5th ANCST WORKSHOP ON CLIMATE CHANGE AND DISASTER RESILIENCE—POST SENDAI 2015

16-17 October 2015, Hotel Jen Manila, The Philippines

REPORT

The Workshop on Climate Change and Disaster Resilience – Post Sendai 2015 was convened by three prominent members of the ANSCT Special Topic Disaster Prevention and Climate Resilience. They are Prof. Juan Pulhin & Prof. Alfredo Lagmay of The Philippines and Prof. Rajib Shaw of Japan, who is coordinator of the Special Topic. Workshop partners included the Asia Pacific Network for Global Change (APN), University of The Philippines Los Banõs, University of The Philippines Diliman and University of Kyoto and ASEAN. The purpose of the Workshop was to get an overview of science and technology needs for climate and disaster resilience in the region.

The workshop commenced with welcoming remarks from Prof Julian Hunt, followed by the opening remarks of Hon Mario G Montejo, Head of the Department of Science and Technology Philippines. This was followed by three sessions of technical presentations. The final plenary discussion focused on Science and Technology Needs for Post-Sendai 2015. Various approaches in disaster risk reduction and climate change adaptation, with a view to identify pathways for their integration in implementation. Findings of the workshop have been channelled into various platforms; to ASEAN through the ASEAN-India Green Fund Project led by Professor Joy Pereira SEADPRI-Universiti Kebangsaan Malaysia and Profesoor N.H. Ravindranath of the Indian Institute of Science, Bangalore, and also to the UN ISDR Asia Pacific office via the recently established Asia Science Technology and Academia Advisory Group (ASTAAG) co-chaired by Professor Rajib Shaw of Kyoto University, Japan.

Some key developments in the Philippines articulated by the Hon Mario G Montejo is highlighted below. This could be disseminated for replication in the region with the support of ANCST so that science and technology can be leveraged to create better understanding of climate change and how to cope with it. Hon Mario G Montejo made a clarion call for ANCST to catalyse on future synergies and work together for a more climate change- and disaster-resilient ASEAN.

Climate change is the greatest challenge facing this region. Climate change and its profound effects such as severe weather is already happening and will continue. Infrastructure that is a vital foundation of the people's way of life is now made vulnerable, as these were planned and based on historic weather patterns that are now outdated. Aspects to be considered include predicted changes to sea level, precipitation, density, and the flooding magnitude among others. Even more importantly, climate change will cause incremental changes to the planet that will have long term impact on the natural realm and human resources, economies, and even the social aspects of society.

Human health will be affected by increased heat stress, increased incidence of respiratory and heart diseases, higher pollen counts, increased vector-based diseases, as well as more outbreaks of water-borne diseases. Forests and farms, the flora and fauna, and our crops and livestock will also be just as affected. Climate change will disrupt the biodiversity and forest structure, and the entire food chain affected by climate, in terms of changes in predator-prey relationships, as well as technological patterns and other often complex ecological processes. Climate change will surely be a factor in the diversification of processes. Climate change will affect everything in the biospheres, and there is probably no greater common factor than the planet's water. Particularly changes in timing, frequency, and duration of precipitation events, more intense storms, more frequent and longer summer droughts.

One of the more important initiatives with the greatest impact in the Philippines climate change adaptation is the Nationwide Operational Assessment of Hazards (Project Noah), which has been implemented since 2012. Advanced mapping technologies are used to generate high-resolution 3D maps covering the whole country. The initial focus was on 18 major river systems, and this has been expanded into 257 minor river systems and watersheds, and all other flood-prone areas in the Philippines. Integration of the high-resolution maps with improved weather information have enabled the generation of simulation models for floods, storm surges and landslides, allowing for the development of six-hour flood early warnings with detailed flood maps, and early warnings for storm surges with corresponding hazard maps for the whole Philippine coastline, as well as enhanced landslide susceptibility maps all over the country.

The complex interrelationship of climate change and health, carried out through the Philippine Council for Health Research and Development (PCHRD), is integrating climate change in major research and development problems, particularly on systems surveillance as well as environmental and occupational health. With the study of leptospirosis in environmental risk mapping in Metro Manila for example, we are now overlaying another layer, representing the spatial distribution of leptospirosis in Metro Manila through the CC-GAP. It determines the environmental factors conducive to leptospirosis outbreaks. As pre-marked areas with similar characteristics, we can now identify areas of high risk to a leptospirosis outbreak.

With the study of dengue, our surveillance with the overall tracking system and Dengue.ph, is overlaid with another layer representing the spatial distribution of Aedes mosquito incidents, which we determined using our new DOST ovitrap. Scientists use technology, through our geospatial analytics platform, to determine environmental factors conducive to dengue outbreak. As we map areas with specific characteristics, we cannot identify areas of high risk to dengue outbreak.

Concerning the relationship between climate change and natural ecosystems, the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) is integrating climate change in major problems, particularly on agricultural and aquatic resource activity. For example, we are overlaying another layer representing the continuing human- and climate change-related impact on coral reef, and using this to produce models that can determine the response of coral reef and associated habitats to the changing climate for better management of the coastal areas. With the standard monitoring and detection of ecosystem changes for enhancing resilience adaptation in the Philippines we are also overlaying another layer to our CC-GAP, representing the resultant data from our long-term monitoring of changes in terrestrial aquatic ecosystems to involve climate change resilient agricultural fisheries sector in the Philippines.

The connection and interweaving and overlaying in our CC-GAP literally and figuratively represent the needed cooperation among different disciplines in solving the most pressing issue faced by our generation, and those that will come after us. This goes beyond disciplinary boundaries, and encompasses teamwork among our scientists and engineers, as well as strong regional collaboration. The government of the Philippines looks forwards having more collaboration with scientists in the region and ANCST has an important role to play in this context.