4	3	0.75	3	3.00	9.00	High
Casilak San Agustin	Rain-induced Landslide	Population	3	4	3	0.75	3	3.00	9.00	High
Casilak San Agustin	Rain-induced Landslide	Urban Use Areas	2	2	3	0.50	3	2.00	6.00	Moderate
Centro Hulpa	Rain-induced Landslide	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Centro Hulpa	Rain-induced Landslide	Urban Use Areas	1	2	3	0.50	3	1.50	4.50	Moderate
Centro Napu	Rain-induced Landslide	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Centro Napu	Rain-induced Landslide	Urban Use Areas	1	3	3	0.50	3	1.50	4.50	Moderate
Centro Upper	Rain-induced Landslide	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Centro Upper	Rain-induced Landslide	Urban Use Areas	1	2	3	0.50	3	1.50	4.50	Moderate
Duanguican	Rain-induced Landslide	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Duanguican	Rain-induced Landslide	Urban Use Areas	1	2	3	0.50	3	1.50	4.50	Moderate
Gala	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Gala	Rain-induced Landslide	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High

Barangay	Hazard	Unit	E	S	AC	V	L	Sev	Risk	Category
Gumbil	Rain-induced Landslide	Population	3	4	3	0.75	3	3.00	9.00	High
Gumbil	Rain-induced Landslide	Urban Use Areas	2	3	3	0.50	3	2.00	6.00	Moderate
Locso-on	Rain-induced Landslide	Population	2	4	3	0.75	3	2.50	7.50	High
Locso-on	Rain-induced Landslide	Urban Use Areas	1	4	3	0.75	3	2.00	6.00	Moderate
Maikay	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Maikay	Rain-induced Landslide	Urban Use Areas	3	4	3	0.75	3	3.00	9.00	High
Maribojoc	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Maribojoc	Rain-induced Landslide	Urban Use Areas	3	4	3	0.75	3	3.00	9.00	High
Mitugas	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Mitugas	Rain-induced Landslide	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Namut	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Namut	Rain-induced Landslide	Urban Use Areas	4	2	3	0.50	3	3.00	9.00	High
Napurog	Rain-induced Landslide	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Napurog	Rain-induced Landslide	Urban Use Areas	1	2	3	0.50	3	1.50	4.50	Moderate
San Nicolas	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
San Nicolas	Rain-induced Landslide	Urban Use Areas	3	3	3	0.50	3	2.50	7.50	High
Sebac	Rain-induced Landslide	Population	2	4	3	0.75	3	2.50	7.50	High
Sebac	Rain-induced Landslide	Urban Use Areas	1	4	3	0.75	3	2.00	6.00	Moderate
Silongon	Rain-induced Landslide	Population	3	4	3	0.75	3	3.00	9.00	High
Silongon	Rain-induced Landslide	Urban Use Areas	2	2	3	0.50	3	2.00	6.00	Moderate
Sinuza	Rain-induced Landslide	Population	4	4	3	0.75	3	3.50	10.50	High
Sinuza	Rain-induced Landslide	Urban Use Areas	4	3	3	0.50	3	3.00	9.00	High
Taguima	Rain-induced Landslide	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Taguima	Rain-induced Landslide	Urban Use Areas	1	3	3	0.50	3	1.50	4.50	Moderate
Tigdok	Rain-induced Landslide	Population	2	4	3	0.75	3	2.50	7.50	High

Barangay	Hazard	Unit	E	S	AC	V	L	Sev	Risk	Category
Tigdok	Rain-induced Landslide	Urban Use Areas	1	4	3	0.75	3	2.00	6.00	Moderate
Yahong	Rain-induced Landslide	Population	1	4	3	0.75	3	2.00	6.00	Moderate
Yahong	Rain-induced Landslide	Urban Use Areas	1	4	3	0.75	3	2.00	6.00	Moderate

Source: E exposure, S sensitivity, AC adaptive capacity, V vulnerability, L likelihood, Sev severity of consequence. Computed by this system from the agency hazard data and the datasets the local government supplied.

6.1 Critical point facilities

Facility exposure is a point-in-polygon test against the hazard polygons, not a share applied to an area, so it is a measurement rather than an assumption.

Table G. Critical point facilities and their risk

Facility	Barangay	Hazard	Susceptibility	Risk	Category
Municipal Hall	Balon	Flood	-	-	-
Police Station	Balon	Flood	-	-	-
Municipal Health Centre	Balon	Flood	-	-	-
Fire Station	Balon	Flood	-	-	-
Central Elementary School	Balon	Flood	-	-	-
Public Market	Barra	Flood	HF	-	-
Covered Court Evacuation Centre	Barra	Flood	HF	-	-
District High School	Basirang	Flood	-	-	-
Barangay Health Station	Bongabong	Flood	-	-	-
Water Pumping Station	Buenavista	Flood	-	-	-
Fire Station	Balon	Liquefaction	-	-	-
Central Elementary School	Balon	Liquefaction	-	-	-
Municipal Hall	Balon	Liquefaction	-	-	-
Police Station	Balon	Liquefaction	-	-	-
Municipal Health Centre	Balon	Liquefaction	-	-	-
Public Market	Barra	Liquefaction	Generally Susceptible	-	-
Covered Court Evacuation Centre	Barra	Liquefaction	Generally Susceptible	-	-
District High School	Basirang	Liquefaction	-	-	-
Barangay Health Station	Bongabong	Liquefaction	-	-	-
Water Pumping Station	Buenavista	Liquefaction	-	-	-
Municipal Hall	Balon	Rain-induced Landslide	LL	-	-

Facility	Barangay	Hazard	Susceptibility	Risk	Category
Police Station	Balon	Rain-induced Landslide	LL		- -
Municipal Health Centre	Balon	Rain-induced Landslide	LL		- -
Fire Station	Balon	Rain-induced Landslide	LL		- -
Central Elementary School	Balon	Rain-induced Landslide	LL		- -
Covered Court Evacuation Centre	Barra	Rain-induced Landslide	-		- -
Public Market	Barra	Rain-induced Landslide	-		- -
District High School	Basirang	Rain-induced Landslide	LL		- -
Barangay Health Station	Bongabong	Rain-induced Landslide	LL		- -
Water Pumping Station	Buenavista	Rain-induced Landslide	LL		- -

Source: Point-in-polygon test against the agency hazard polygons.

7. What Is Still Needed

This section is deliberately prominent. An incomplete assessment that reads as complete is the failure with the worst consequences, because it gets submitted. Each row names the dataset that is missing, why it is missing, and which part of the assessment it blocks.

Table 1. Outstanding datasets

Area	What is needed	Why it is missing	What it blocks
Drought	A hazard source	No automated source is wired up for this hazard yet.	Everything for this hazard
Storm Surge	A hazard source	No automated source is wired up for this hazard yet.	Everything for this hazard
Sea Level Rise	A hazard source	No automated source is wired up for this hazard yet.	Everything for this hazard
Earthquake-induced Landslide	A hazard source	No automated source is wired up for this hazard yet.	Everything for this hazard
Ground Rupture	A hazard source	No automated source is wired up for this hazard yet.	Everything for this hazard
Tsunami	Per-barangay susceptibility class, entered by the planner	The publishing agency will not serve this layer for computation, so susceptibility has to be entered per barangay by the planner.	Exposure, and therefore risk, for this hazard

Area	What is needed	Why it is missing	What it blocks
Land use by barangay	Area by land-use category per barangay	Awaiting the LGU data upload.	Urban-use and natural-resource exposure units
Sensitivity (CBMS)	Informal settlers, light-material dwellings, dependants	Awaiting the LGU data upload.	The sensitivity half of vulnerability
Adaptive capacity	The DHSUD questionnaire, per hazard	Awaiting the LGU data upload.	The adaptive-capacity half of vulnerability
Critical facilities	Facility list with coordinates	Awaiting the LGU data upload.	Critical-facility exposure
Replacement costs	Unit cost per land-use category	Awaiting the LGU data upload.	Damage estimates

8. Sources and Terms

Every figure in this assessment traces to one of the datasets below. The endpoint column records the service the data was retrieved from, so any figure can be checked against the publishing agency directly.

Table J. Source register

Dataset	Agency	Vintage or attribution	Retrieved	Used for
Administrative boundaries	faeldon/philippines-json	PSAPs 2023-12-31 (PSA/NAMRIA via faeldon, MIT)	-	Municipality outline, barangay polygons, all area computations
Tsunami Hazard	PHIVOLCS	DOST-PHIVOLCS	2026-09-08 14:20	Susceptibility class share per barangay
Liquefaction Susceptibility	PHIVOLCS	DOST-PHIVOLCS (as of July 2018)	2026-09-08 14:17	Susceptibility class share per barangay
Ground Shaking (Deterministic)	PHIVOLCS	DOST-PHIVOLCS	2026-09-08 14:17	Susceptibility class share per barangay
Rain-induced Landslide Susceptibility	DENR-MGB	DENR-Mines and Geosciences Bureau	2026-09-08 14:14	Susceptibility class share per barangay
Flood Susceptibility	DENR-MGB	DENR-Mines and Geosciences Bureau	2026-09-08 14:14	Susceptibility class share per barangay

8.1 Terms

Table K. Terms used in this assessment

Term	Meaning
Exposure	The share of a barangay's people, area or facilities that falls inside a hazard-susceptible polygon, scored 1 to 4.
Sensitivity	The share of the exposed unit that is more easily harmed - informal settlers, light-material dwellings, dependants - scored 1 to 4.
Adaptive capacity	The local government's regulatory and institutional capacity to reduce harm, coded A to D and scored 1 to 4, inverted so that A scores 1.
Vulnerability	Sensitivity and adaptive capacity combined through the DHSUD vulnerability index, scored 0.25 to 1.00.

Term	Meaning
Severity of consequence	Exposure and vulnerability combined: (exposure + vulnerability) / 2.
Likelihood	The temporal probability of the hazard, from its return period, scored 1 to 4.
Risk score	Likelihood multiplied by severity of consequence, from 1 to 16.