

Co-managing risk:

Disaster spending, legislation, and the non-government organizations in agricultural and fishing communities in Central Philippines

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Economic, environmental, and social impacts of disasters

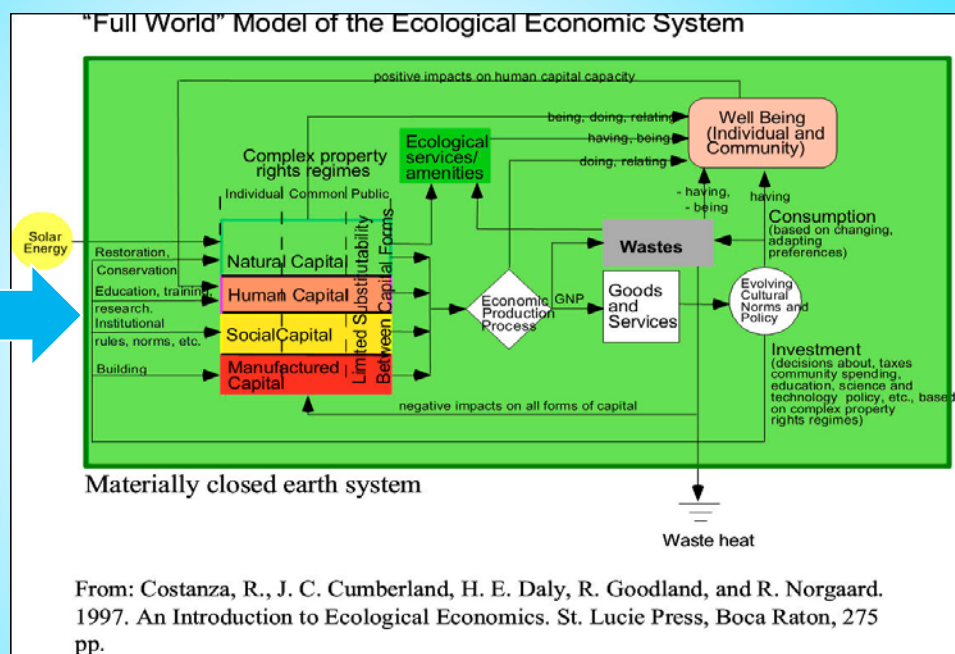
- Damages to infrastructure (from flood water inside houses/buildings) and crops (*National Disaster Risk Reduction and Management Council, 2014*)
- Casualties/deaths (*Takumi, 2014*)
- Power outages (*ABS-CBN News, 2013*)
- Interruptions to transport (*Felipe, 2001; GMA Network, 2009*)
- Losses in employment opportunities (*Takumi, 2014*)
- Physical health problems (*Zoleta-Nantes, 2002*)
- Psychological health problems (e.g. post-traumatic disorder) (*Gelbach, 2008; Dodman, 2010; Tan, et al., 2004*)

Types of damages	Examples
Direct, tangible	Damage to private buildings and contents; destruction of infrastructure such as roads, railroads; erosion of agricultural soil; destruction of harvest; damage to livestock; evacuation and rescue measures; business interruption inside the flooded area; clean-up costs.
Direct, intangible	Loss of life; injuries; trauma; loss of memorabilia; psychological distress, damage to cultural heritage; negative effects on ecosystems.
Indirect, tangible	Disruption of public services outside the flooded area; induced production losses to companies outside the flooded area (e.g. suppliers of flooded companies); cost of traffic disruption; loss of tax revenue due to migration of companies in the aftermath of floods.
Indirect, intangible	Loss of trust in authorities.

Climate change intensifies extreme weather and rapid urbanization worsens disaster damages (IPCC and World Risk Report)

Disasters add MORE pressure to the economic and ecological systems!

DISASTERS



Focus of this study

This exploratory study aims to understand selected components of well-being and how they relate to each other.

- 1) Determine the average annual flood damage per households and disaster spending of local governments (**Damages and disaster spending**);
- 2) Examine the disaster-related legislation (**Disaster legislation**); and
- 3) Identify the involvement of non-government organizations or civic organizations in disaster-prone areas (**NGOs/CSOs involvement in disaster**).

5

(1) Disaster spending

- Expenditures on prevention (and other disaster management activities) may increase welfare; but budgets are **mostly constrained/limited, low priority, or misdirected** (especially in developing countries).
- Policy success in disasters requires that governments have an **understanding on how much should be spent** in order to more accurately budget for such events.
- Information for local executives about allocation choices between flood and other disasters or between disaster management domains (e.g. prevention versus rehabilitation).

6

(2) Disaster legislation

- Development of disaster risk reduction and management (DRRM) plans should be synchronized with trends in international DRRM policies
- Legislation is essential in reduction of local disaster vulnerability, in order to institutionalize disaster activities

7

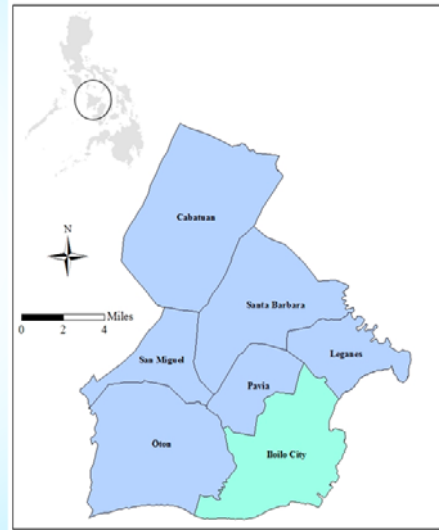
(3) NGOs/CSOs

- Third parties' such as non-government organizations may **provide assistance during disasters** and (potentially) improve **social welfare** (Luna, 2001; Gaillard & Cadag, 2009)
- Examples of NGOs/CSOs activities
 - Mobilize support, local and international, for at-risk communities, e.g. launching local fund campaigns, organizing volunteers and acquiring access to foreign donations and grants
 - Organize activities towards capacity building, advocacy, and 'influencing jurisprudence for disaster prevention' (Luna, 2001; Cancellar and Hipolito, 2011)
 - Others: sand bagging (Luna, 2001)

8

Why the Metropolitan Iloilo (MI)?

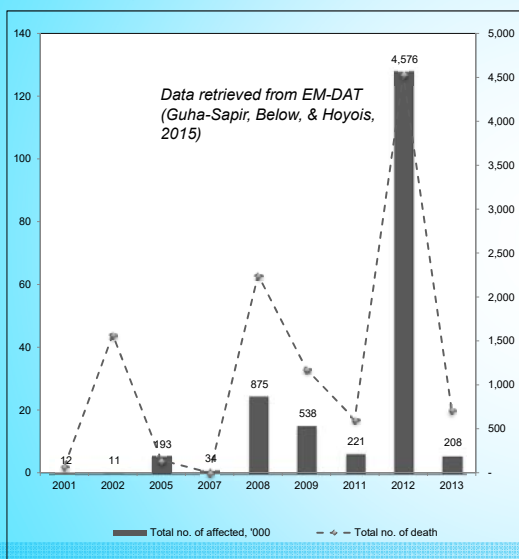
- Western Visayas region, in central Philippines
- Consists of highly urbanized city and six adjacent towns, with rapid infrastructure and residential development for the past 5 years



9

Why the Metropolitan Iloilo (MI)?

Documented continuing impacts of floods and typhoons



Date	Typhoon (local name)	Date	Typhoon (local name)
April 2008	Neoguri (Ambo)	October 2011	Banyan (Ramon)
June 2008	Fengshen (Frank)	December 2011	Washi (Sendong)
September 2008	Hagupit (Nina)	August 2012	Kai-tak (Helen)
June 2009	Feria (Nangka)	July 2012	Saola (Gener)
September 2009	Ketsana (Ondoy)	September 2012	Sanba (Karen)
October 2010	Megi (Juan)	October 2012	Son-Tinh (Ofel)
August 2011	Nanmadol (Mina)	December 2012	Wukong (Quinta)
September 2011	Nesat (Pedring)	December 2012	Bopha (Pablo)

Compiled from PAG-ASA

10



Also because MI has industry and household diversity

City/ Towns	Area (hectares)	Headcount	Household population	No. of barangays	Major industries	Income class	Annual income (in P)
Iloilo City	7,834	437,366	96,049	180	Commercial and Service Centres; Industrial	1 st class city	1,374,928,617
Pavia	2,703	46,765	9,655	18	Industrial; Commercial and Service Centres	2 nd class	6,320,391
Sta. Barbara	13,196	54,166	14,140	60	Agricultural; Industrial	2 nd class	4,952,410
Oton	8,644	82,572	17,315	37	Agricultural; Fishery	1 st class	27,522,201
Leganes	3,220	29,438	6,191	18	Agricultural; Commercial and Service Centres	4 th class	9,964,121
San Miguel	397	25,561	5,306	24	Agricultural; Commercial and Service Centres	2 nd class	50,762,752
Cabatuan	11,290	56,910	11,821	68	Agricultural; Commercial and Service Centres	2 nd class	3,333,738
Total	47,284	732,778	160,477	405			1,797,784,230

Pre-survey

- 1) **Initial literature review** – information about flood damages and the status of their natural environment
- 2) **Focus group discussion (FGD)**
 - One of the objectives: understand various damages from floods.
 - Participants employed in different sectors (agriculture/fisheries/industrial/tourism/other services)
 - Snowball sampling for recruitment
 - 19 participants for 6 FGDs in urban (Iloilo City) and rural (Guimaras Island).
- 3) **Pre-test survey**
 - 50 residents from urban (Iloilo City) and rural (Guimaras Island)
 - Random sampling using resident list from barangay councils
 - Better collection: face to face interview or drop-off/retrieve approach.

13

Main survey sampling

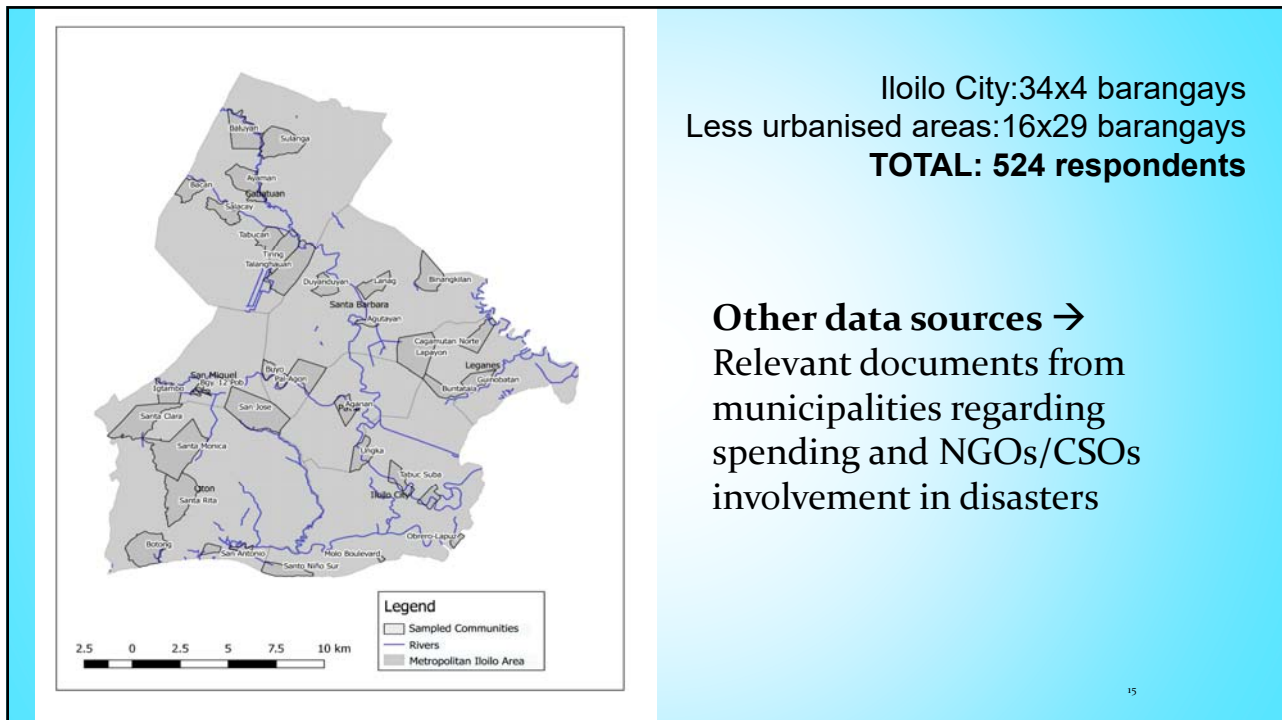
Multi-stage sampling

1st stage: Selected ALL areas of MI (1 city, 6 adjacent towns)

2nd stage: Geographical sampling of barangays (33 grids for MI)

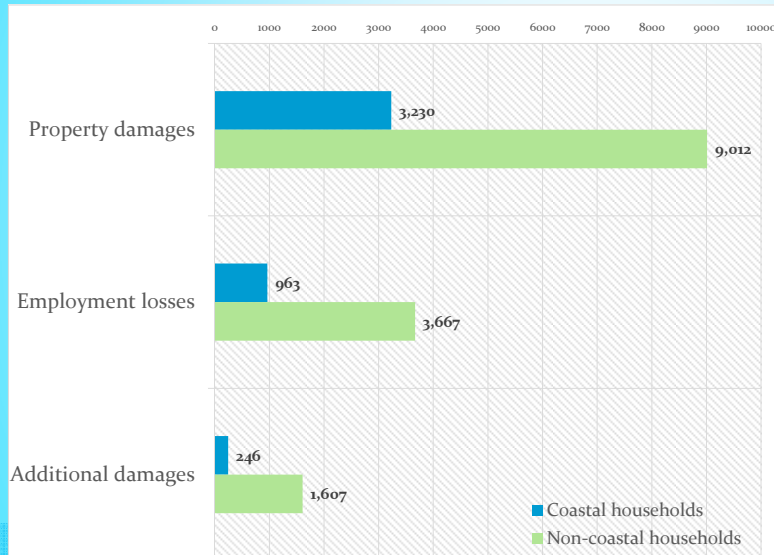
3rd stage: Purposive sampling of households, with help from barangay councils

- Hired and trained 8 enumerators (4 females, 4 males).
- Face-to-face interview (average interview 15 to 25 minutes).
- At least 18 years old preferably the household head or spouse.
- In cases where the head or spouse was not available, interviews were conducted with any family member who was employed.



Results

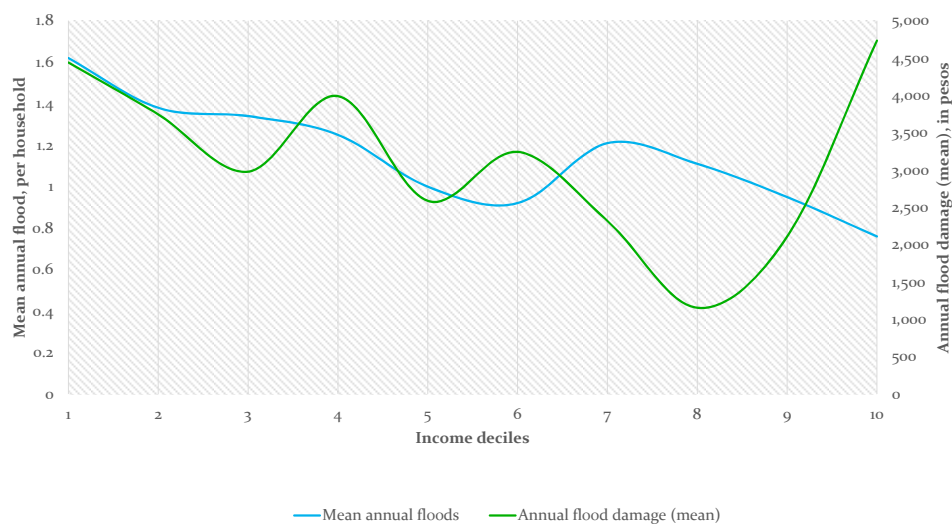
Flood damages



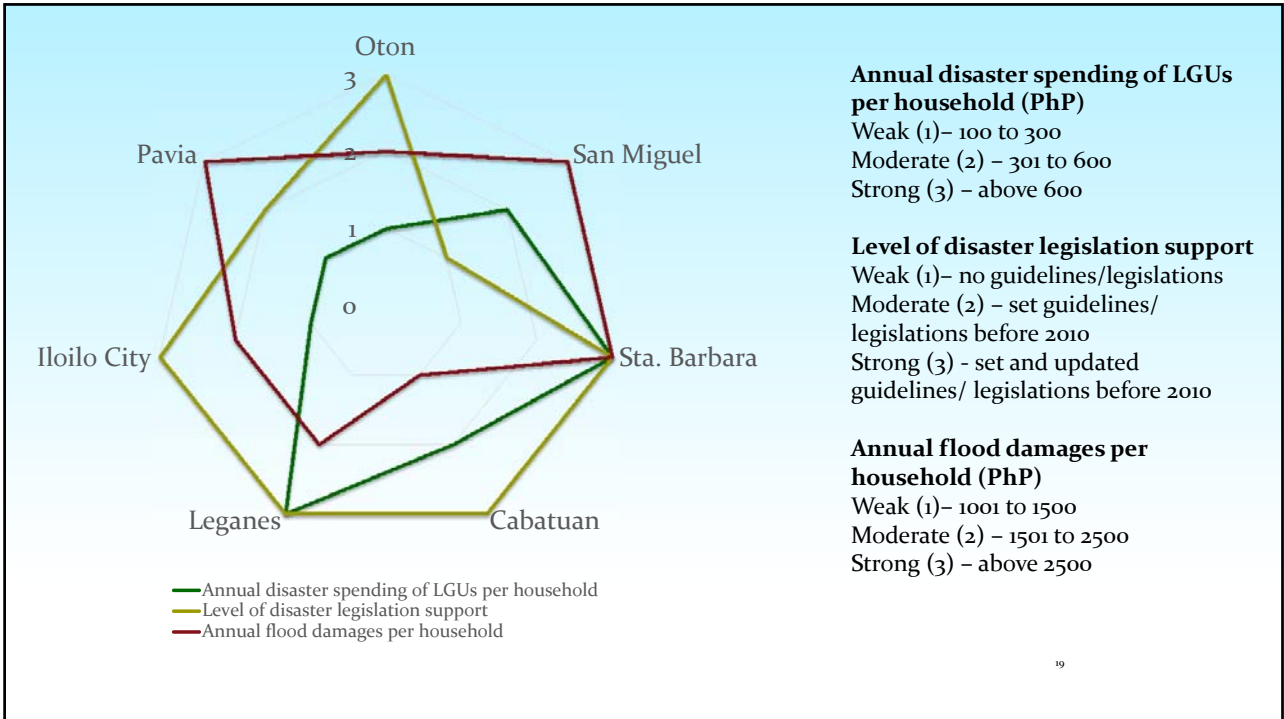
Monetary flood damages were different between coastal and non-coastal municipalities.

This may be due to the fact that the value of properties and other personal items (e.g. houses) of households in coastal communities were less.

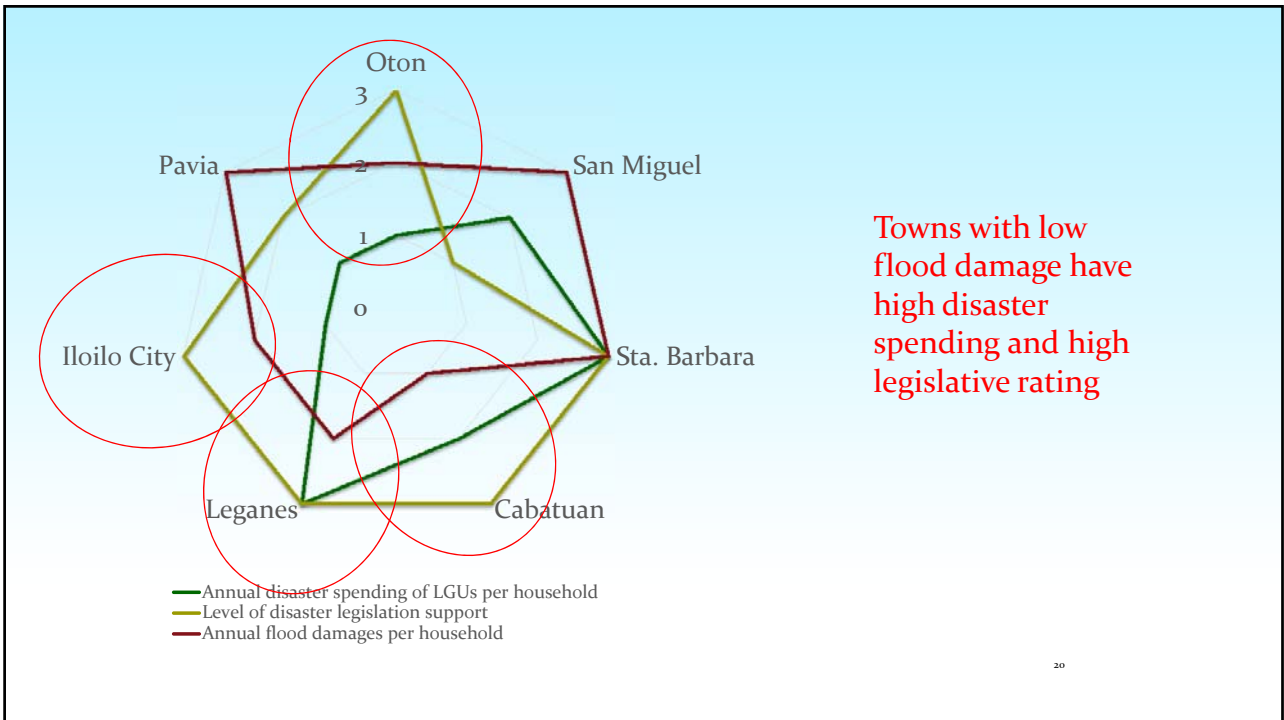
In the Philippines, poor households tend to live/move near the resource (e.g. coast or river) and depend on it as their primary source of livelihood.



- Mean annual number of floods drops with income
- Mean annual flood damage decreases with income.
- These patterns suggest that the rich households were less affected by floods than poor households.



19



20

Level of support of governments before/during/after disasters

- For those who experienced flood, they were asked to rate the level of support of government (from 1 to 5, 1 as not effective).
- Study showed that in both coastal and non-coastal areas, local government's assistance and support were effective (mean score > 3)
- Local government support during and after the disaster is most effective in areas situated in coastal communities (mean score > 4).
 - Assistance during disasters (e.g. response) was rated highly compared to prevention, preparedness and rehabilitation.



21

Specific cases of Oton and Sta. Barbara

- **Oton (coastal community)** has low rating for flood damage
 - Strong legislative rating due to active involvement of the local government relating to disaster management
 - History of well-established policies which includes urban coastal centers
 - Low in disaster spending of the local municipality (collaboration with civil society organizations and other government agencies such as Bantay-Dagat)
- **Sta. Barbara (agricultural community)** has high rating for flood damage
 - High in disaster spending of the local municipality
 - Weak relationship of local government with civic organizations/ non-government organizations

22

Summary of results

- Results confirm literature that vulnerable groups such as resource-dependent households (e.g. fishers) are most affected by floods.
 - Disaster Risk Reduction and Management (DRRM) plans should recognize and focus more on these vulnerable groups. Strategic/development plans of municipalities should be in-line with its DRRM plans.
- Large funds for disasters does not necessarily translate to low flood impacts.
 - Local government should utilize there disaster funds properly and should be spent in the disaster-related activities; wherein a higher percentage or estimated half of the funds are unused or not used properly.
- Established and updated disaster legislations may contribute to low food impacts as well as active involvement of NGOs/CSOs.

23

Natural progression of this study is to:

- Examine NGOs/CSOs involvement in disaster management, including their (potential) impacts to the communities as well as their relationship with other stakeholders (e.g. local governments)
- Study spending of local governments for various years, to understand how they allocate their budgets and what disaster activities are their priorities.
- Examine additional cases of fishers and other vulnerable groups of their mitigation activities (i.e. how they cope with disasters) as well as their experiences with NGOs/CSOs and with the local governments, in terms of disaster assistance.

24

Thank you!

