Ecotown Approach to Climate Change-Adaptive Local Government Planning in Selected Municipalities in the Philippines

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PRESENTATION OUTLINE

- **Why Ecotown?**
- **What is Ecotown?**
- **How is Ecotown implemented?**

Why ECOTOWN?


3 NOVEMBER 2013
Supertyphoon HAIYAN
(strongest ever recorded storm to make a landfall)
HIT THE PHILIPPINES

5,240 confirmed dead, 1,613 missing

NDRRMC YOLANDA STATISTICS AS OF Nov. 26, 2013

Death Toll = 5,240

Injured = 25,615

Missing = 1,613

People affected = 2.178 million families or 9.927 million people

Displaced = 752,279 families or 3.394 million people displaced

People in evacuation centers = 52,983 families 240,377 people

No. of evacuation centers = 1,092

Cost of damage to agriculture and infrastructure = P24.539 billion.

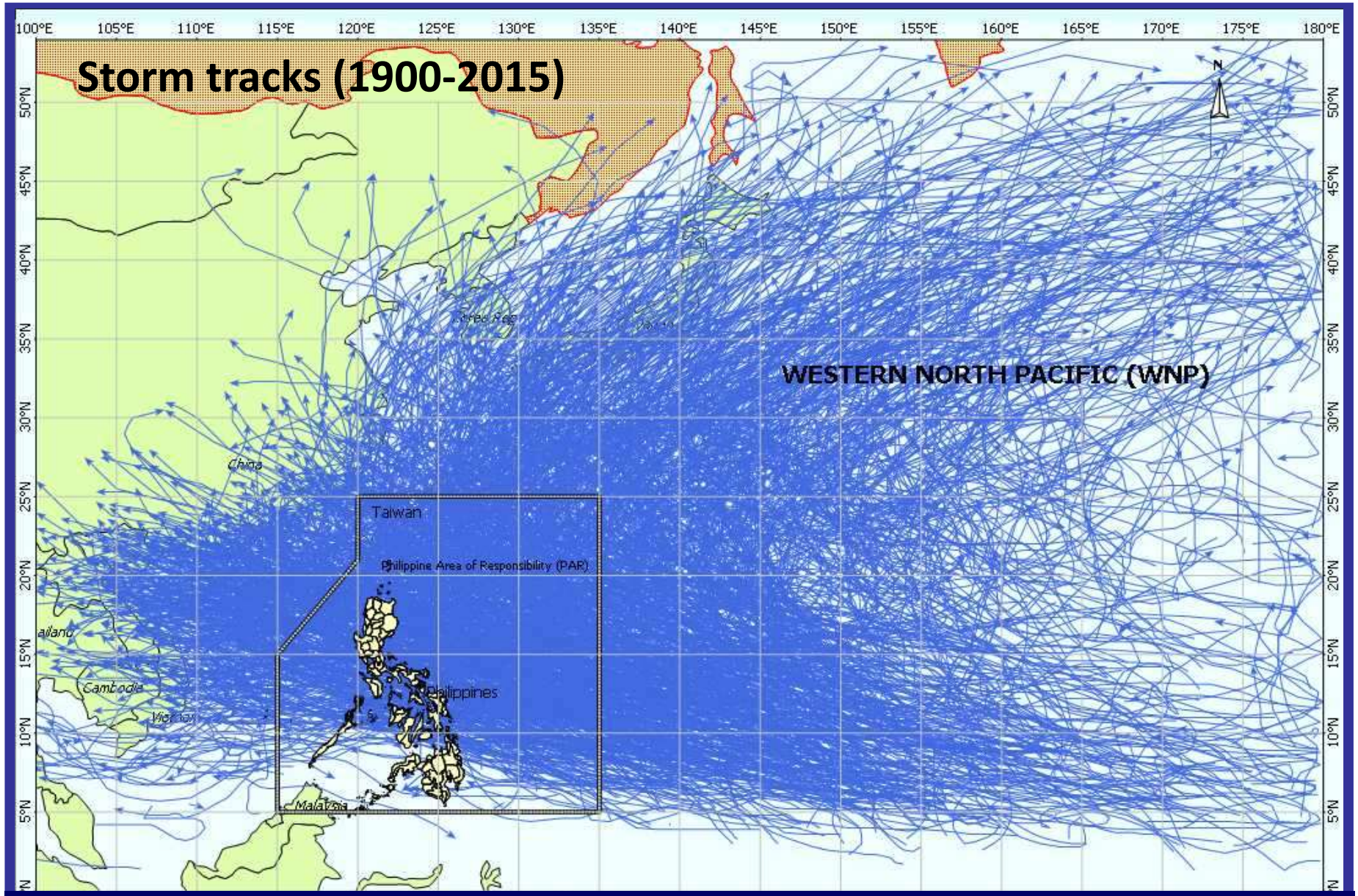
Farm damage = P11.356 billion

Infrastructure damage = P13.183 billion

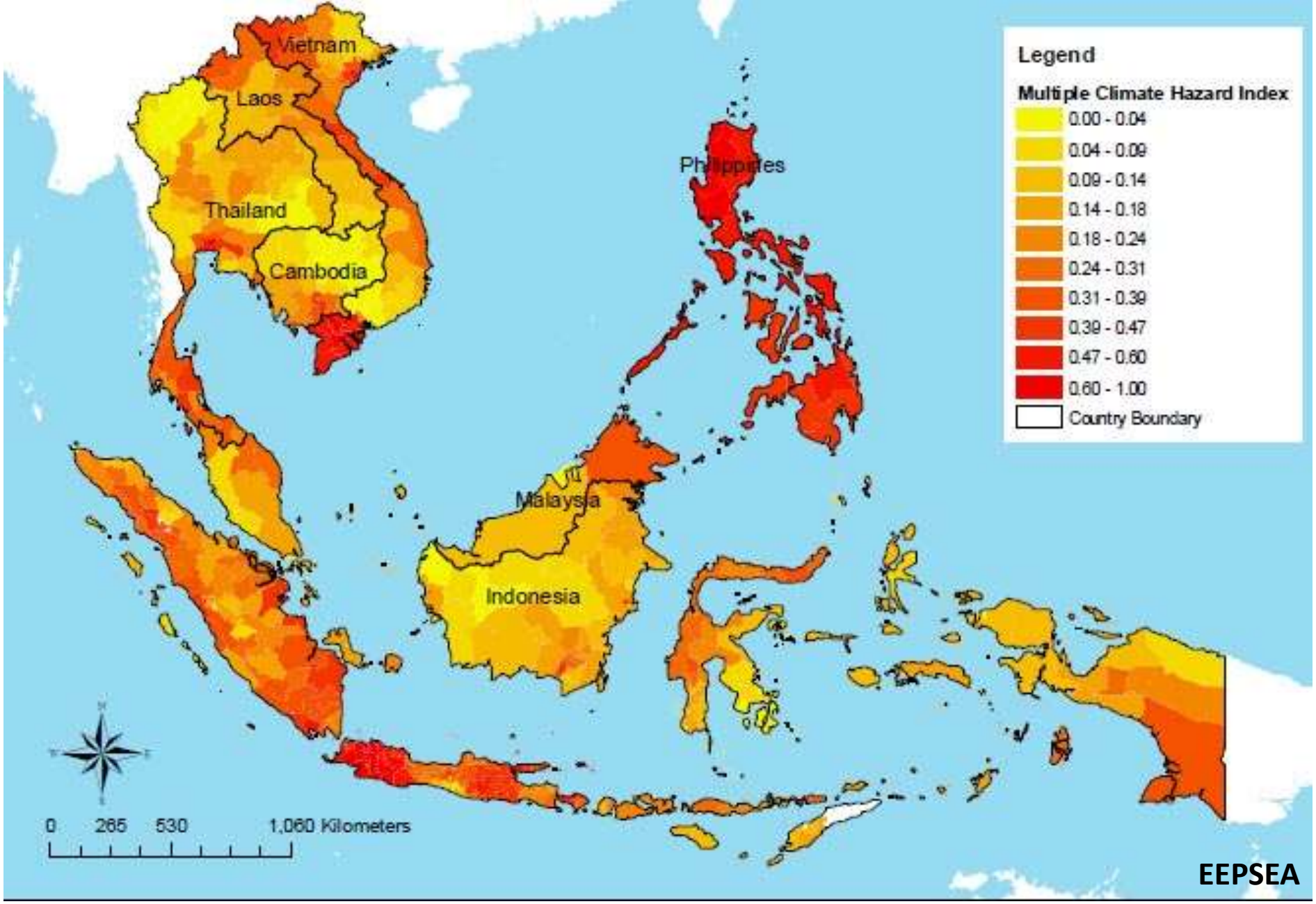
Total DSWD, LGU assistance = ₱ P528.093 million

Number of damaged houses = 1.104 million

Damage to electrical facilities = 1,959 transmission facilities



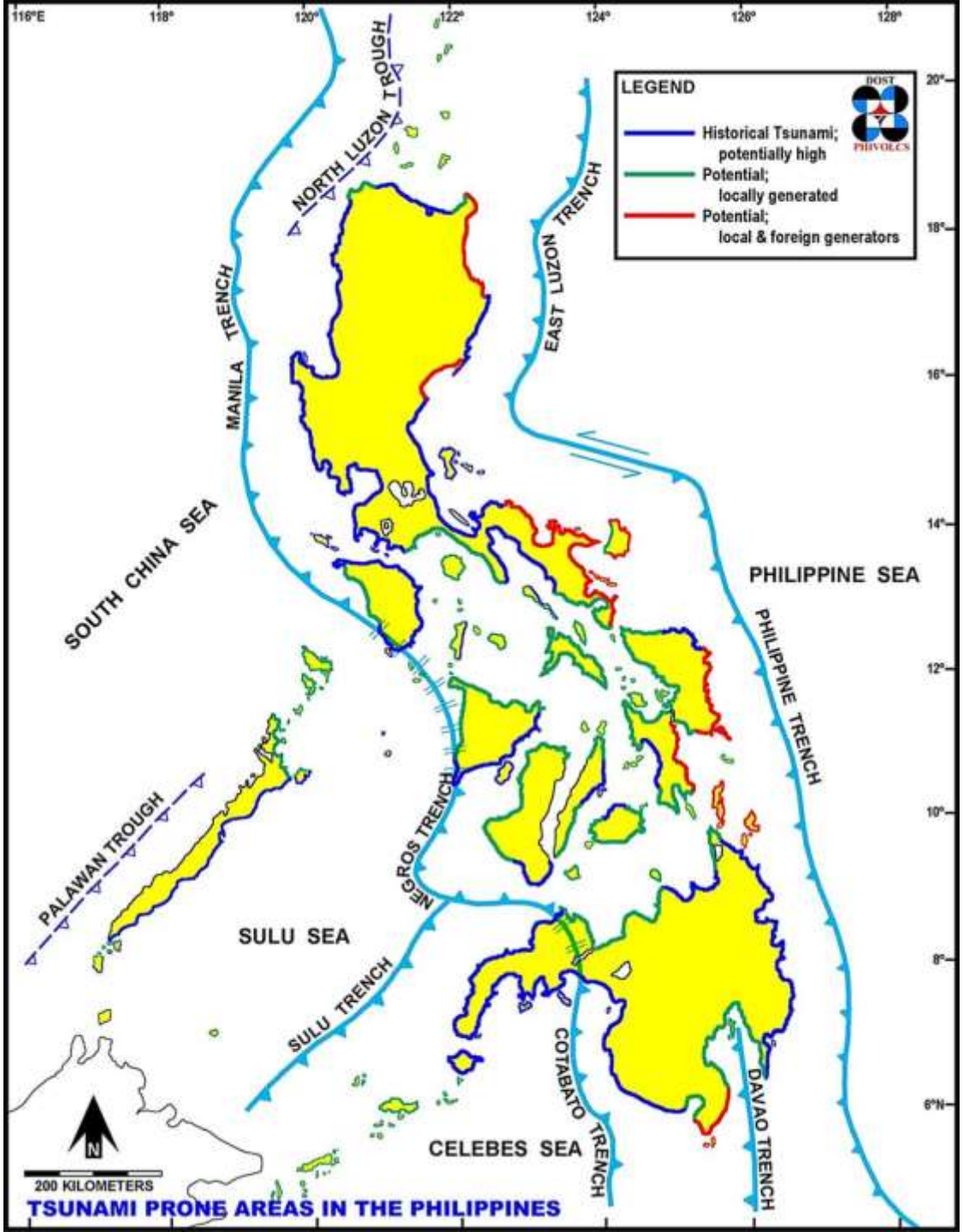
Located in the typhoon belt, average of 18-22 typhoons a year almost half of which is destructive



Philippines is the most vulnerable country to climate change in SEA

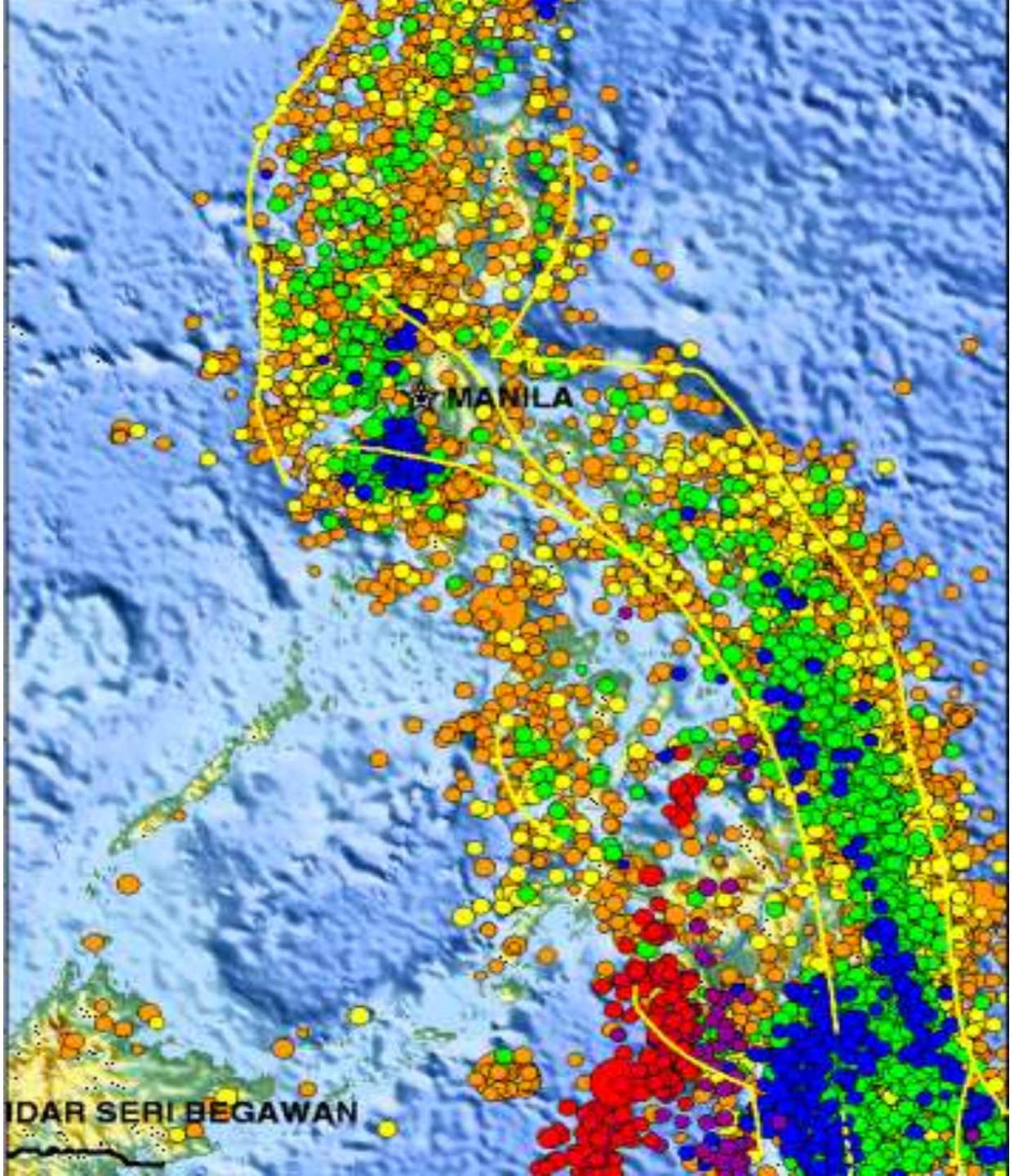
List of Most Disaster Risk Countries

Country	Rank	Disaster risk[2]
Vanuatu	172	36.43%
Tonga	171	28.23%
Philippines	170	27.52%
Guatemala	169	20.88%
Bangladesh	168	19.81%
Solomon Islands	167	18.11%
Costa Rica	166	16.94%
Cambodia	165	16.90%
El Salvador	164	16.85%
Timor-Leste	163	16.37%



36,000 km of coastlines

EARTHQUAKE EPICENTERS



Top 17 Megadiverse Countries

Australia
The Congo
Madagascar
South Africa
China
India
Indonesia
Malaysia
Papua New Guinea
PHILIPPINES
Brazil
Colombia
Ecuador
Mexico
Peru
United States
Venezuela

RUGGED TOPOGRAPHY

OVERPOPULATION

Why ECOTOWN?

Need to mainstream CLIMATE CHANGE ADAPTATION in local government planning

What is ECOTOWN?

What is ECOTOWN?

- A planning unit composed of municipalities or a group of municipalities located within and around boundaries of critical **key biodiversity areas**, which are at **high risk to climate change.**
- Built around protected zones and key biodiversity areas, using **ecosystem-based management approach** to enable communities to be climate change resilient, ecologically sustainable and economically stable.

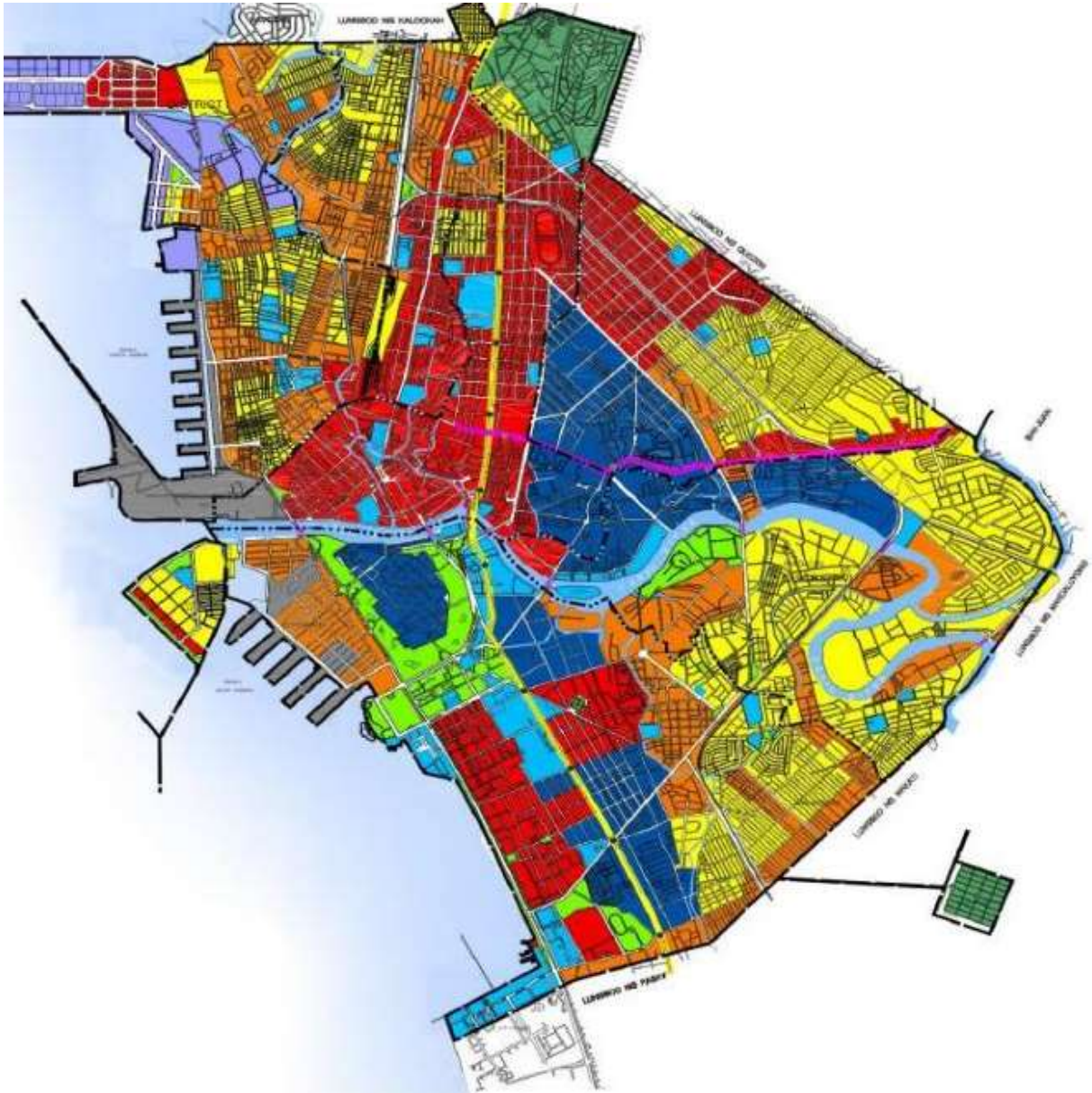
Ecologically Stable

Economically Resilient

Source: Climate Change Office, 2014

What is ECOTOWN?

Applies SCIENCE and TECHNOLOGY in the preparation of local government development plans like the COMPREHENSIVE LAND USE PLAN.

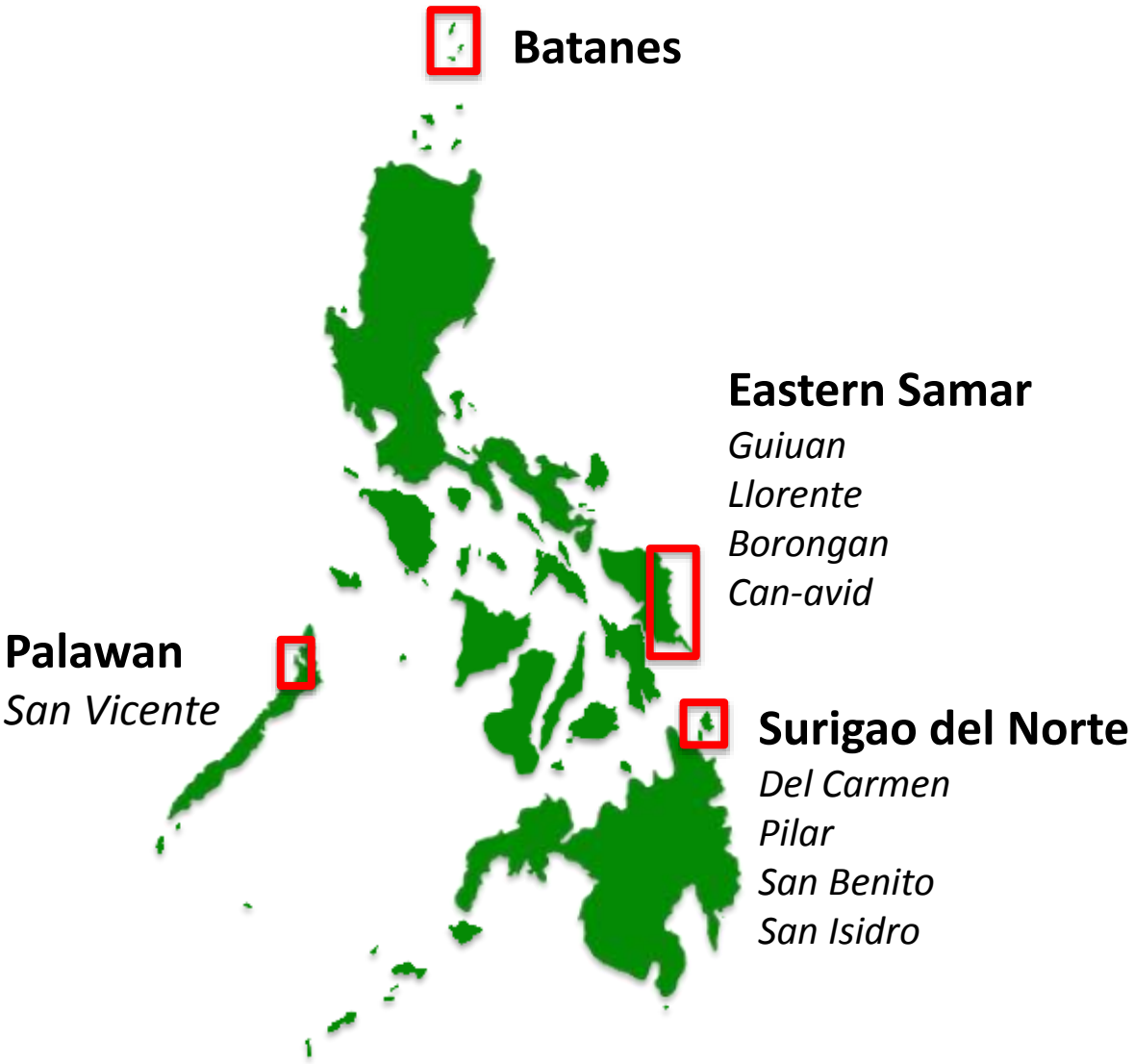


What is Comprehensive Land Use Plan (CLUP)?

- **A document designed to guide the future actions of a community.**
- **It presents a vision for the future, with long-range goals and objectives for all activities that affect the local government.**

How is Ecotown implemented in the Philippines?

ECOTOWN PILOT SITES



Community Consultation and Field Validation

COMPONENTS

1. RESOURCE ASSESSMENT

- Socio-economic and ecological profile
- Natural resource endowment, management regimes

2. VULNERABILITY ASSESSMENT

- Determine vulnerabilities and risks of the ecosystems, communities, and infrastructure
- Climate change scenario setting

Source: Climate Change Office, 2014

COMPONENTS

3. ENVIRONMENT AND NATURAL RESOURCES ACCOUNTING

- Determine the monetary value of the goods and services that the ecosystem provides
- Contribution of the ecosystem services to the local economy

4. DEVELOPMENT OF THE LCCAP

- Climate-smart plans such as CLUP and CDP

Source: Climate Change Office, 2014

COMPONENTS

5. APPLICATION OF CLIMATE ADAPTATION SUPPORT SERVICE

- Compensation for engaging in sustainable natural resource use/management
- Livelihood and capacity building

6. DESIGNING OF FINANCING SCHEMES

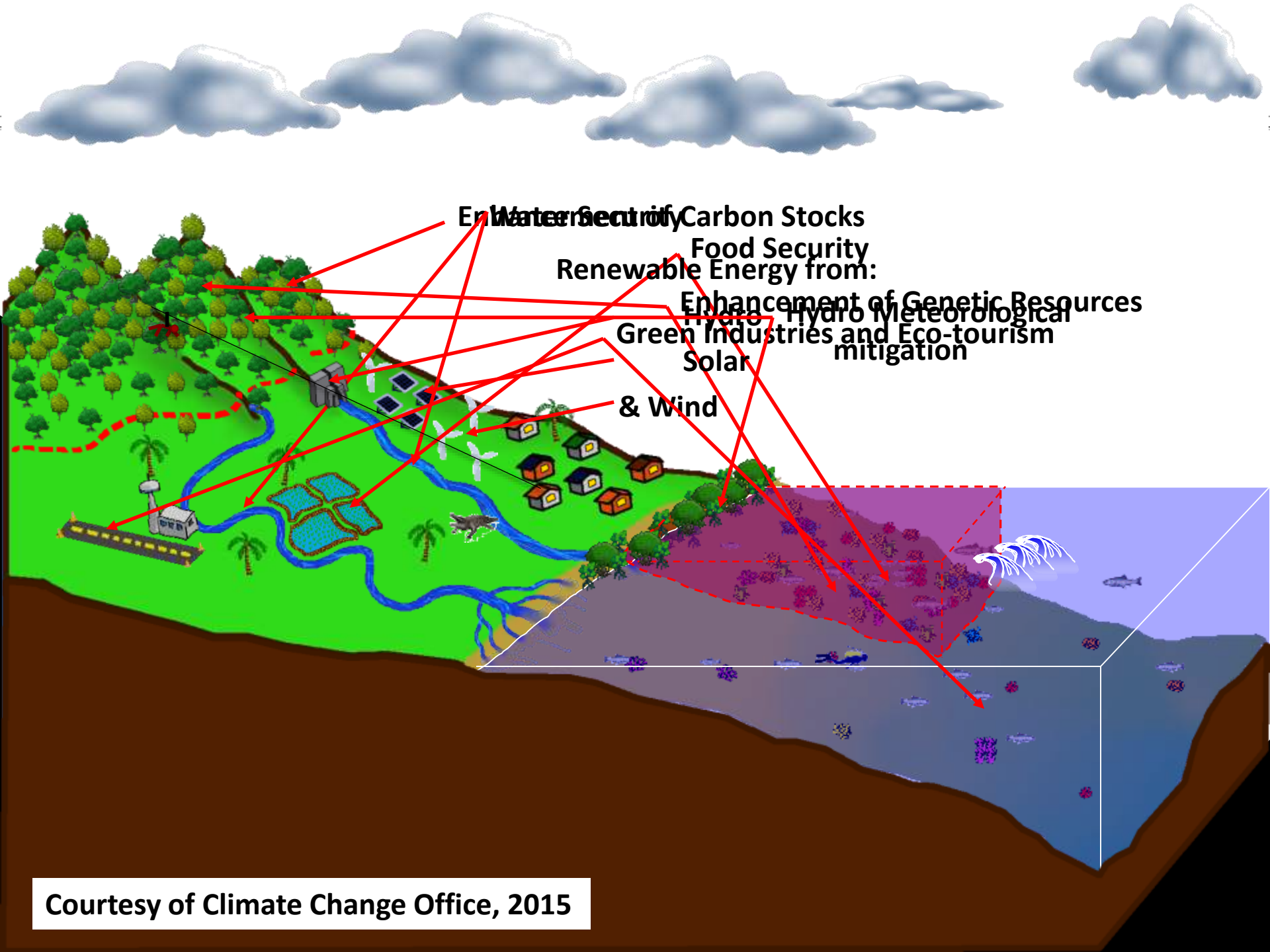
- Sustainable financing scheme to support CCA/mitigation measures
- Payment for environmental services, cost sharing, PPP

Source: Climate Change Office, 2014

COMPONENTS

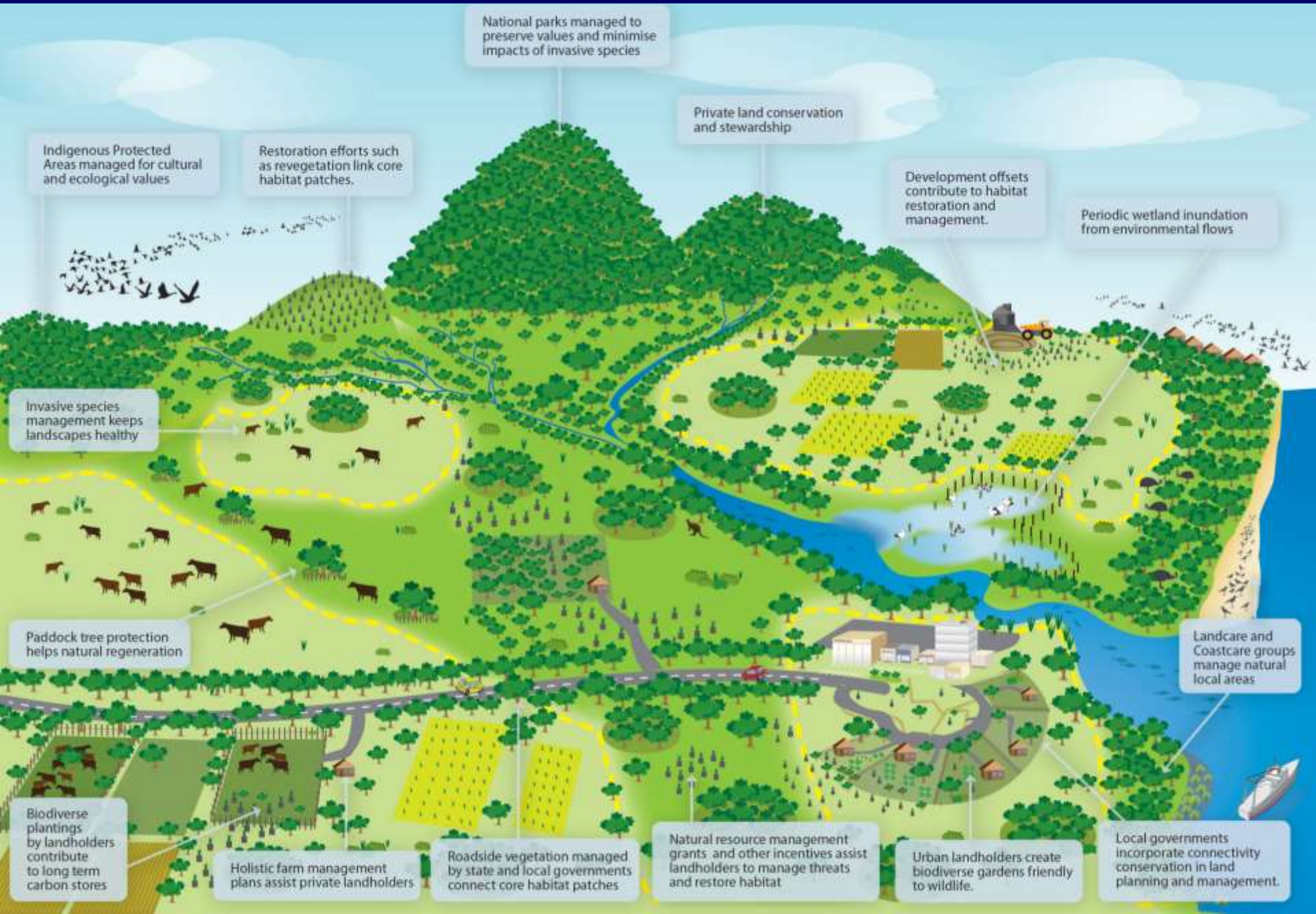
7. **APPLICATION OF CLIMATE CHANGE ADAPTATION AND/OR MITIGATION MEASURES**
   - Site development, adaptation/mitigation technologies
   - Rehabilitation, protection, conservation
   - Renewable energy (RE)
   - Best practices and lessons learned

Source: Climate Change Office, 2014



Courtesy of Climate Change Office, 2015

MODEL ECOTOWN

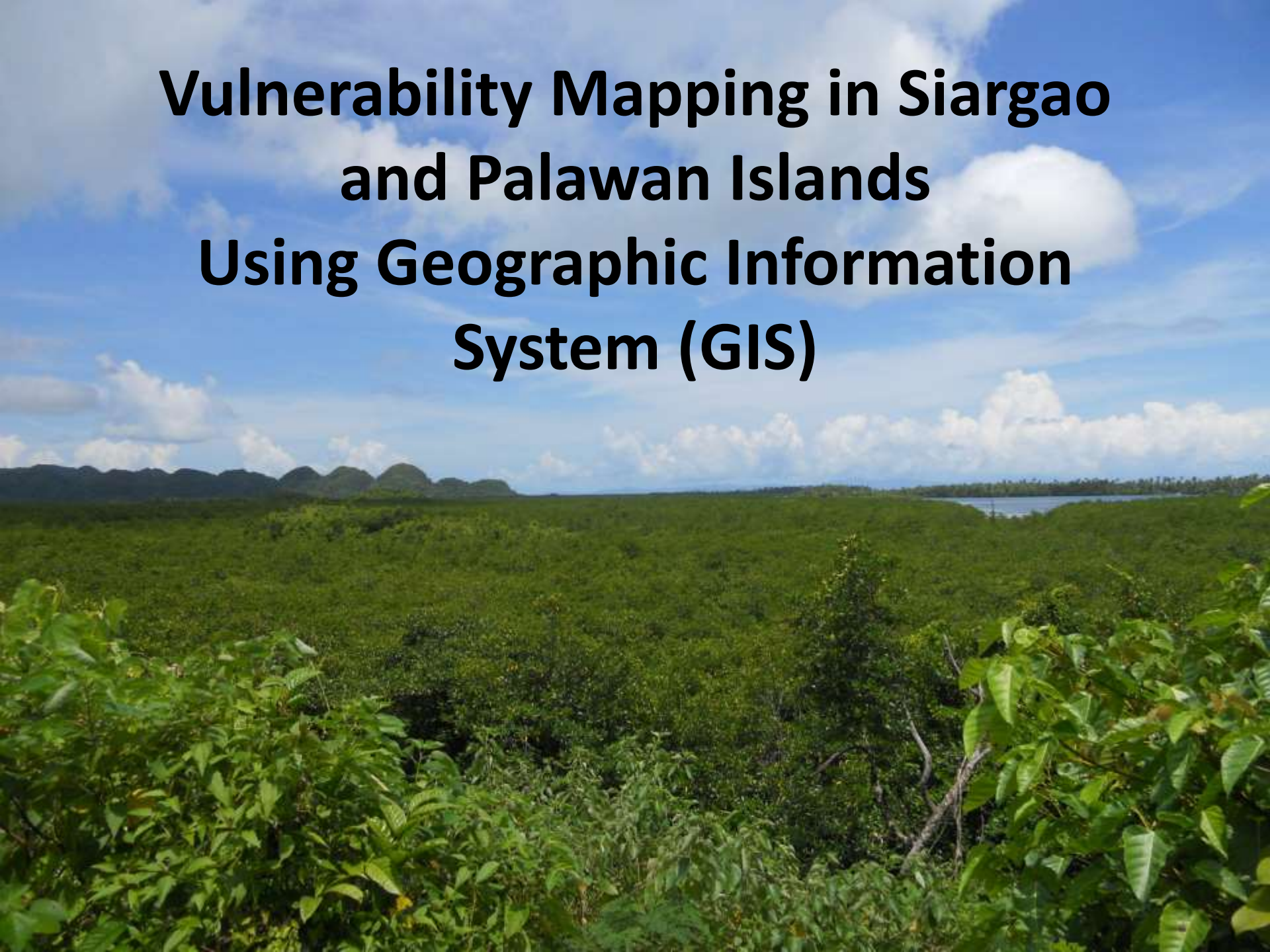


Puerto Princesa City, Palawan

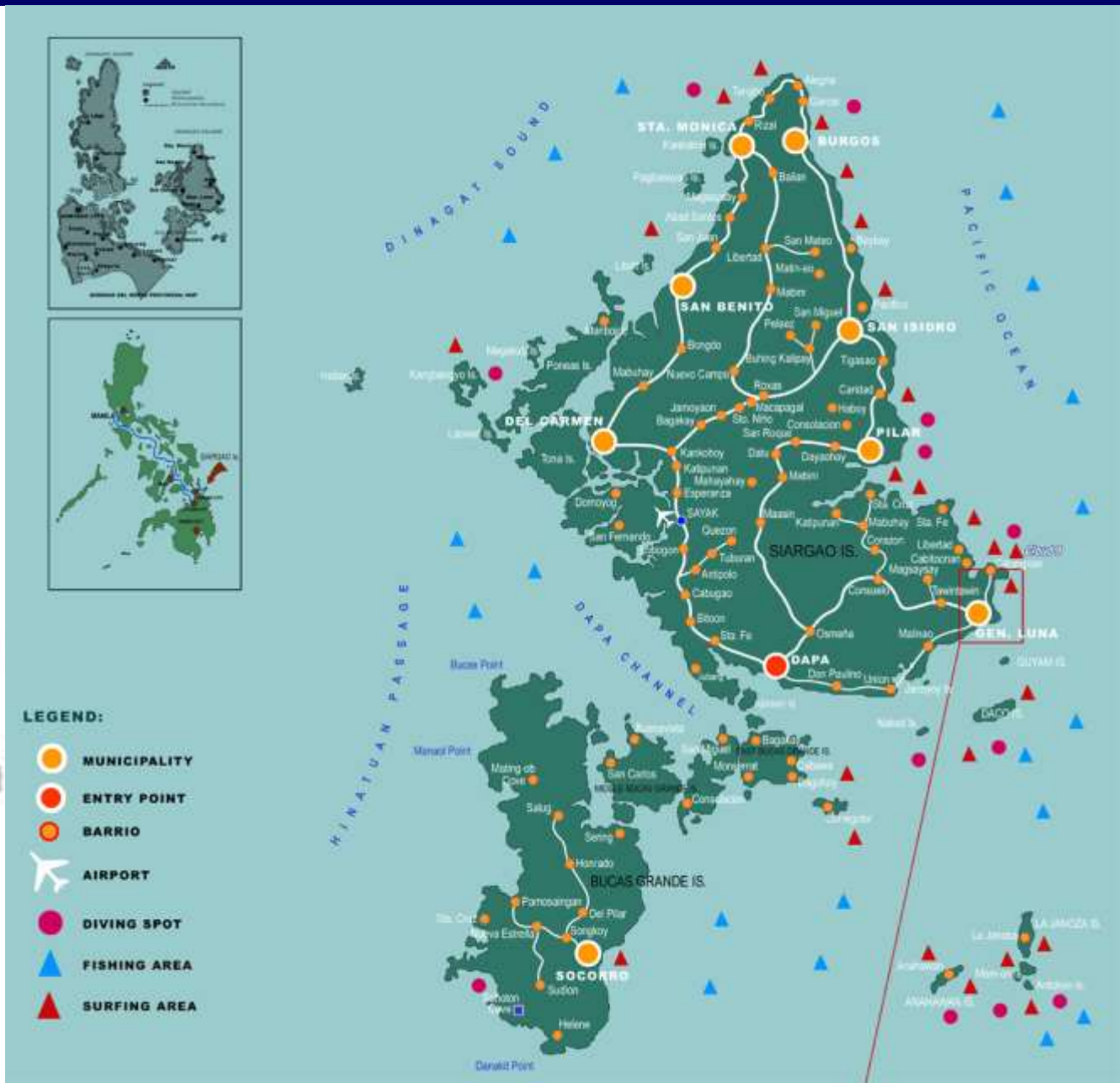
SOURCE: isabellevillas.wordpress.com

Iloilo City

Vulnerability Mapping in Siargao and Palawan Islands Using Geographic Information System (GIS)

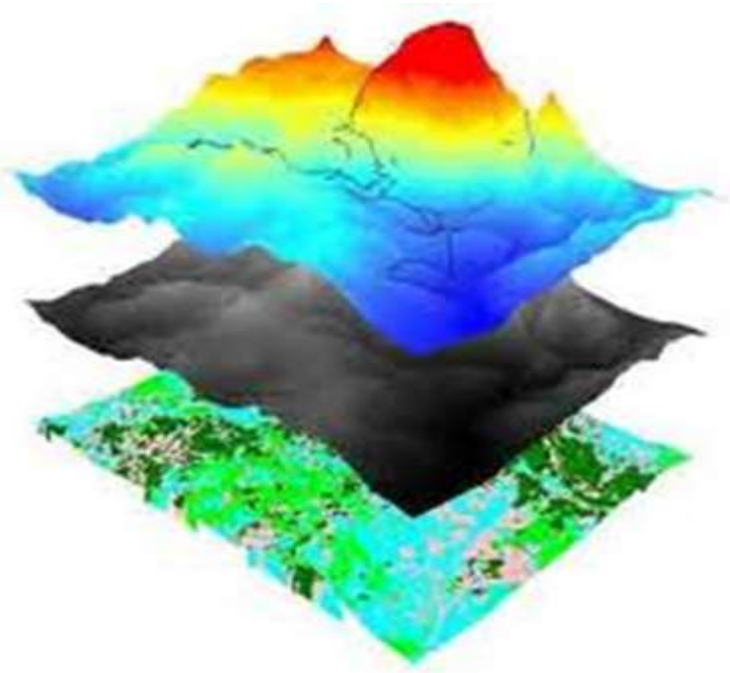


Siargao Island, Surigao del Sur



OBJECTIVES

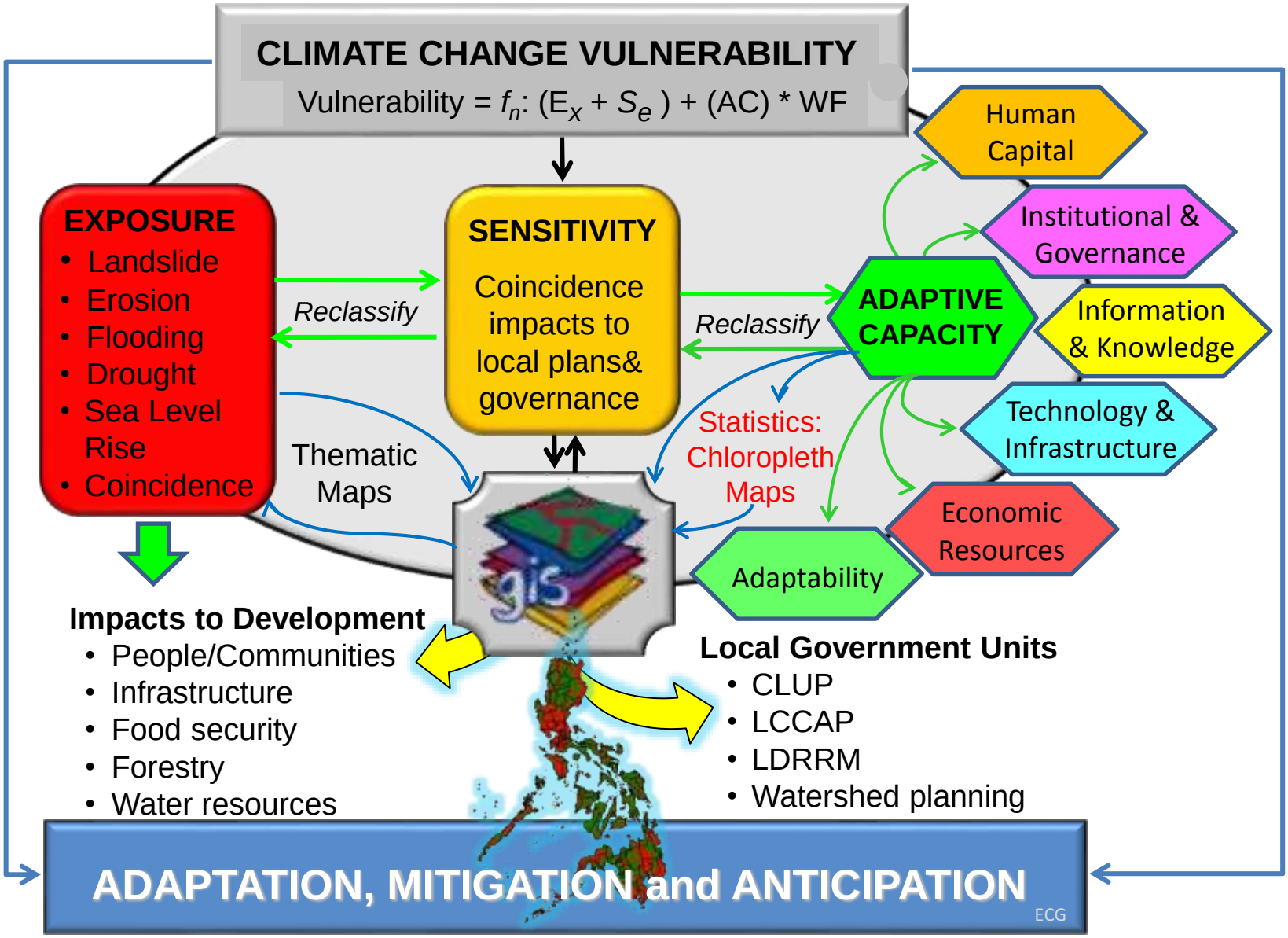
Determine using GIS the vulnerability to the impacts of climate change and climate risks of ecosystems, communities, and infrastructure in the municipalities of Del Carmen, San Isidro, Pilar and San Benito in Surigao del Norte



METHODOLOGY

A. Site Reconnaissance
B. Coordination with Stakeholders
C. Gathering of Secondary Data
D. Community Mapping
E. Map Consolidation
F. Scanning
G. Georeferencing
H. Digitizing
I. Generation of Vulnerability Maps

Vulnerability Mapping Framework



SOURCE: E.C. Godilano, Ph.D.

B. Coordination with Stakeholders

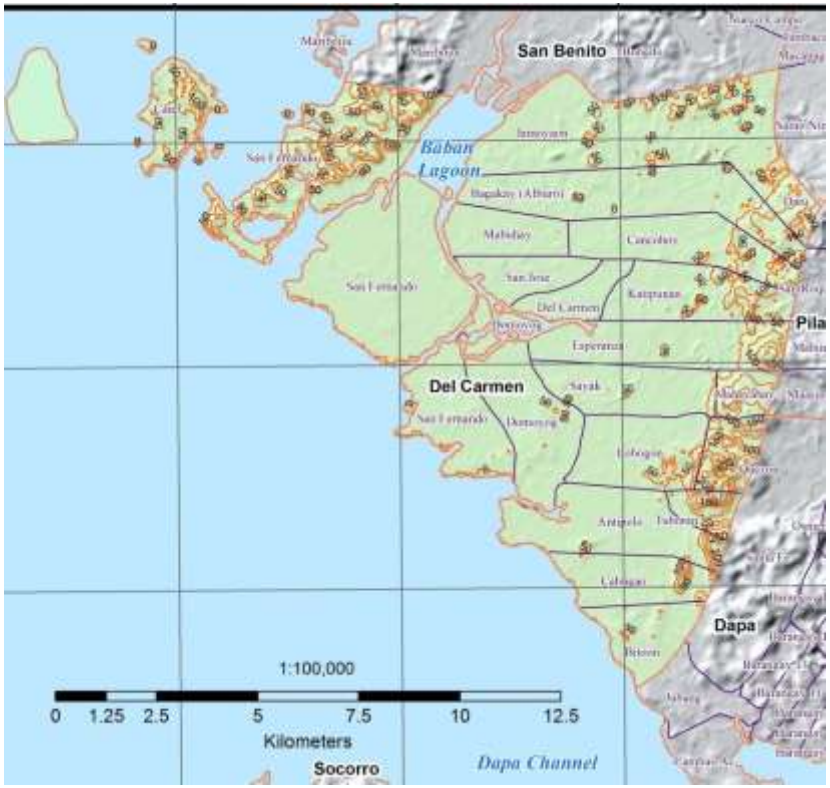
METHODOLOGY

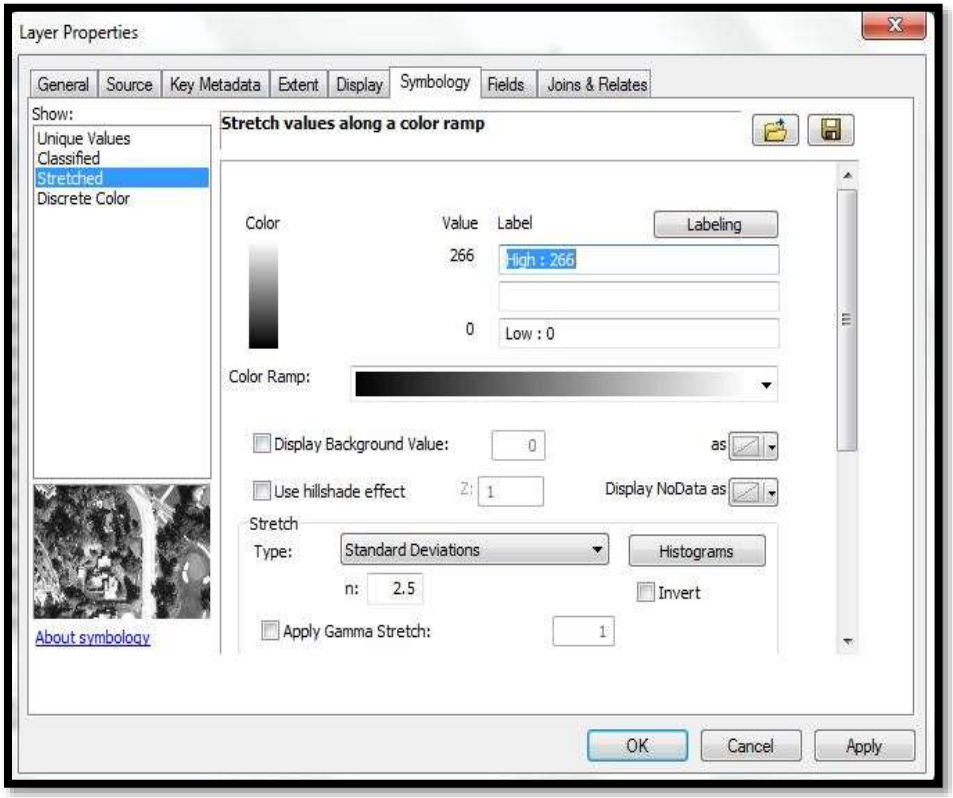
D. Community Mapping

G. Preparation of Vulnerability Maps

1. Storm surge hazard map analysis

The digital elevation model (DEM) of the municipality was used to derive the storm surge map. Five-meter elevation interval was generated through interpolation.

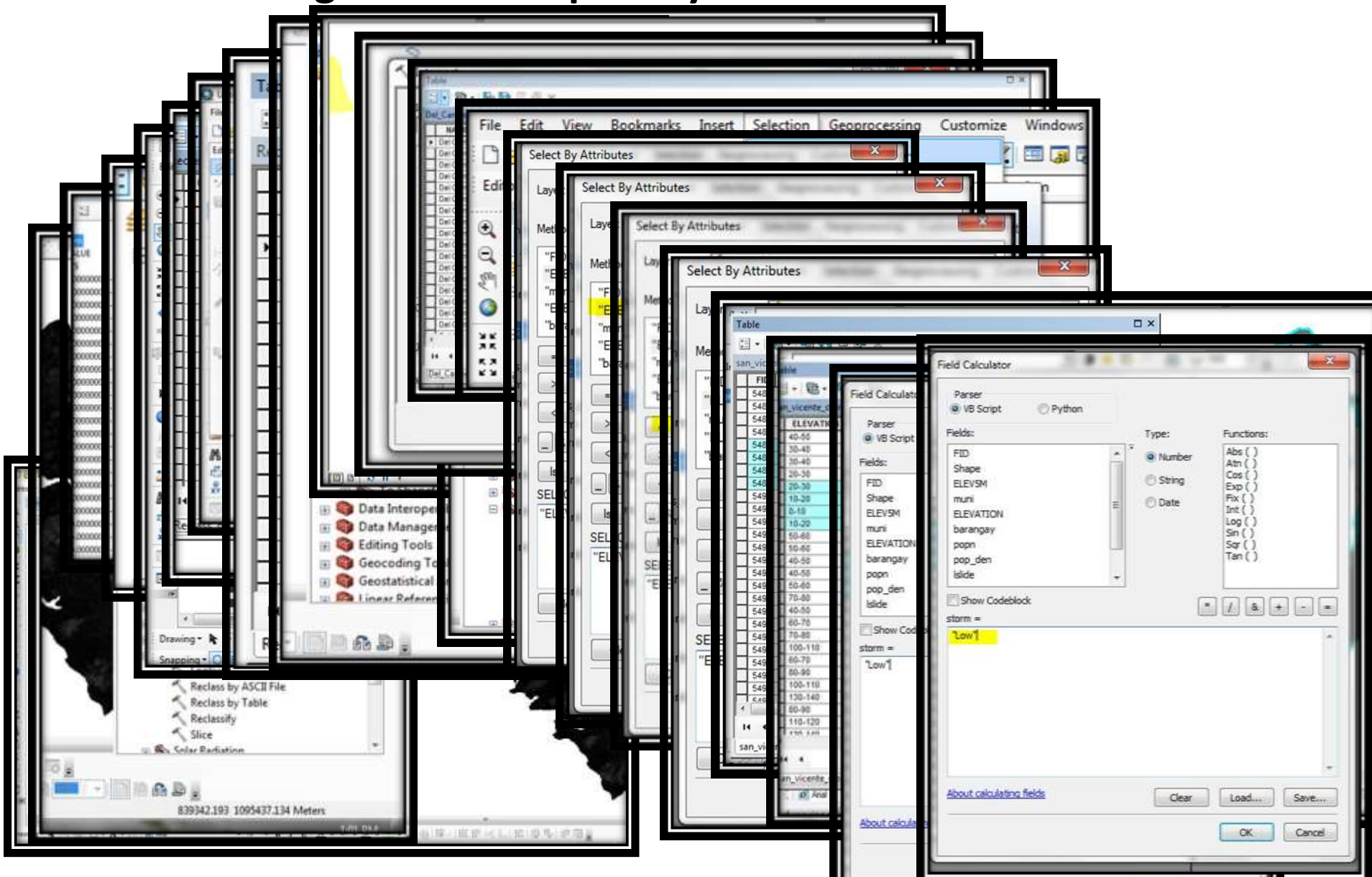




METHODOLOGY

G. Preparation of Vulnerability Maps

1. Storm surge hazard map analysis



METHODOLOGY

G. Preparation of Vulnerability Maps

2. Flood and Landslide map analysis

Based on existing flood and landslide map of the areas and rainfall data from PAGASA

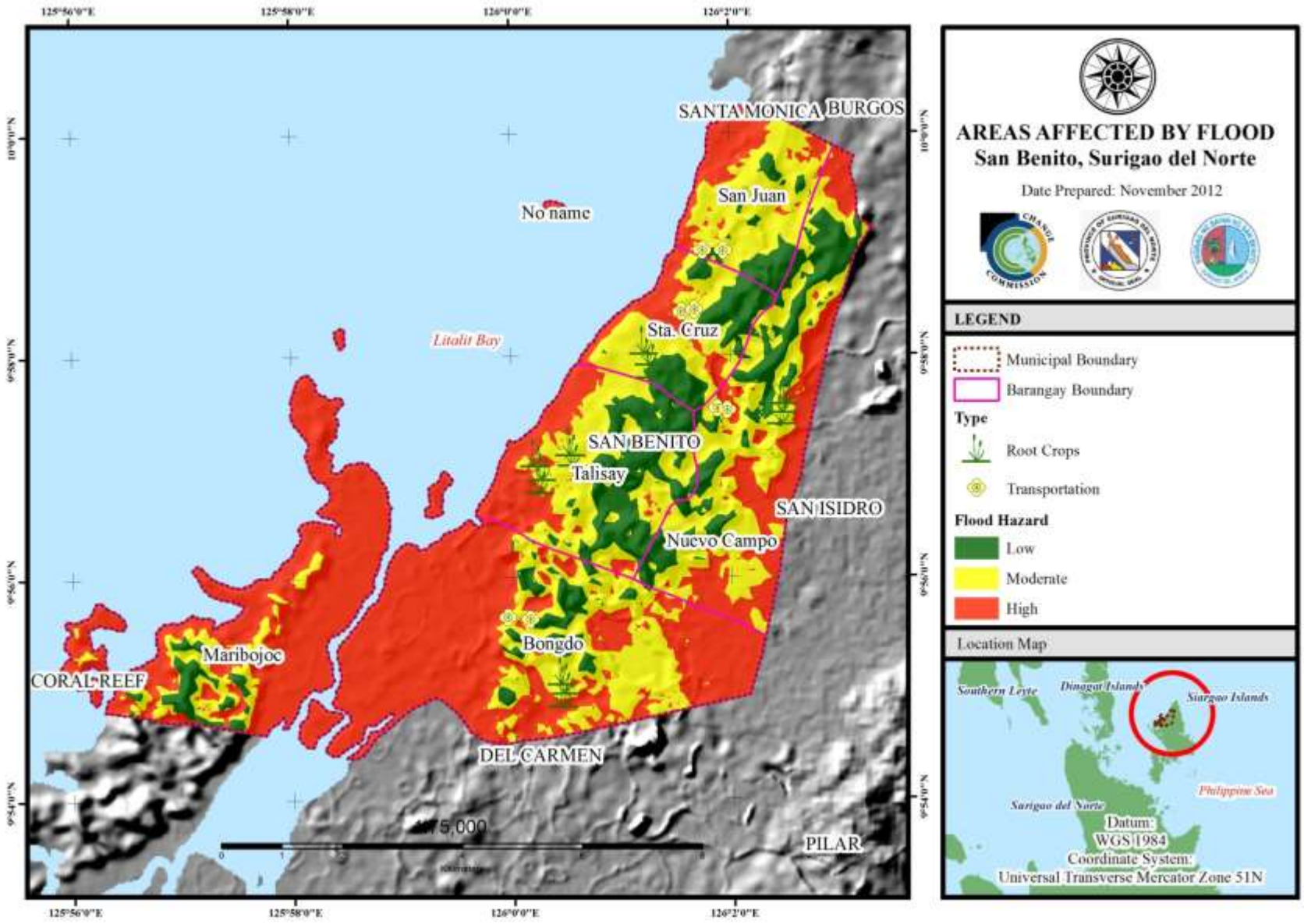
MONTH	OBSERVED	CHANGE		PROJECTED	
	(1971-2000)	(2006-2035)	(2036-2065)	(2006-2035)	(2036-2065)
JAN	603.4	22.1	1.9	736.8	615.1
FEB	428.6	12.3	-0.5	481.2	426.3
MAR	369.8	18.7	-23.8	438.9	281.7
APR	203.1	-16.4	-30.2	169.8	141.8
MAY	132.6	-5.5	-9.8	125.3	119.6
JUN	148.6	31.7	-0.4	195.8	148.0
JUL	170.7	10.0	-15.1	187.8	144.9
AUG	136.9	17.5	6.5	160.8	145.8
SEP	165.7	21.7	2.9	201.7	170.5
OCT	267.9	-12.1	26.0	235.5	337.6
NOV	510.8	18.6	18.3	606.0	604.4
DEC	510.8	10.2	41.2	562.7	721.1
Average	304.1	10.7	1.4	341.8	321.4
Average /30	10.1359906	0.35748333	0.0472675	11.3947482	10.713652
(Average/30)/365	0.02776984	0.00097941	0.0001295	0.03121849	0.02935247

MUNICIPALITY	VULNERABILITY MAPS
1. Del Carmen	• Areas affected by storm surge (Population) • Areas affected by rain-induced landslide (Population) • Areas affected by drought (Agriculture sector)
1. Pilar	• Areas affected by typhoon (Agriculture sector) • Areas affected by sea level rise (Agriculture sector) • Areas affected by sea level rise (Socio-economic sector) • Areas affected by flood (Health sector) • Areas affected by drought (Health sector) • Areas affected by flood (Agriculture sector) • Areas affected by drought (Agriculture sector) • Validated barangay boundary map
1. San Benito	• Areas affected by storm surge (Health sector) • Areas affected by flood (Agriculture/Transport Sectors) • Areas affected by rain-induced landslide (Education sector) • Areas affected by drought (Agriculture sector) • Validated barangay boundary map
1. San Isidro	• Areas affected by storm surge (Socio-economic sector) • Areas affected by rain-induced land slide (Health sector) • Areas affected by drought (Agriculture sector) • Validated barangay boundary map

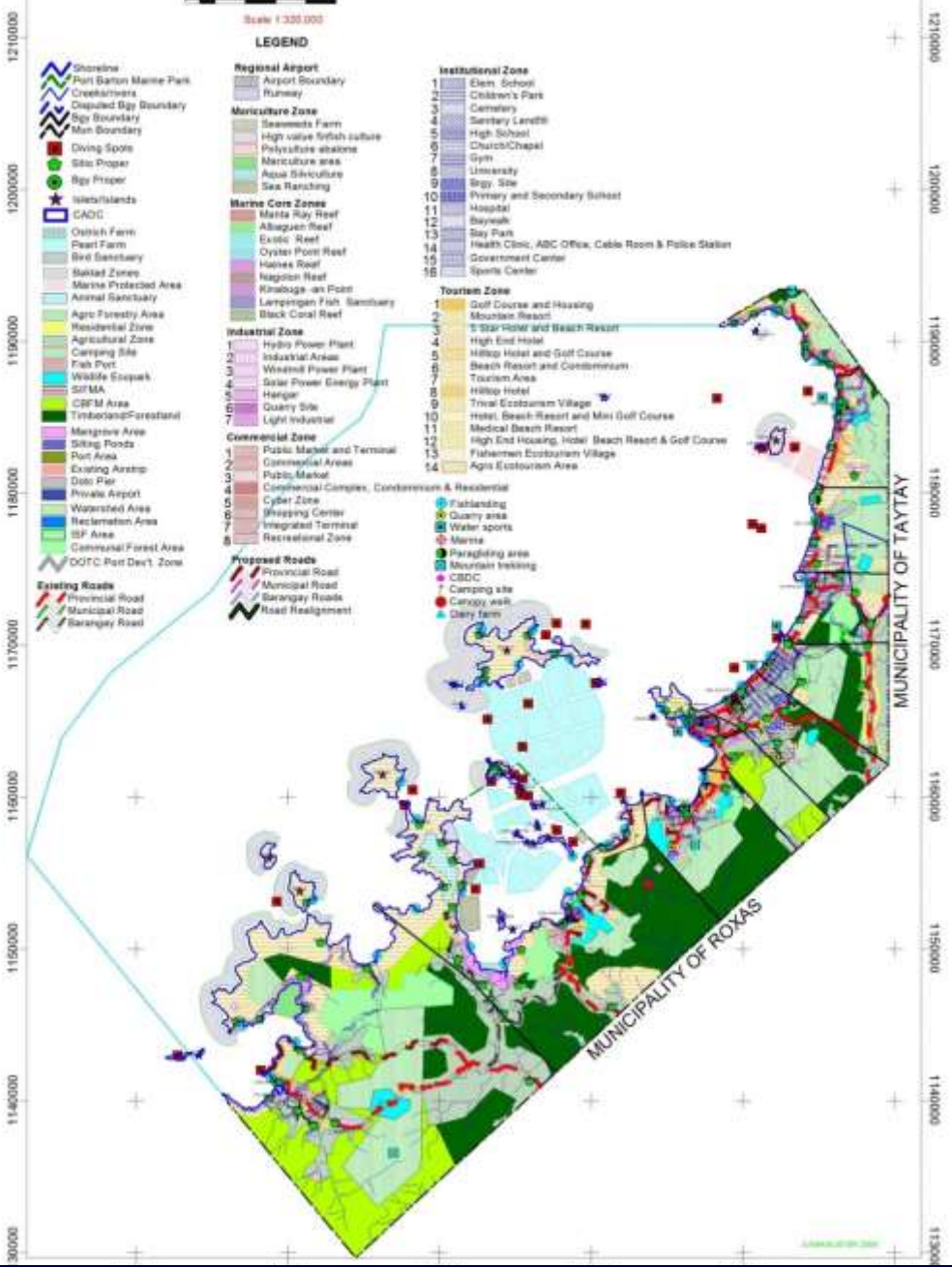
METHODOLOGY

G. Preparation of Vulnerability Maps

Flood and Landslide map analysis



OUTPUT



Climate-Adaptive Comprehensive Land Use Plan Map

LESSONS LEARNED

- **LGUs play an important role in mainstreaming climate change adaptation strategies (e.g. Ecotown)**
- **Attitude, commitment and competence of Local Chief Executives (LCEs) determine the level of success in implementing Ecotown**
- **Local awareness and appreciation of the value of CC adaptation determine the extent of support afforded by communities**
- **Local and indigenous knowledge complement science-based solutions to CC impacts**

RECOMMENDATIONS

- **Adopt Ecotown Framework as standard tool in local development planning**
- **Upscale Ecotown Framework to the provincial level**
- **Conduct studies on the effectiveness of Ecotown as a local development planning**
- **Develop performance standards and criteria for evaluating the ecotowns**
- **Establish a network of ecotowns to showcase best practices**

THANK YOU!!!