POLICY ISSUE BRIEF:
STRENGTHENING MULTI-HAZARD, IMPACT-BASED FORECASTING AND EARLY WARNING SYSTEMS

In December 2017, Tropical Storms "Urduja" and "Vinta" consecutively entered the Philippine Area of Responsibility and brought over 1,000 millimeters of rain, causing flooding and landslides along their paths.

The onslaught of these two tropical storms killed more than 200[i] people and incurred around P1.24 billion in damage and losses to the agricultural sector[ii], specifically in the region of Calabarzon, Bicol, Eastern Visayas, Central Visayas, Zamboanga Peninsula, Davao, Caraga, and Soccsksargen[iii].

Twin storms Urduja and Vinta, as well as other extreme weather events in recent years, proved to have disastrous effects that range from infrastructure damage to human casualties, and at times even triggering a domino-effect of other hazardous events such as flashfloods and landslides.

The massive loss of lives and properties caused by these disasters calls for a paradigm shift from traditional single hazard-based forecasting to multi-hazard, impact-based forecasting. As it shows, it is not enough to merely forecast what hazards (e.g. typhoons, earthquakes) may occur in the future, but also the probable impacts of these hazards.

Impact-based forecasting aims to understand the risks natural hazards may bring, and in turn the actions that can be done to mitigate these risks. This type of forecasting is also deemed to make warning messages understandable by the people who will benefit from the information, especially people residing in high-risk areas.

In 2015, the World Meteorological Organisation published its Guidelines on Multi-hazard Impact-based Forecast and Warning Services for National Meteorological and Hydrological Services, such as the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA)[iv].

Moreover, the Sendai Framework for Disaster Risk Reduction 2015-2030, which was adopted in 2015, states that effective disaster risk reduction measures are based on an understanding of disaster risks, including all aspects of vulnerability and hazard characteristics[v]. The Framework's seventh global target is to substantially increase the availability of and access to multi-hazard early warning systems (MHEWS) and disaster risk information and assessments to the people by 2030[vi].

To support and localize these global initiatives and to improve multi-hazard, impact-based forecasting and early warning systems, the Climate Change Commission (CCC) is pursuing a convergent and whole-of-government approach in implementing the following initiatives:

A CONDUCT OF A NATIONAL RISK ASSESSMENT

The Philippine Development Plan 2017-2022 articulates the need for a nationwide climate and disaster vulnerability and risk assessment to deal with the impacts of natural hazards[vii].

To this end, the CCC endeavors to establish an enabling policy and arrangement for providing technical assistance to local communities in local government units in the conduct of vulnerability and risk assessments. The results of these assessments will inform local decision-making, including strategies and measures to reduce disaster vulnerabilities and risks.

Moreover, the CCC shall work with national government agencies and the academe in undertaking climate impact studies.

B ESTABLISHMENT OF A NATIONAL INTEGRATED RISK INFORMATION SYSTEM (NIRIS)

The CCC is coordinating with hazard mapping agencies and other relevant institutions to establish a national platform that will integrate all existing risk information currently scattered in institutions.

Existing early warning systems in the country are deemed inefficient and ineffective because available risk information is fragmented in different institutions—PAGASA for hydro-meteorological hazards and risks, Philippine Institute of Volcanology and Seismology (PHIVOLCS) for seismic hazards and risks, the Mines and Geosciences Bureau (MGB) for landslide risks, the University of the Philippines-Project NOAH for flood risks, and the National Mapping and Resource Information Authority for hazard maps, among other government agencies.

This platform will address the inefficiencies in risk information generation and exchange, and early warning dissemination.

C STRENGTHENING OF MHEWS, INCLUDING IMPACT-BASED FORECASTING

The CCC sees the need to improve interagency and multi-stakeholder coordination on impact-based forecasting and early warning, especially for remote communities at risk. This entails strengthened cooperation among key agencies, such as PAGASA, PHIVOLCS, MGB, the Office of Civil Defense, the Department of Interior and Local Government, and the Philippine National Red Cross, among other institutions.

Moreover, it is important to engage sociologists in developing early warning messages to ensure that they are communicated effectively, well-understood, and acted upon by the receiving public.

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ii. *Rey, A. (2017, December 29). Urduja, Vinta caused P1.24B in agricultural damage. Retrieved January 25, 2018, from https://www.rappler.com/business/192479-agricultural-damage-vinta-urduja*
iii. *National Disaster Risk Reduction and Management Council. SitRep No.22 re Preparedness Measures and Effects of Typhoon Vinta (2018, 20 January) and SitRep No.24 re Preparedness Measures and Effects of TS Urduja. (2018, 08 January)*
iv. *World Meteorological Organisation. (2015). WMO Guide.lines on Multi-hazard Impact-based Forecast and Warning Services.*
v. *Sendai Framework for Disaster Risk Reduction. (n.d.). Retrieved January 24, 2018, from http://www.unisdr.org/we/coordinate/sendai-framework*
vi. *Ibid.*
vii. *Philippines, National Economic and Development Authority. (2017). Philippine Development Plan 2017-2022 (p. 176).*

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