


Climate Change Adaptation Capacity of LGUs in the Philippines



*Located along the typhoon belt in the Pacific, the Philippines is visited by an average of **20 typhoons** every year, **five of which are destructive.***

-Asian Disaster Reduction Center (ADRC)

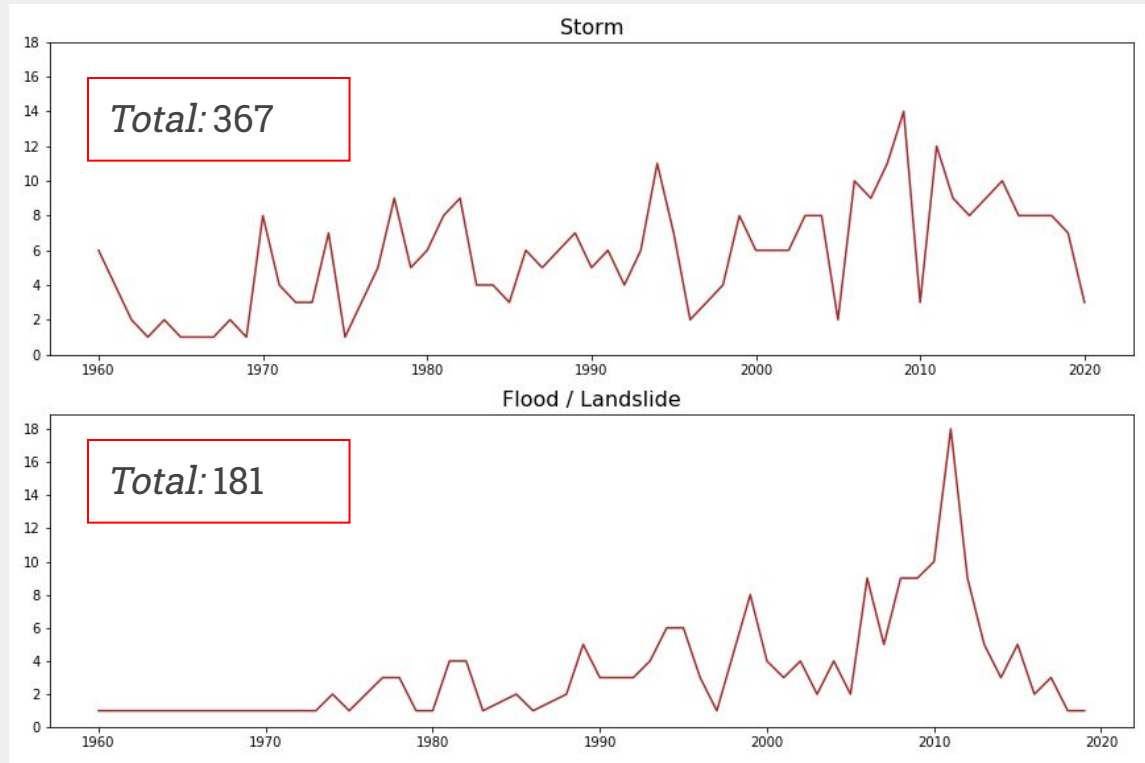


A ***disaster*** is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses ***that exceed the community's or society's ability to cope using its own resources.***

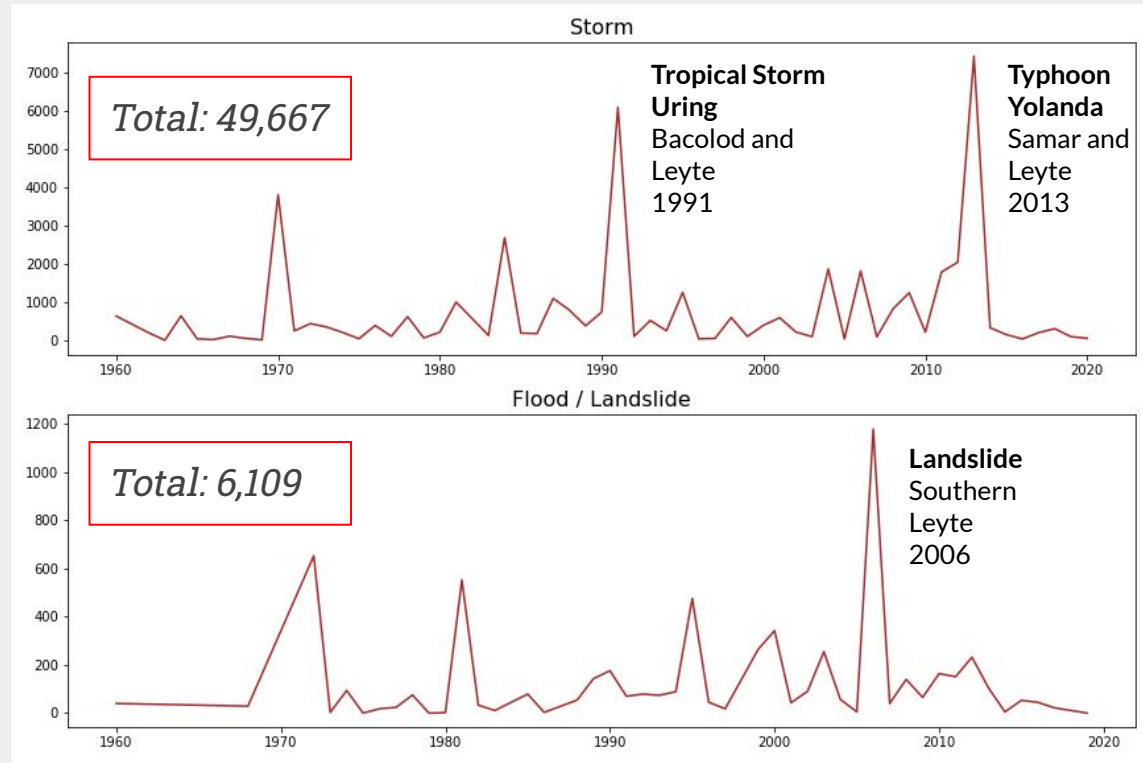


VULNERABILITY + HAZARD
CAPACITY
= **DISASTER**

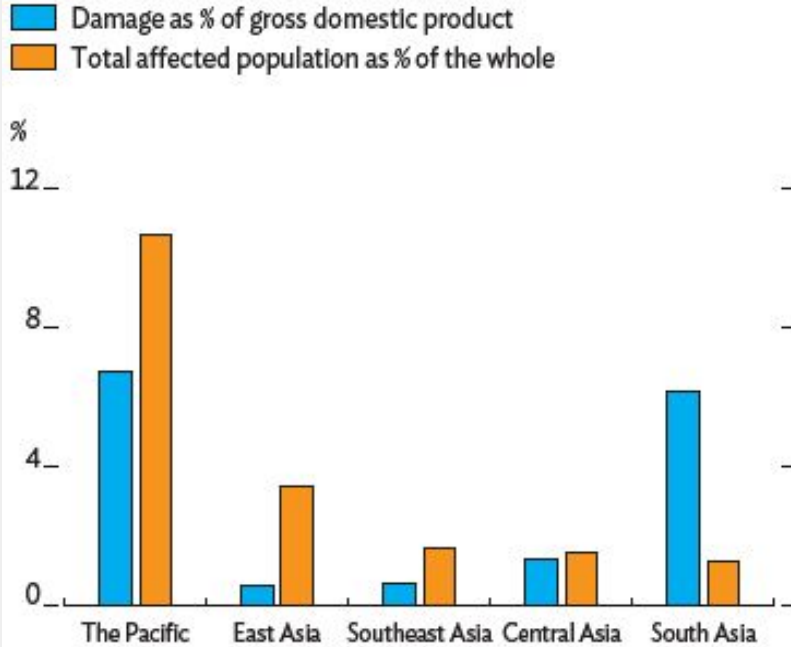
Number of disasters



Deaths from disaster



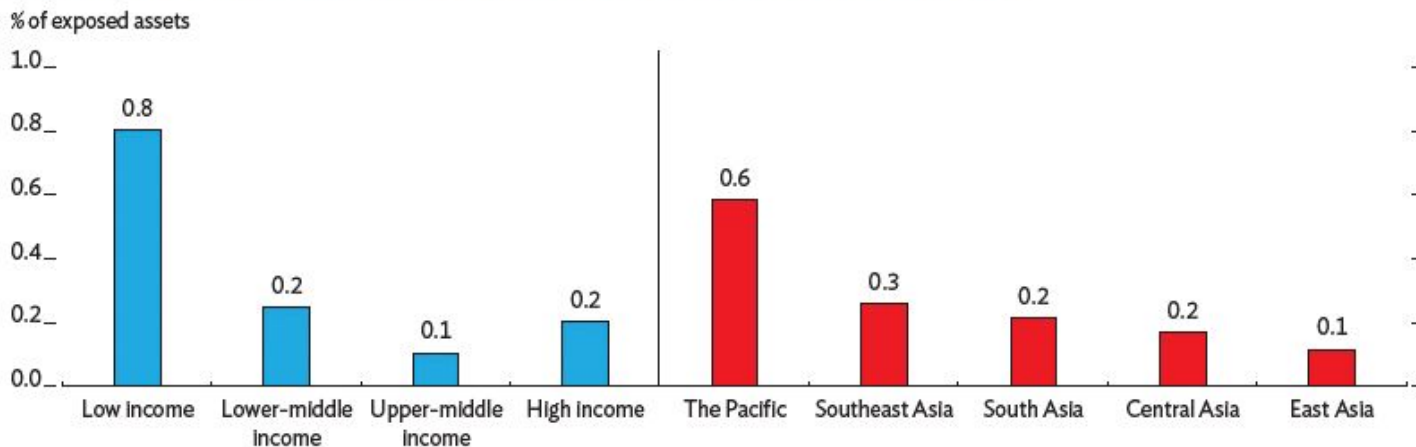
2.1.5 Disaster impacts normalized by GDP and population, 2000–2018



Note: In EM-DAT, “total affected” is the sum of those injured, left homeless, or otherwise affected after a disaster. “Affected” refers to people requiring immediate assistance during an emergency, either urgent medical assistance and other basic survival needs such as food, water, shelter, and sanitation.

Sources: ADB estimates using Centre for Research on the Epidemiology of Disasters. The Emergency Events Database. <https://www.emdat.be/> (accessed 6 February 2019); World Bank. World Development Indicators online database (both accessed 6 February 2019).

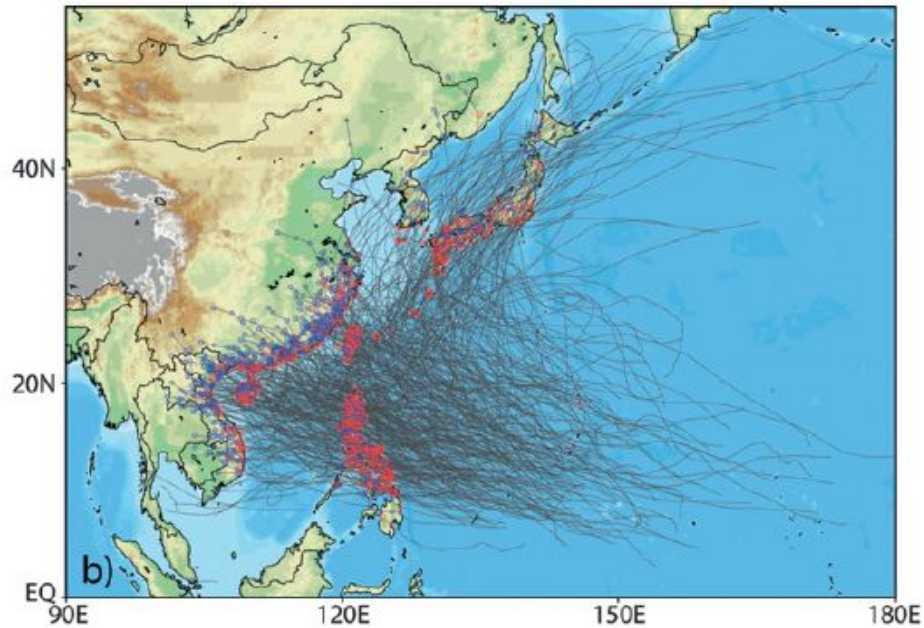
2.1.6 Average annual losses in developing Asia, by income group and subregion



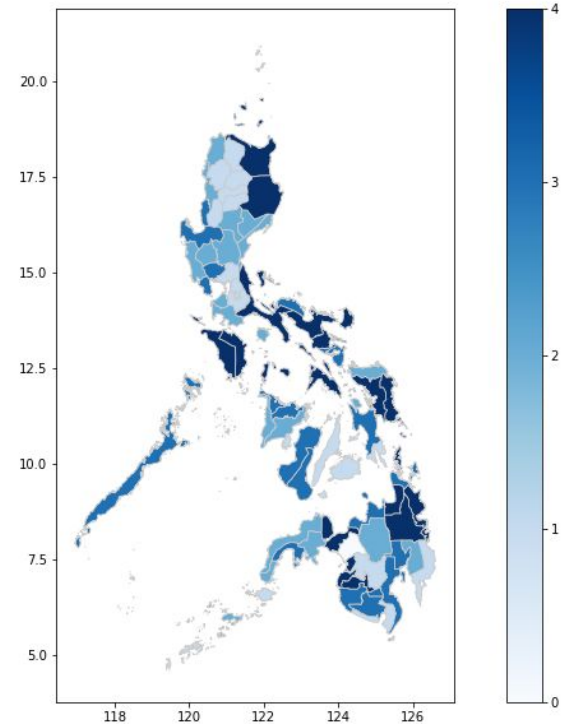
Low income: Afghanistan, Bangladesh, Cambodia, Myanmar, Nepal, and Tajikistan. **Lower-middle income:** Armenia, Bhutan, Federated States of Micronesia, Georgia, Indonesia, Kiribati, the Kyrgyz Republic, the Lao People's Democratic Republic, Mongolia, Pakistan, Papua New Guinea, the Philippines, Samoa, Solomon Islands, Sri Lanka, Timor-Leste, Uzbekistan, Vanuatu, and Viet Nam. **Upper-middle income:** Azerbaijan, Fiji, Kazakhstan, Malaysia, Maldives, Marshall Islands, Palau, the People's Republic of China, Thailand, Tonga, Turkmenistan, and Tuvalu. **High income:** Brunei Darussalam; Hong Kong, China; Singapore; and Taipei, China. **The Pacific:** Excludes Cook Islands and Nauru. **East Asia:** Excludes the Republic of Korea.

Source: UNISDR 2015.

Vulnerability varies per area




Historical Path of Typhoons



Flood Map by Province

*Disasters can be
prevented*



Sec. 11 (b) of RA 10121 states that among the duties of LDRRMCs is to “Ensure the ***integration of disaster risk reduction and climate change adaptation into local development plans, programs and budgets*** as a strategy in sustainable development and poverty reduction.”

With LCCAP

Province

91%

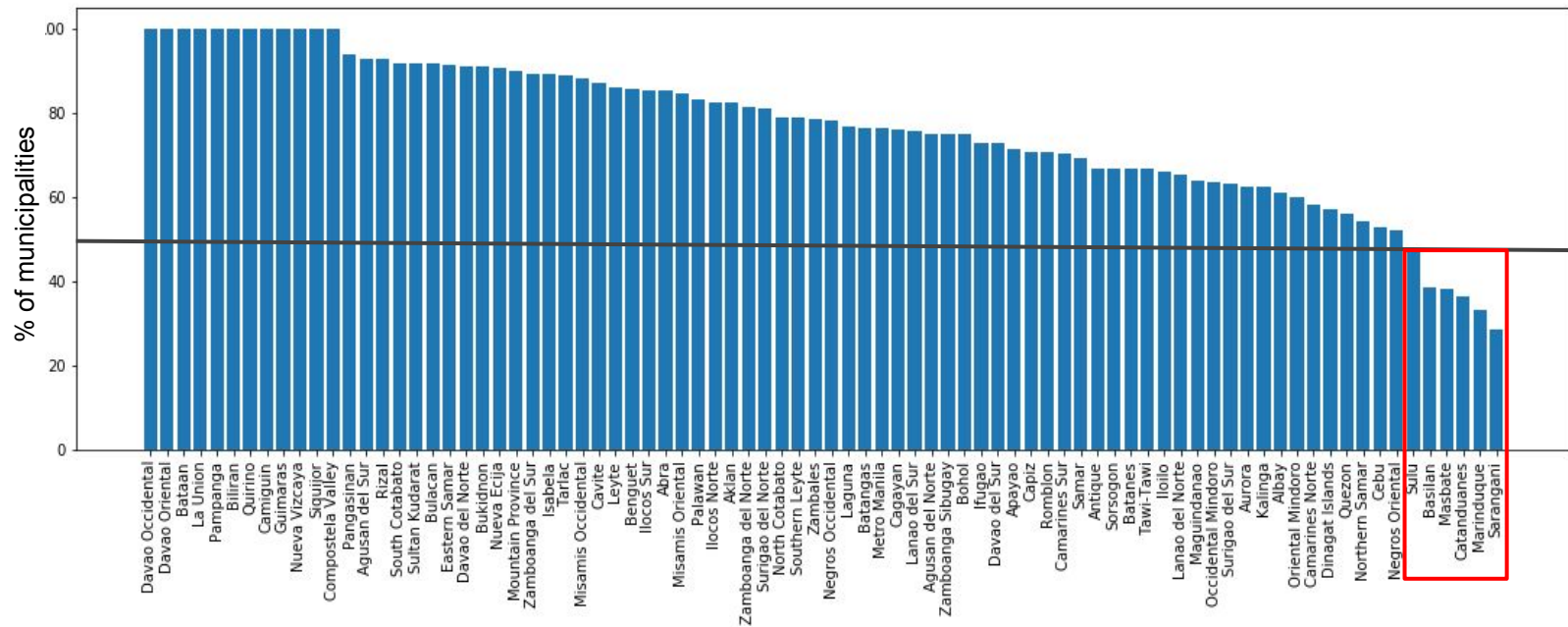
Cities

88%

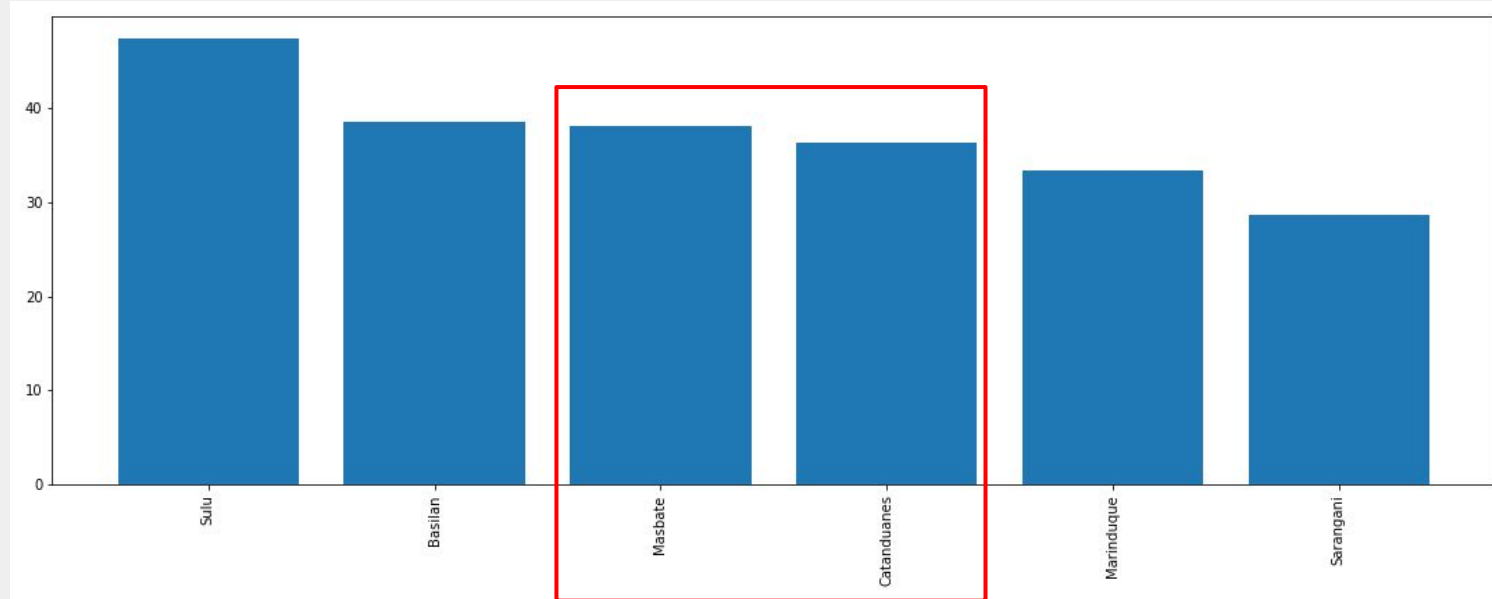
Municipalities

72%

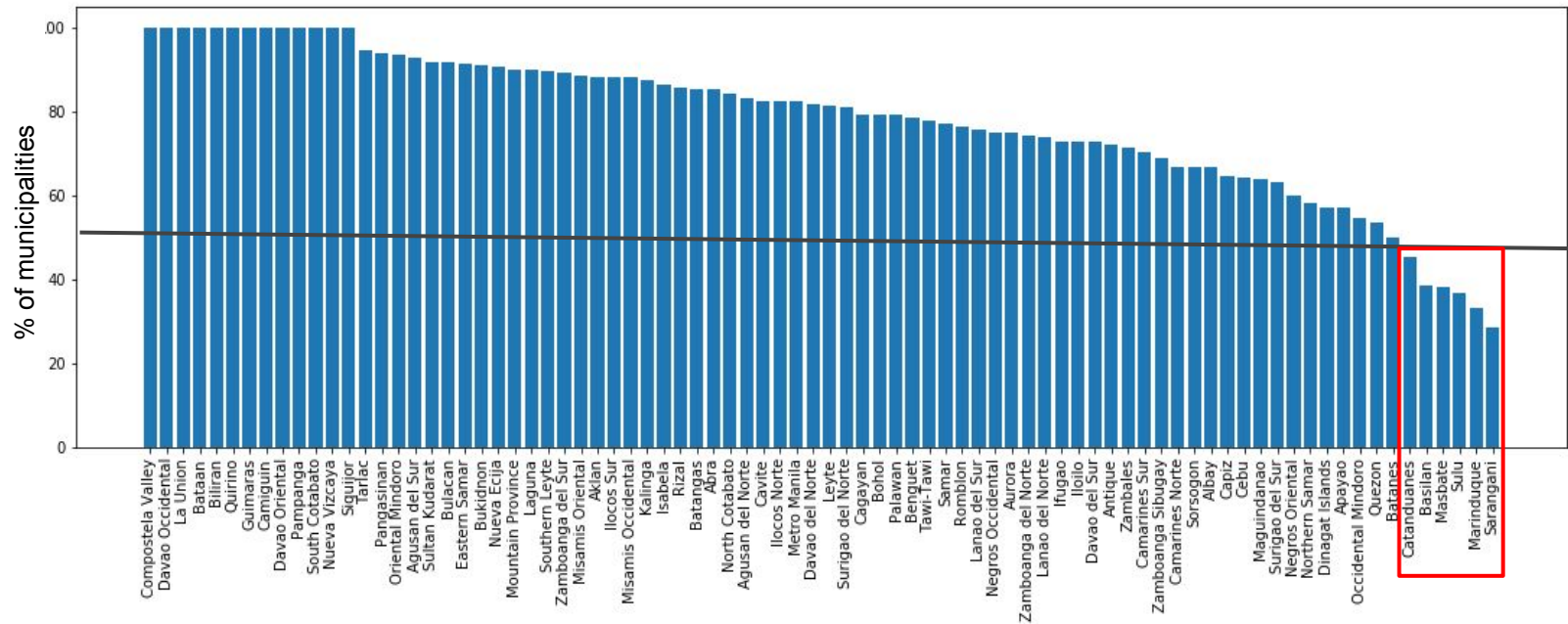
LCCAP with risk assessment



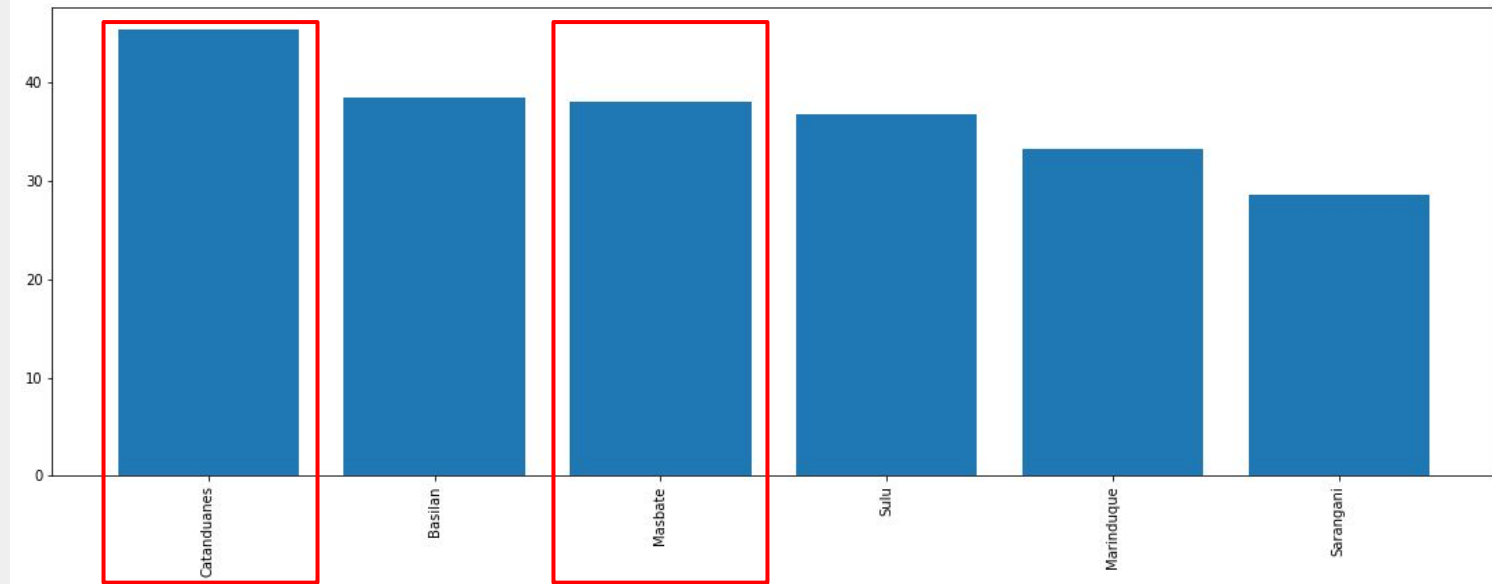
Provinces in Southern Mindanao and in Bicol do not have risk assessment

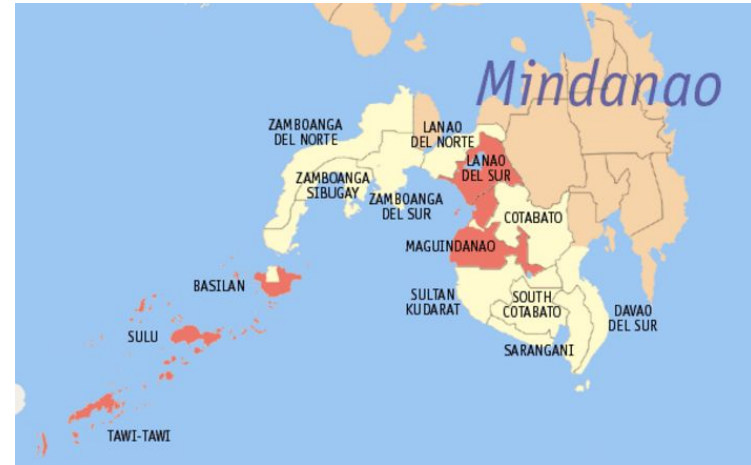


Has concrete actions

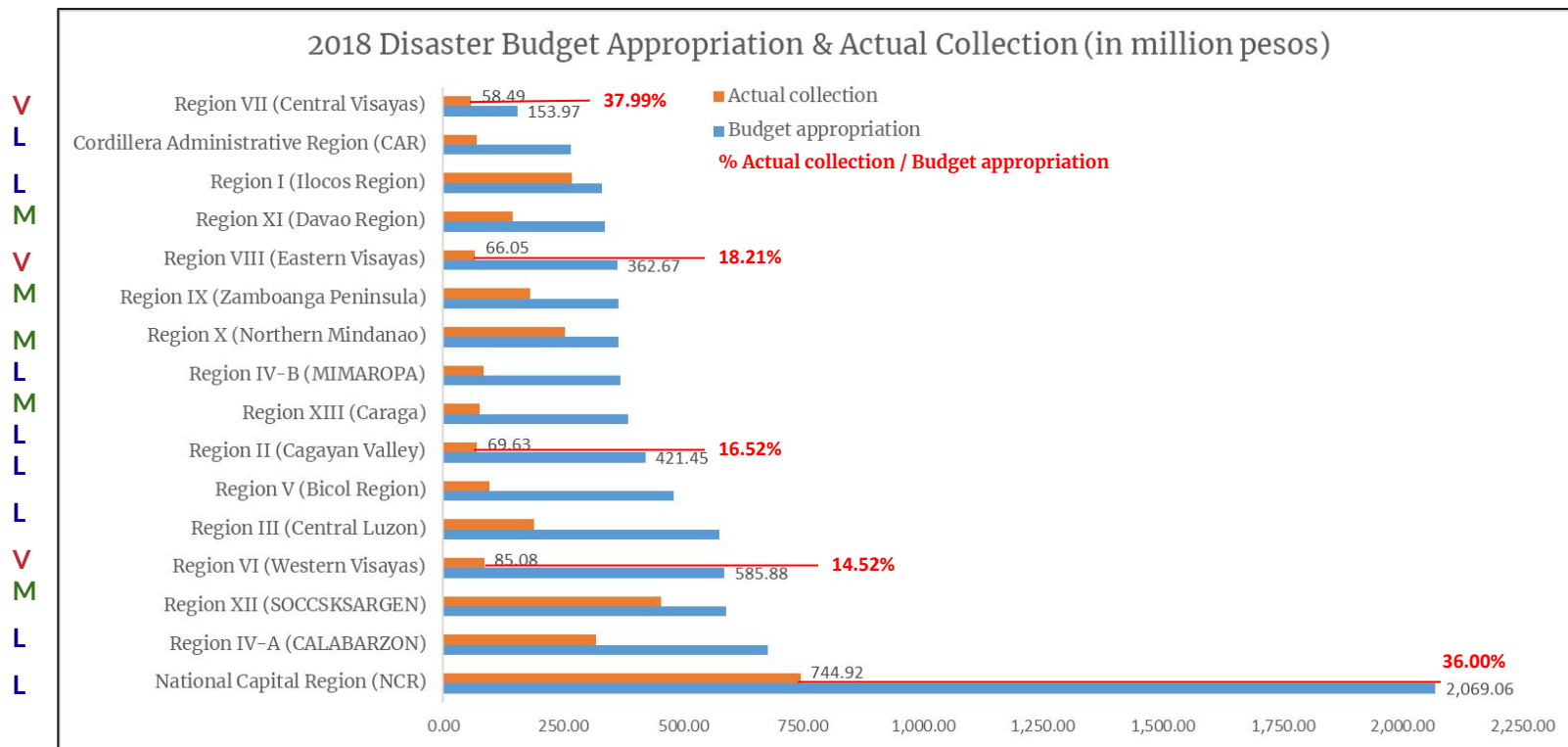


Same provinces have municipalities with no concrete action plans





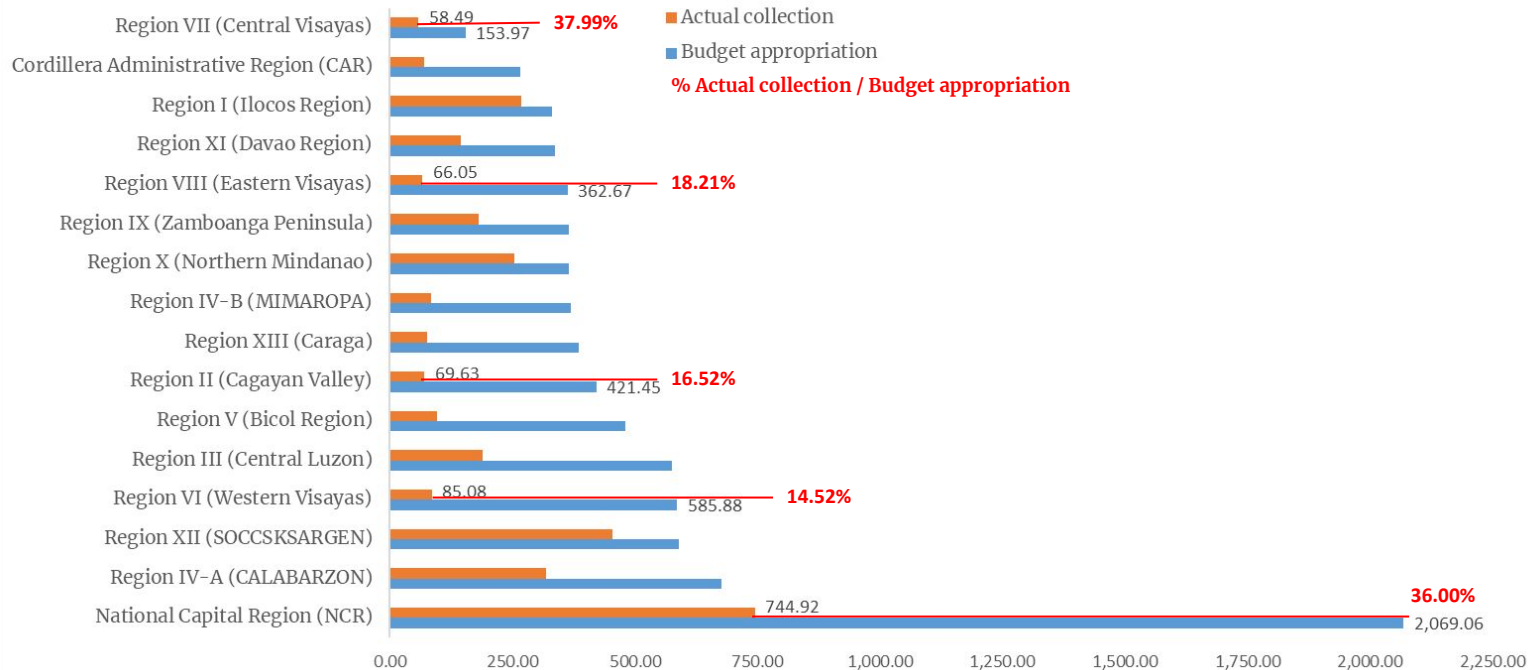
Central Visayas has the **lowest % budget appropriation and actual collection** of Local Disaster Risk Reduction and Management Fund in 2018



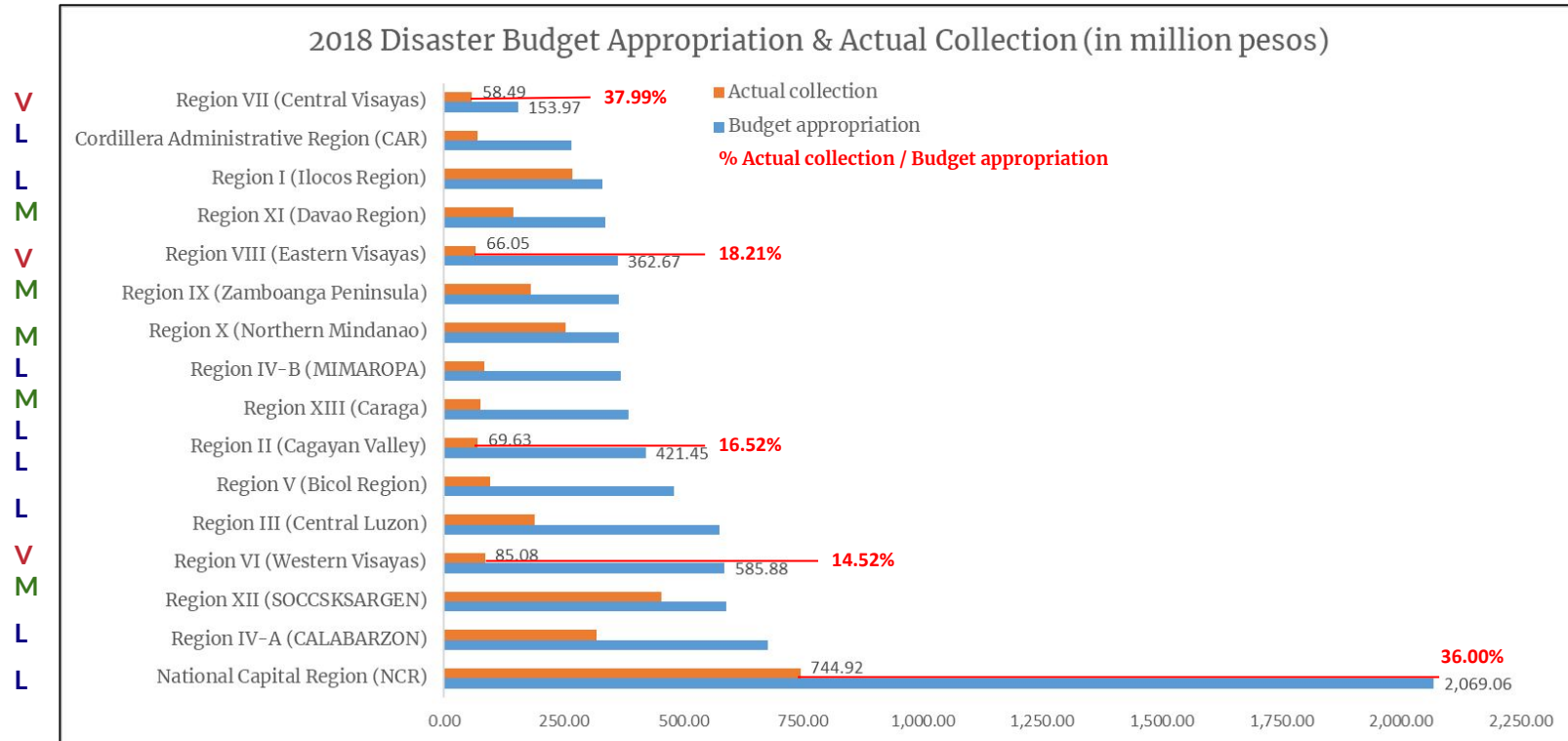
NCR has the **highest % budget appropriation and actual collection** of Local Disaster Risk Reduction and Management Fund in 2018

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2018 Disaster Budget Appropriation & Actual Collection (in million pesos)



Eastern Visayas, Cagayan Valley, and Western Visayas have the **lowest % collection to appropriation** of Local Disaster Risk Reduction and Management Fund in 2018

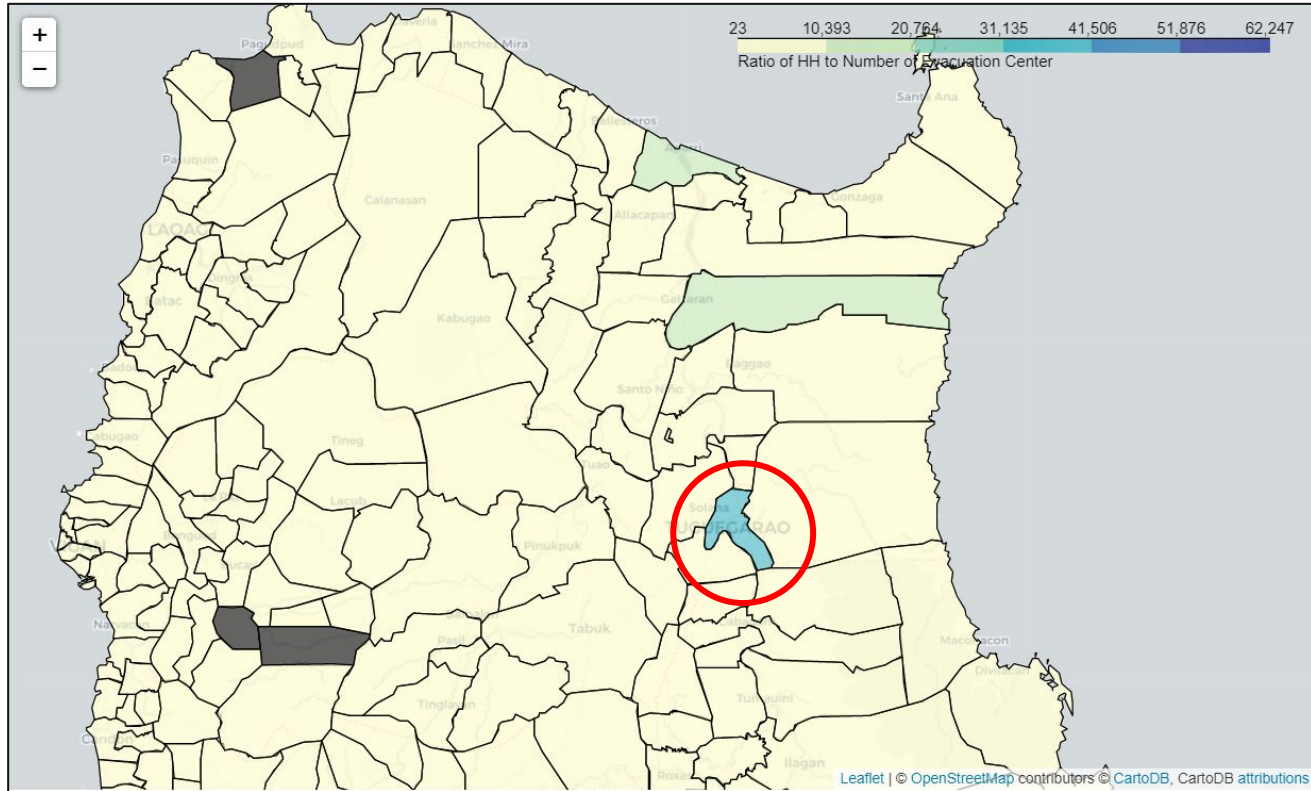


*LGUs must plan ahead
to prevent climate
disasters*

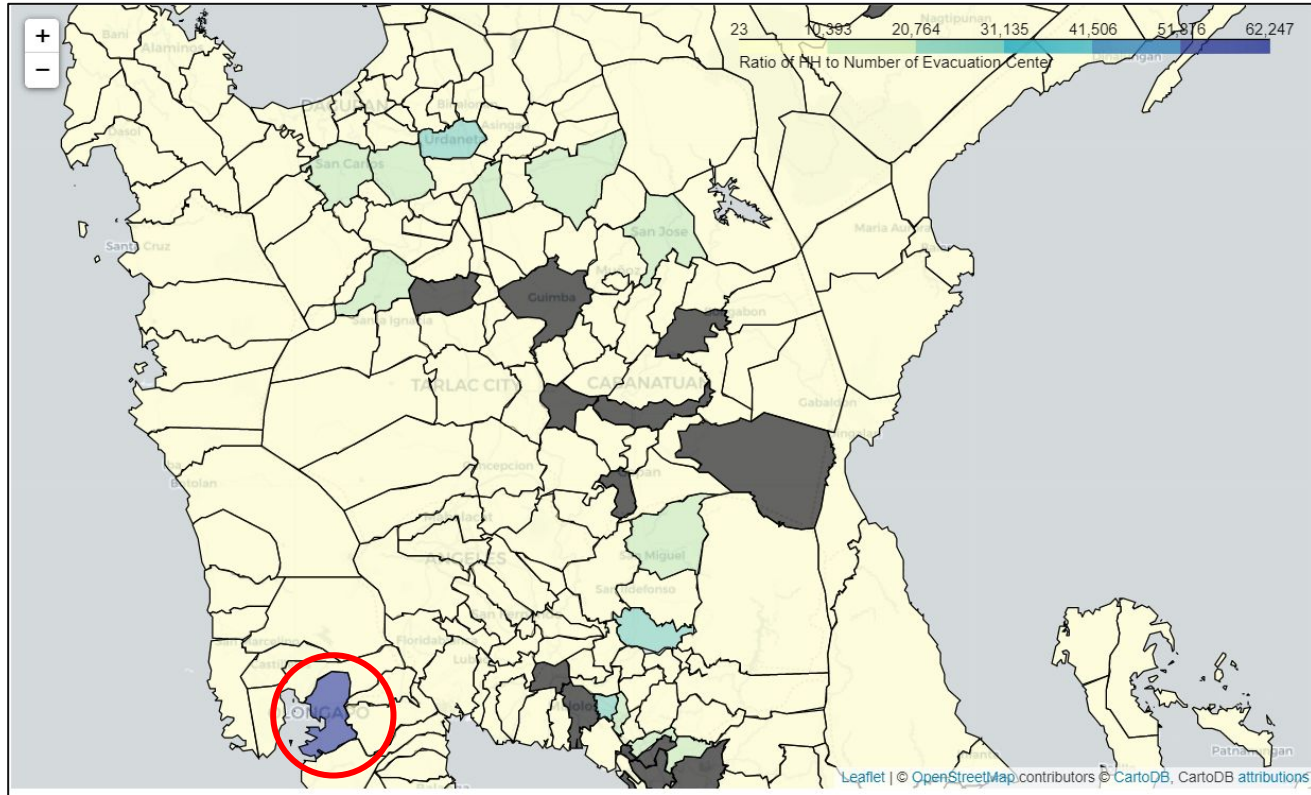
LGU Preparedness

of Evacuation Centers

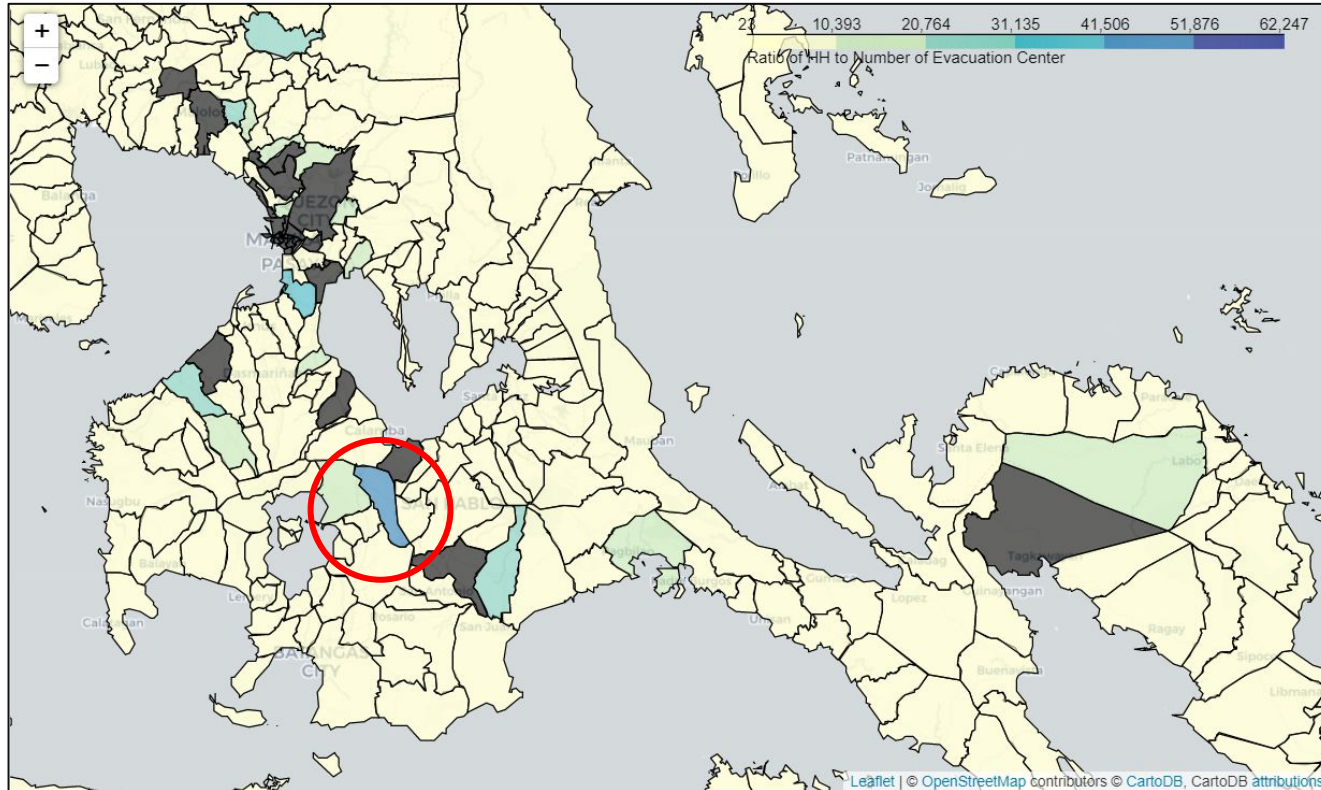
Northern Luzon: Tuguegarao City, Cagayan has the **highest ratio of # households to # evacuation centers**



Central Luzon: Olongapo City, Zambales has the **highest ratio of # households to # evacuation centers**



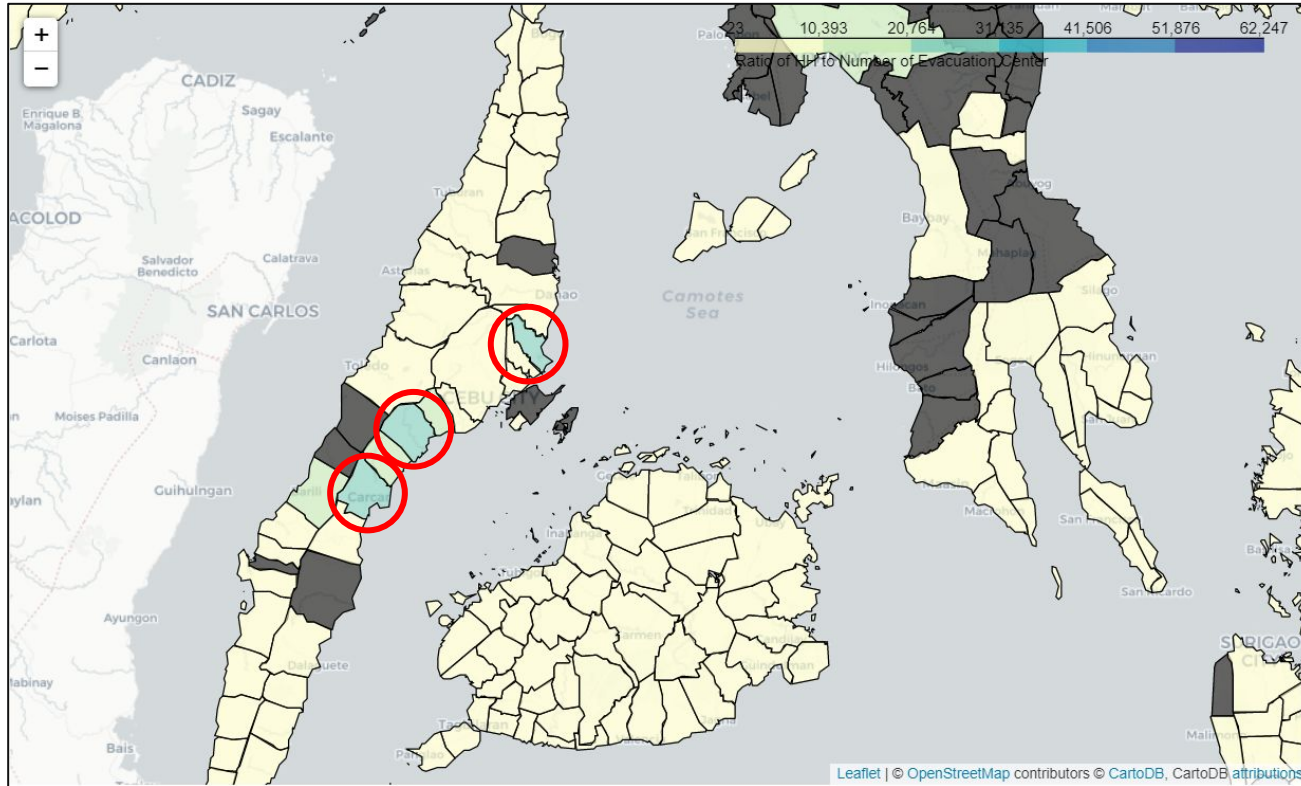
Southern Luzon: Santo Tomas, Batangas has the **highest ratio of # households to # evacuation centers**



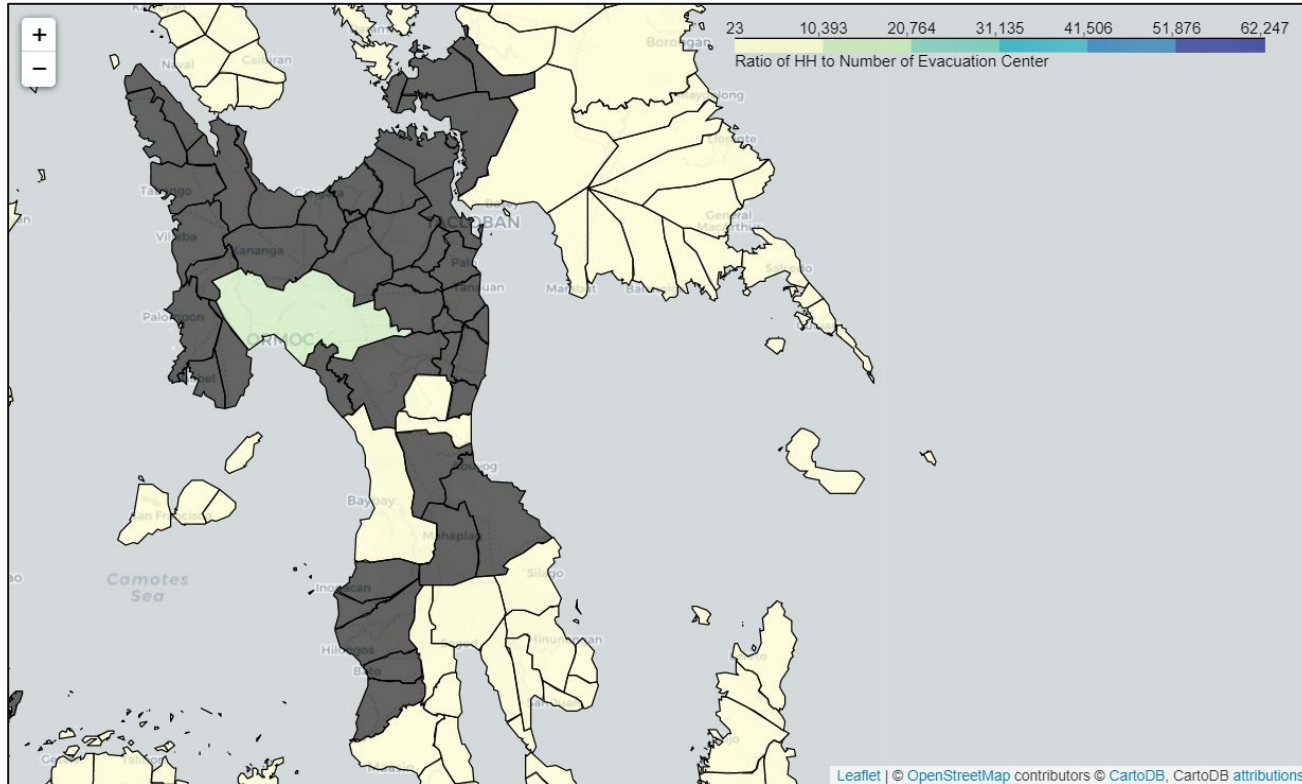
Western Visayas: Roxas City, Capiz has the **highest ratio of # households to # evacuation centers**



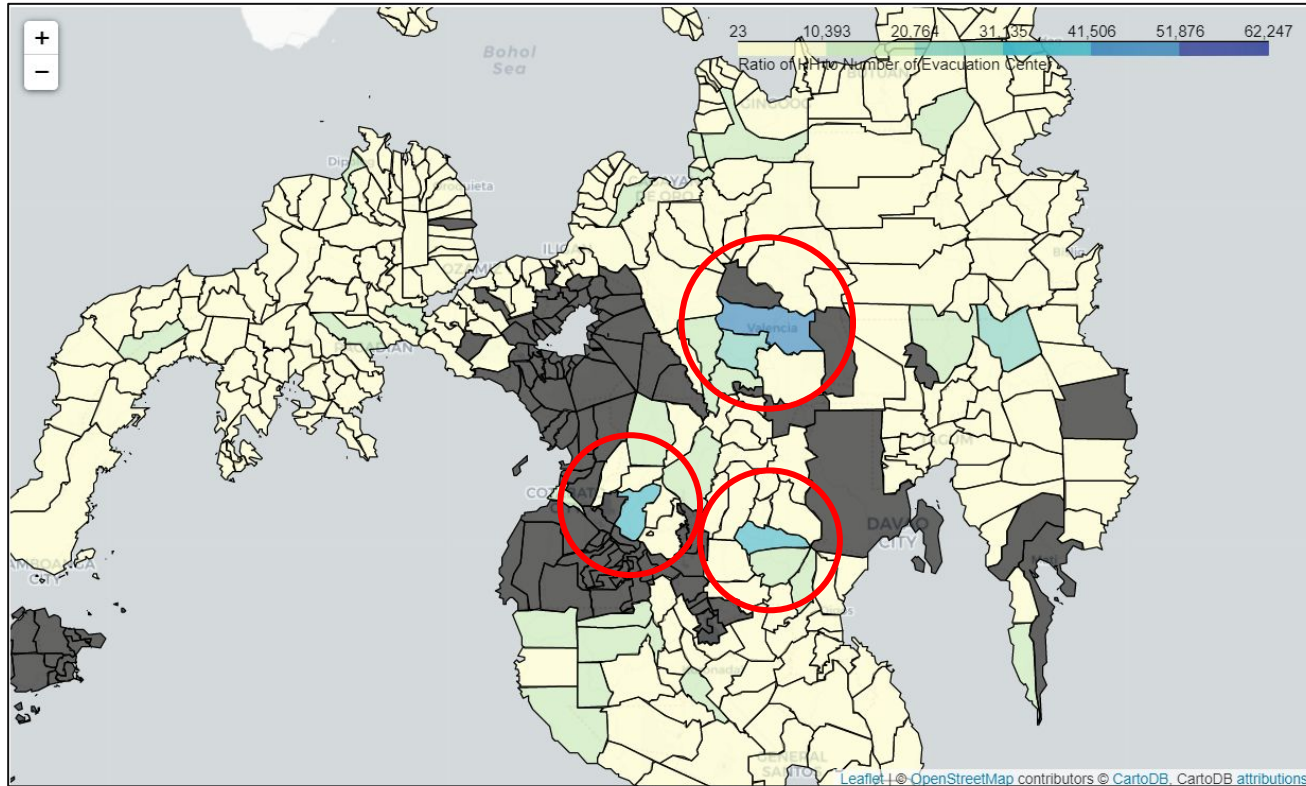
Central Visayas: Carcar City, Naga City, and Liloan, Cebu have the **highest ratio of # households to # evacuation centers**



Eastern Visayas: Majority have missing data on the **# evacuation centers**



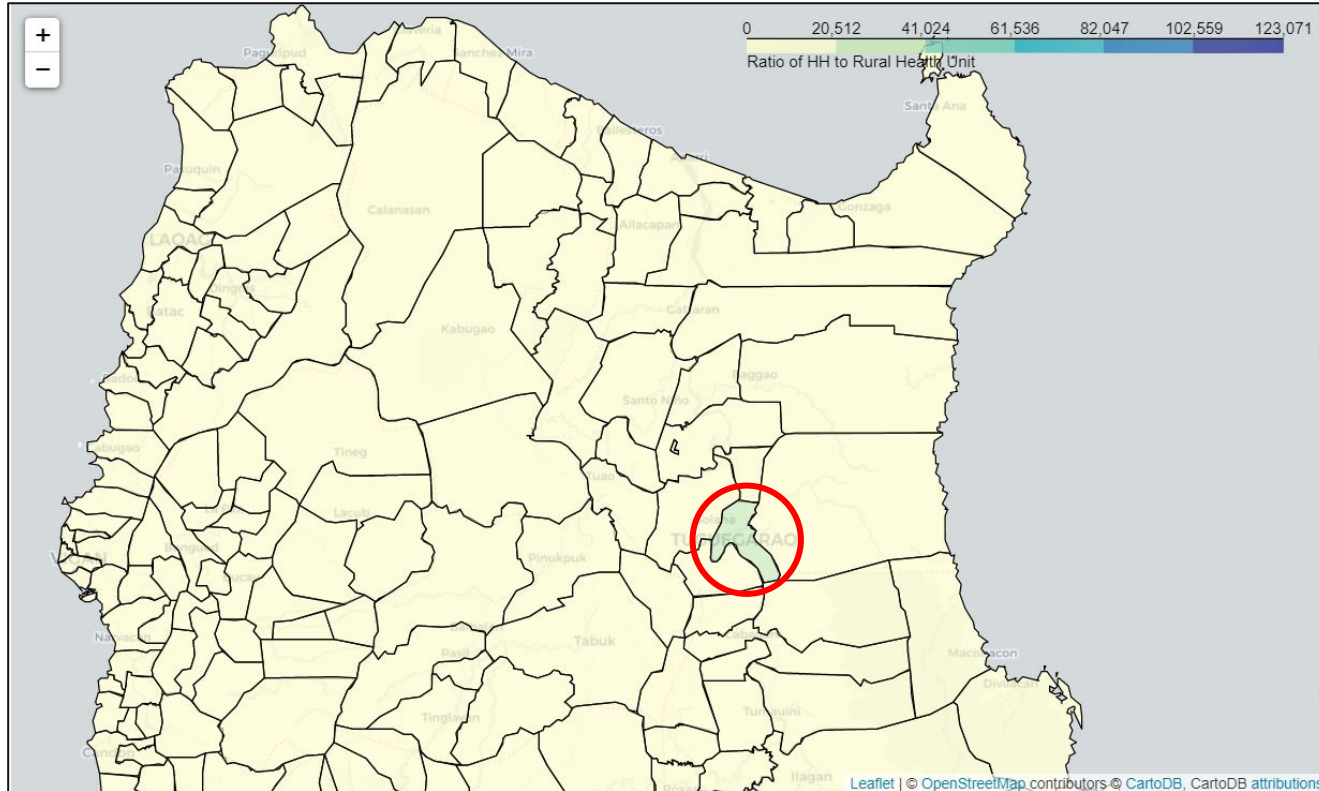
Mindanao: Valencia, Bukidnon; Midsayap and Kidapawan, Cotabato have the **highest ratio of # households to # evacuation centers**



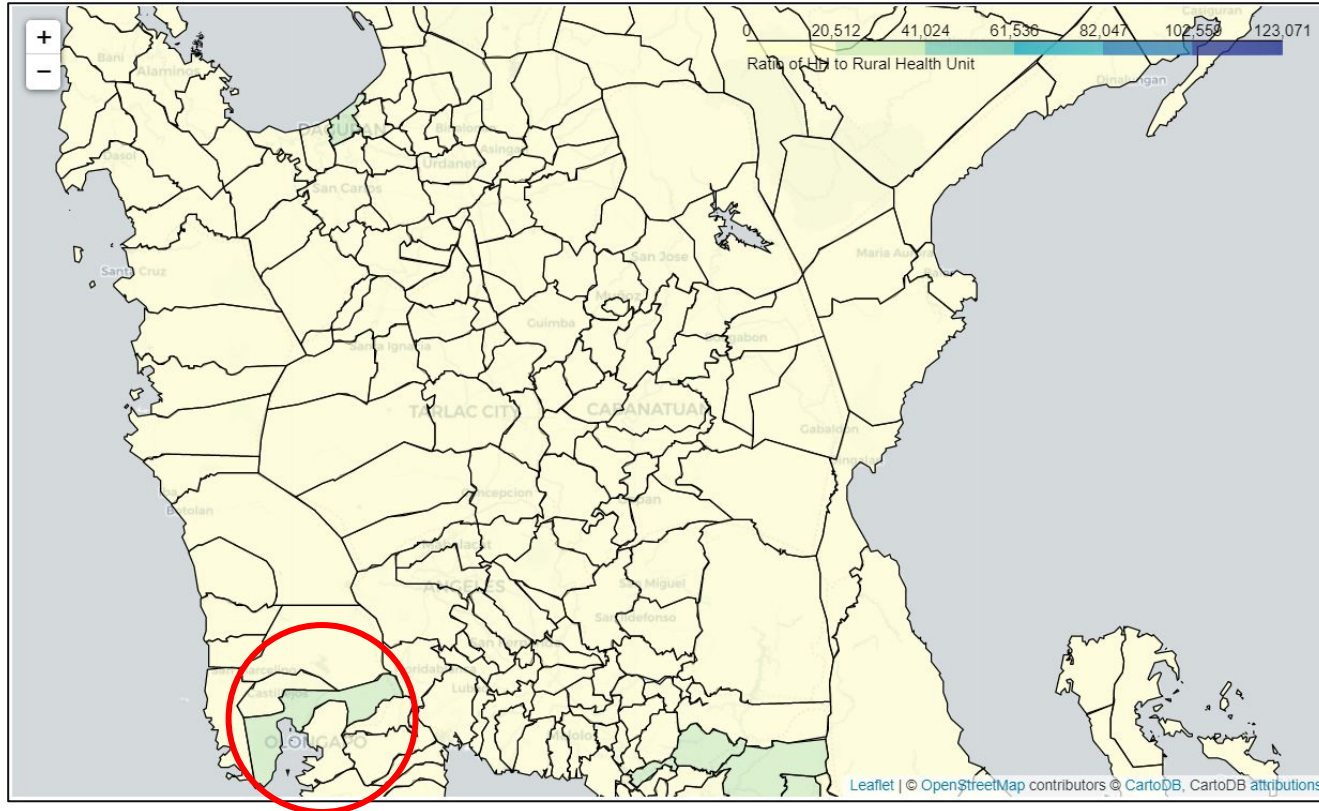
LGU Preparedness

of Rural Health Units

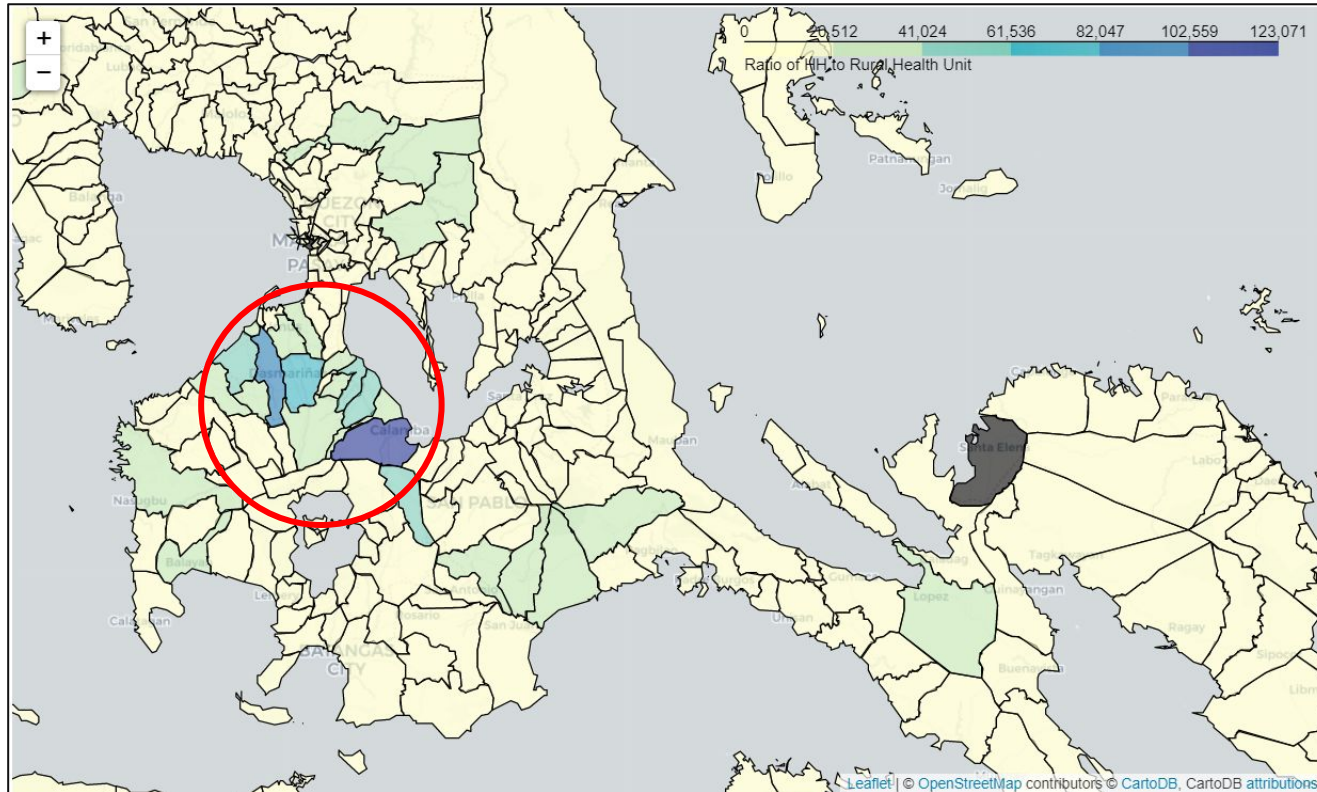
Northern Luzon: Tuguegarao City, Cagayan has the **highest ratio of # households to # rural health units**



Central Luzon: Subic, Zambales has the **highest ratio of # households to # rural health units**



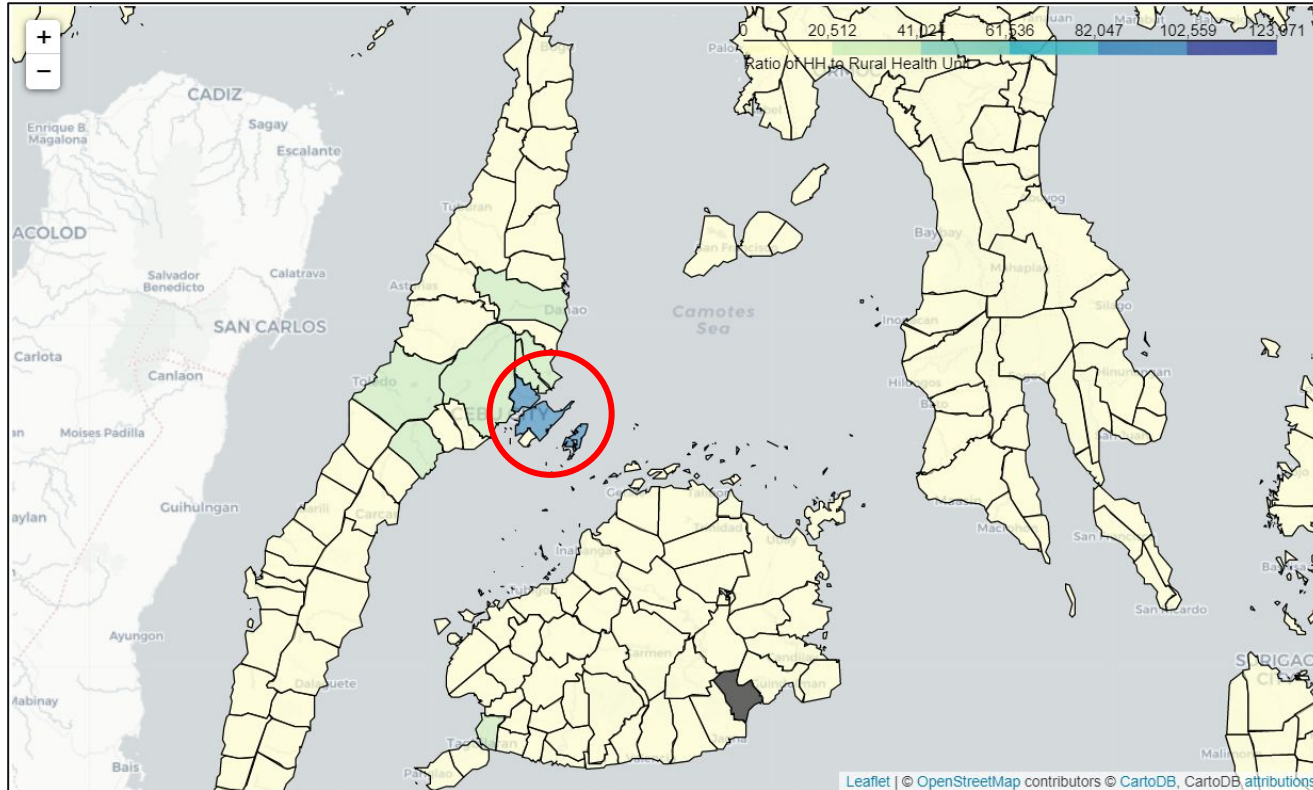
Southern Luzon: Calamba City, Laguna and General Trias City, Cavite have the **highest ratio of # households to # rural health units** (followed by Dasmariñas City & Tanza, Cavite + Biñan City & Santa Rosa City, Laguna)



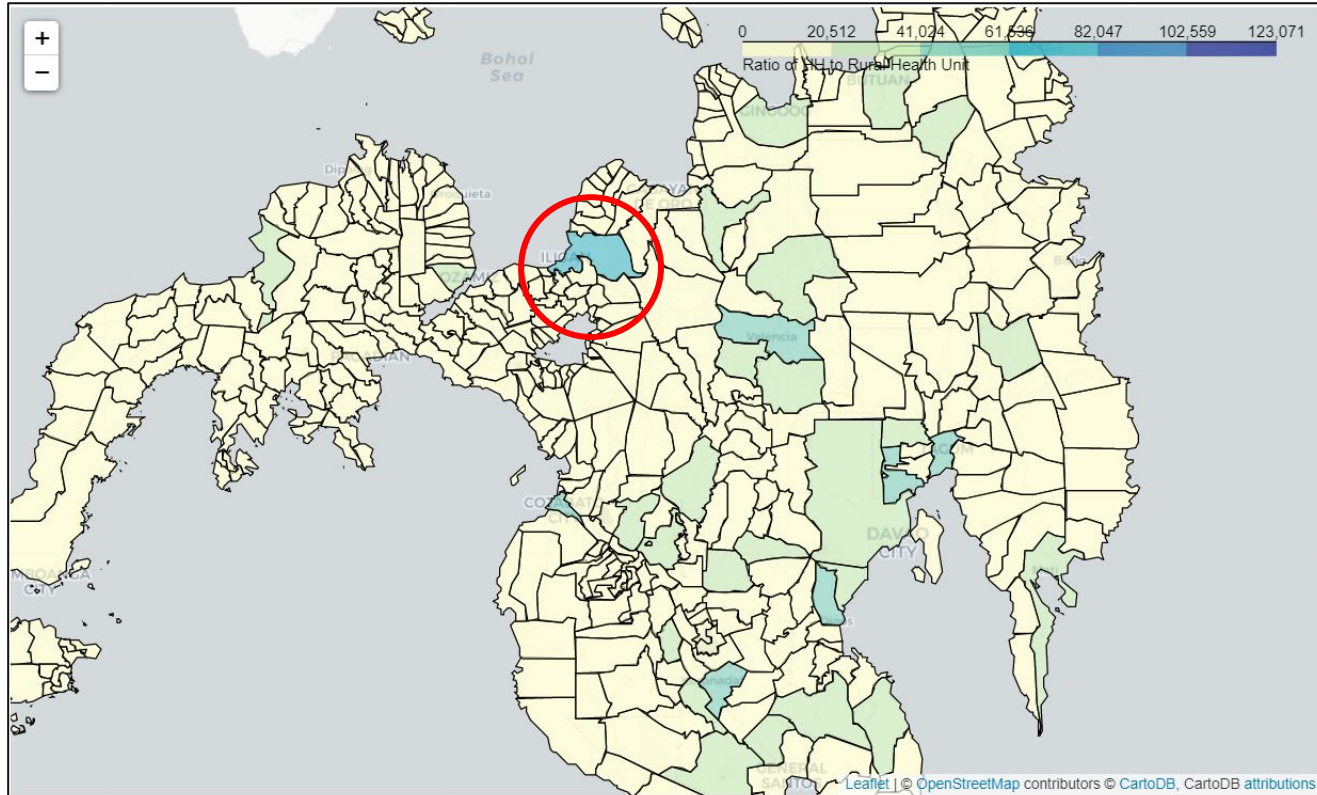
Western Visayas: Roxas City, Capiz has the **highest ratio of # households to # rural health units**



Central Visayas: Mandaue City and Lapu-Lapu City, Cebu have the **highest ratio of # households to # rural health units**



Mindanao: Iligan City, Lanao del Norte has the **highest ratio of # households to # rural health units**



Recommendations

Climate Adaptation

- Have a nationwide vulnerability and risk assessment profile
- Prioritize building the capacity of historically vulnerable LGUs
- Develop map incorporating other climate impacts (e.g. drought, coral bleaching, etc.)

Recommendations

Next Steps for the Project

- Aggregate by province and join with poverty incidence.
- Create a *regression model* with poverty incidence as the **target** and pre-disaster indicator ratios, disaster budgets, and hazard risks as **features**.
- Create *geospatial bivariate maps*, e.g. poverty incidence vs. hazard risks, poverty incidence vs. disaster budgets, hazard risks vs. disaster budgets

Dataset sources

- ❑ Disaster Occurrences
EM-DAT <public.emdat.be>
- ❑ Pre-disaster Indicators (# evacuation centers, # rural health units, # households)
Humanitarian Data Exchange
<data.humdata.org/dataset/philippines-pre-disaster-indicators>
- ❑ Disaster budget of LGUs
Freedom of Information <foi.gov.ph>

thanks!

Any questions?

