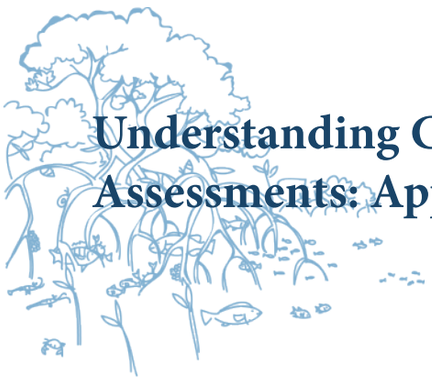

Understanding Climate Change Vulnerability Assessments: Application to Coastal Mangrove Forests

Dr Laura T. David[1]

Contributing authors: Roselle Borja[1]*, Aldwin Almo*[1]*, Bernadette de Venecia*[2]*, Porfirio Alino*[1]*, Wilfredo Licuanan*[4,1]*, Maricar Samson*[4]*, Rene Rollon*[3]*, Jurgene Primavera*[5]*, Samuel Mamauag*[2]*, Cesar Villanoy*[1] *and Fernando Siringan*[1]

[1]Marine Science Institute, College of Science, University of the Philippines, Diliman, Quezon City
[2]Marine Environment and Resources Foundation, Inc., Diliman, Quezon City
[3]Institute of Environmental Science and Meteorology, College of Science, Diliman, Quezon City
[4]Department of Biology, De La Salle University, Manila
[5] IUCN Mangrove Specialist Group, Philippines

ABSTRACT

Increased global temperature and its consequences pose threats to coastal habitat health and productivity, which, in turn, impact biodiversity, fisheries and coastal integrity. Assessment of vulnerability of the coastal area therefore involves not only investigating climate and ocean exposure and their potential impact but should likewise include evaluating socio-economic development and the ability of affected communities to cope with such changes.

To this end, three tools were developed to assist local government units in conducting assessments of their respective areas. The first is the Integrated Coastal Sensitivity, Exposure, Adaptive Capacity to Climate Change VA Tool (I-C-SEA-Change by Licuanan et al.), which is a scoping and rapid reconnaissance tool intended to offer comparison of general vulnerabilities across barangays. For adaptation planning, I-C-SEA-Change must be complemented with the two other tools, TURF (Tool for Understanding Resilience of Fisheries by Mamauag et al.) and CIVAT (Coastal Integrity VA Tool by Siringan et al.). TURF and CIVAT are finer resolution analyses intended to provide direct guidance in developing CC adaptation strategies. Specifically for mangrove ecosystem, vulnerability assessment includes land-use planning (including the marine environment), measures of habitat protection, measures of coastal integrity and presence/absence of marine infrastructure.

In general therefore, adaptability of the mangrove ecosystem to climate change can be enhanced with synergistic management of the watershed and the coast.