

# **Climate Change, Natural Disasters, and Land Tenure: Case of Typhoon Sendong (Washi) in Cagayan de Oro City, Northern Mindanao, Philippines**

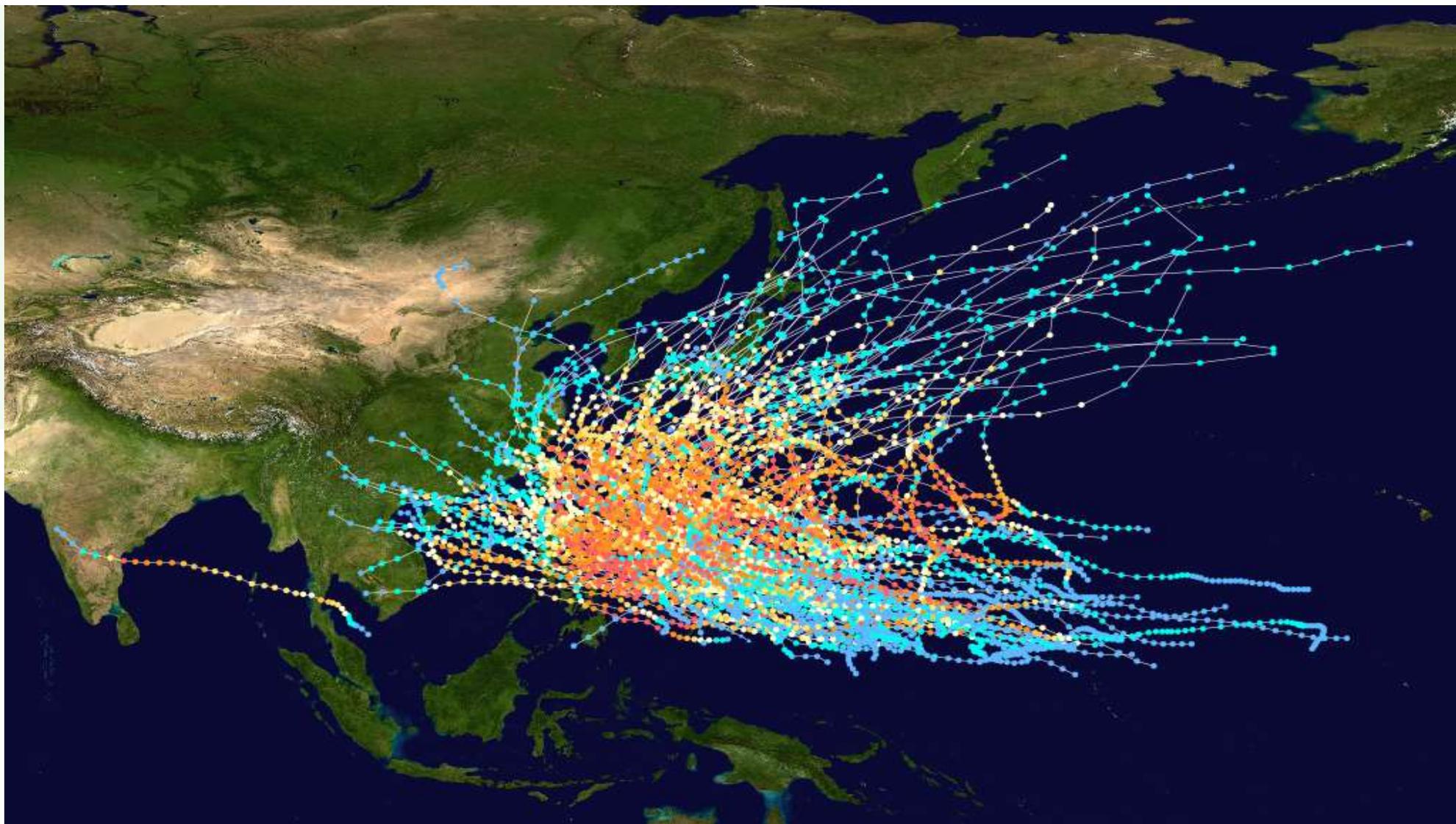
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# Map of Pacific Category Five Typhoons



- Objective - To examine the linkages between climate change and land tenure through a case study of the effects of Typhoon Sendong (international name: Washi) on Cagayan de Oro City in Mindanao, Philippines.
- Primary sources - 3 key informant interviews with local government engineers and CSOs, Author's personal knowledge
- Draws almost entirely from a review of secondary sources
- Focused on a single climate-induced event (Typhoon Sendong) with *rapid impact* – thus may not cover the other *slow and gradual* tenure-related impacts that other climate events may bring

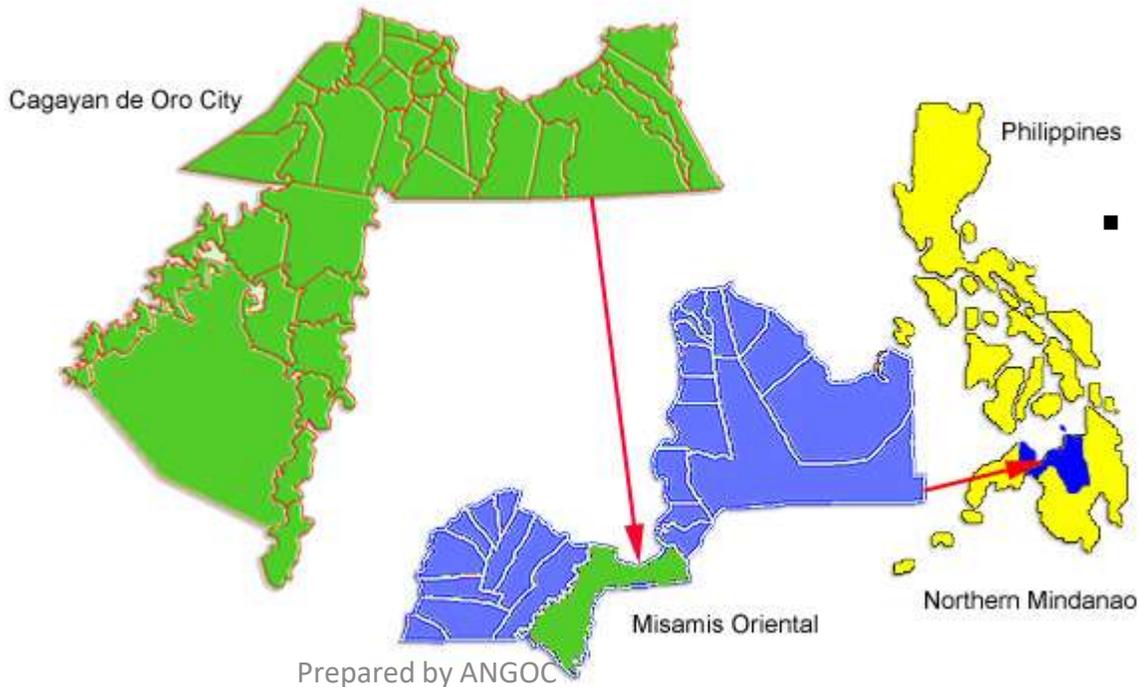
## Mindanao context: climate change and displacement amidst tenure issues and conflict

- Of the three main islands of the Philippines, **Mindanao experiences the least number of tropical cyclones** as most of its provinces lie below the typhoon belt.
- In a **30-year mean analysis of tropical cyclone passage** in the country from 1951 to 2000, Mindanao had the **lowest frequency of about 30 events per decade**. It was also projected to have a **generally decreasing rainfall** trends by 2050 (DOST-PAGASA, 2011).
- However, with the occurrences of extreme weather events in the past few years in the region, the **predicted paths of typhoons have become uncertain**.
- These phenomena are **hypothesized to be a manifestation of climate change** (DND et. al., 2016).
- **Double displacement whammy of disasters and conflicts**
  - With a predominately mild climate in the region, most Mindanaons have no experience in coping with these disasters – leading to **high disaster-induced displacements** among the population (135,406 IDPs [60% of the region's pop'n] since 2012 (UNHCR – Protection Cluster in Mindanao, Philippines, 2017).
  - Further exacerbated by **the long history of multi-faceted internal conflicts** in the region – more than 230,000 individuals (57% of the total displacement) in 2015

## Typhoon Sendong and the immediate aftermath

### 1. Cagayan de Oro (CDO) before the storm

- Physical: CDO consists of narrow coastal plains facing the ocean in the north, and highland areas in the south
- Population: 2.23% growth rate



- Economic:
  - regional center and business hub of Northern Mindanao
  - ranked as the most competitive city in the Philippines in 2013
- Land use (change):
  - Marked development shift from the lowlands to the uplands since 2000
  - The City approved 36 new housing subdivisions (2009-2013)

## Typhoon Sendong and the immediate aftermath

### 2. The Sendong Disaster in Cagayan de Oro

- Sendong made landfall near Hinatuan in the province of Surigao del Sur on the afternoon 16 December (NDRRMC, 2012).
- Wind speed: 55 to 65 kilometers per hour; wind gusts: 80 kilometers per hour (DHI, 2011).
- Considering the wind velocities, Sendong was a “weak” storm. However, the typhoon was also characterized by high precipitation levels, which triggered widespread flooding and mass wasting.
- Between 16 and 17 December, 180.9 millimeters of rain was recorded in Cagayan de Oro City, exceeding the December monthly rainfall average by 60 percent (Ginnetti, et. al., 2013).
- On 17 December, the Cagayan River had flooded with an increase in depth from two to ten meters.
- A total of nine flooding incidents, two landslides, and four sea mishaps had been recorded in 14 different provinces at the height of the typhoon (NDRRMC, 2012).

## Typhoon Sendong and the immediate aftermath

### 3. Consequences to lives and property

- Sendong affected a total of 131,618 families (around 700,000 persons) in 57 municipalities and 8 cities, in 13 provinces
- It displaced an estimated 430,900 individuals, with most of these displacements occurring in Cagayan de Oro and nearby Iligan City (Ginnetti, et. al., 2013).
- Roughly 300 to 400 thousand people (around 70 thousand families) from the two cities were rendered immediately homeless or displaced by the storm (Franta, et. al., 2016),
- The typhoon also damaged a total of 51,144 houses across several regions
- The cost of damages to property amounted to more than PhP 2 billion, with Region 10 accounting for about 90 percent of these losses.



## Summary assessment: Climate change, natural disasters, and land tenure – lessons from Typhoon Sendong

### 1. Climate change and its impacts on land tenure

- The Philippines is frequented by and is highly susceptible to the devastating effects of weather disturbances and natural hazards. This heightens the vulnerability of people (lives, health, homes, and livelihoods) to the effects of climate change and natural hazards.
  - Over 50 percent of the land and 80 percent of the population are vulnerable to natural hazards.
  - Poverty incidence among Filipinos was 26 percent in 2015, although 50 percent of Filipinos rated themselves as “poor” based on self-rated poverty
- With poor land-use planning and forest cover destruction, the population is threatened even more by the impacts of natural disasters.
- While natural disasters may cause displacement of households, it may also cause **affected households to fall into poverty**.
- Long history of dealing with DRM, and adaptation. Yet, capacities and institutions are insufficient and outmatched by the growing impacts of natural disasters due to a rapidly changing climate
- Despite various environmental laws and institutional reforms on DRR and climate change policy, there is need for greater understanding of the relationships between the impacts of climate change, social and policy responses, and land tenure.

## Summary assessment: Climate change, natural disasters, and land tenure – lessons from Typhoon Sendong

### 1. Climate change and its impacts on land tenure

- The National Climate Change Action Plan 2011-2028 has put greater emphasis on *adaptation* as a complement to measures that reduce greenhouse gas emissions (CCC, 2011, emphasis added).
- Mindanao in southern Philippines is particularly vulnerable to climate-induced weather disturbances, due to emerging trends:
  - Although Mindanao has experienced the least number of tropical storms in the country over the past 30 years, the predicted typhoon paths have become uncertain, as Mindanao has been hit by typhoons in growing magnitude and severity;
  - Due to climate change, there is an expected increase in seasonal rainfall in Mindanao during the northeast monsoon, although the region will generally experience a decrease in rainfall by 2050;
  - As most Mindanaoans have no experience in coping with disasters, there has been a very high level of disaster-induced displacement among the population; and,
  - Internal displacement is exacerbated by a long history of internal conflicts that stem from the struggle of Muslim ethnic groups (Moros) for their homeland, the struggle of indigenous peoples (*lumads*), and a 50-year old Communist insurgency. The UNHCR-Protection Cluster noted that the same displaced families brought by natural disasters continue to bear the brunt of armed conflict in the region.

## 2. Climate disasters, tenure security and vulnerability

- This study in Cagayan de Oro highlights the relationships between the impacts of climate change, social and policy responses, and land tenure.
- Climate change and natural disasters disproportionately affect poor people – who cultivate marginal lands that may be vulnerable to flooding, high tides, and storm surges
- Rapid population and economic growth in the City have been accompanied by unplanned urbanization and land use.
- The city experienced an expansion of informal settlements – that lack tenure security
- The lack of tenure reduces the incentives and capacity for people to invest in housing improvements or to modify their living environment to protect their homes against floods, landslides, etc.
- Thus, many poor households fall into a constant cycle of disrepair and rebuilding after each disaster.
- Most of the victims were poor, informal settlers living along the Cagayan River banks, in low-lying areas, as well as in sandbars and coastal areas.
- Factors of disasters where predominantly anthropogenic: presence of dense settlements in flood-prone areas, permanent structures and barriers along the riverbanks poor drainage facilities *attitude* of widespread complacency

## 2. Climate disasters, tenure security and vulnerability

- Three days after the food “no-build zones” instituted in Cagayan de Oro by the national government was a spontaneous, unplanned reaction to the Sendong disaster.
- This involved permanent relocation for the thousands of families living within the danger zone, yet government was unprepared for its implementation.
- While residents were initially relocated and prevented from rebuilding their homes in the danger zone, these areas were nonetheless re-occupied in spite of the restriction.
- Highlights the need for comprehensive land-use planning that incorporates climate change adaptation and disaster prevention.
- Sectors that are without security of tenure and who are politically weak, face the greatest risks to, and experience the severity of, the impacts of climate change and natural disasters.
- Displaced poor families without security of tenure have greater difficulty in restitution.
- Many families also lost important documents such as birth certificates, marriage licenses, voter registration documents, passports, and proof of education. The loss of identity documents can further reduce people’s resiliency and make it more difficult for them to recover.
- Humanitarian efforts aimed at reducing disaster risks and responding to disasters, have not adequately dealt with land tenure rights and property issues.

### 3. Responses to climate change and their impact on tenure security

- DRR and adaptation undertaken by government for communities and resource users, affect land tenure systems – whether these measures are spontaneous, or planned:
  - Changes that affect land regulation and land use are likely to impact on existing land tenure systems.
  - They can impact on land access and tenure rights especially of the poor who lack legal tenure, and depend on access to forests and public spaces.
- While systems for DRM exist, long-term disaster-prevention and CCA measures are more difficult, requiring the regulation and rearrangement of land tenure rights.
- The Philippines has several laws relating to land governance, however, many of these laws do not contain express linkages to climate change and disasters.

### 3. Responses to climate change and their impact on tenure security

Responses to climate change and disasters	Mandates	Status and remarks
“No-build” and “No-dwelling zones” on unsafe riverbanks, sandbars and coastal areas in Cagayan de Oro (2011)	forbids the construction of permanent structures in these areas earlier declared by the DENR as no-build zones	Not fully implemented due to lack of clear, on-site delineation of the zone
Comprehensive Land Use Plan: 2013-2022	development of four other urban hubs, in addition to the current downtown area in Cagayan de Oro  includes environmental protection as a major thrust	difficult to assess the extent to which zoning, land-use regulations and building codes will be enforced.
Community Mortgage Program (CMP)	community housing associations may obtain group mortgages from the Social Housing and Finance Corporation (SHFC) with a repayment period of 25 years, at 6 percent per annum.	While the transfer of families from low-lying areas to the uplands may have reduced their exposure to hazards (flooding), the city’s upland areas also pose risks of landslides, and thus their risk profile may have been diversified, not totally eliminated.

### 3. Responses to climate change and their impact on tenure security

Responses to climate change and disasters	Mandates	Status and remarks
Downstream flood protection and upland river basin management and protection	Building of 11-billion peso mega-dike infrastructure that will enclose the river over the 12-kilometer stretch starting from the mouth at Cagayan de Oro towards the upstream, to Baungon town in Bukidnon.	An estimated 3,000 families within the city alone will be displaced by the new flood system; halting the contraction in 2015.  Construction will commence in 2018 as there will be relocation services will be provided
Payment for Ecosystem Services (PES) scheme	protection of the Batang sub-watershed that feeds into the CDO river system through a market system where the indigenous people of <i>Talakaandig</i> tribe are the sellers of ecosystem services, and the downstream users are the buyers	Certificate of Ancestral Domain Title (CADT) provided the legal recognition of the IPs of their tenure rights and the right to manage their ancestral domain under indigenous traditional systems and self-governance
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### 3. Responses to climate change and their impact on tenure security

- In 2017, ANGOC initiated a policy review process on the issue of climate change, natural disasters, and land tenure – which recommended for the following:
  - **Promotion of the VGGT**
  - **Pursue reforms in tenure rights and DRRM legislations, particularly to link tenure rights to climate change and natural disasters**
  - **Engage national government agencies (NGAs) in the Executive Department on discussions and feedback regarding the importance of linking tenure rights with climate change and disasters**
  - **Engage the Climate Change Commission (CCC); Engage specific line agencies in the review of specific policies, guidelines and programs**
  - **Engage LGUs, especially those in areas and regions that are highly vulnerable to natural disasters and climate-induced calamities**
  - **Capacity-building for LGUs, civil society, and local institutions**
  - **Engage with CSOs and local communities, specifically in the conduct of IEC and advocacy campaigns to raise public discussion, and to demand action from officials.**

## 4. Dealing with the politics of disaster

- There is need to deal with climate change and natural disasters from a rights-based approach and a perspective of good governance
- One root driver of the Sendong disaster in Cagayan de Oro was a governance system built around political patronage where political power is dispensed in a discretionary way, with little oversight, to give favors in order to gain support and votes from allies and constituents.
- This system allowed for:
  - **the presence of dense settlements in flood-prone areas along the Cagayan de Oro River**
  - **the neglect to establish a pre-emptive disaster management plan despite a one-year old DRRM law**
  - **the failure to carry out pre-evacuations despite early warnings of a coming storm and available hazard information for days and years prior to the flood.**



**THANK YOU!  
SALAMAT!**

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