Experts Meeting on Natural Resource Assessment
Astoria Plaza, Ortigas Center, Pasig City
September 26, 2014

Activity Report

I. Background

1. The Resilient and Preparedness for Inclusive Development (RAPID) program will be undertaking a Natural Resource Assessment (NRA) as part of its disaster and vulnerability risk assessments. The NRA will be conducted in target areas located along the coastline of San Pedro Bay and Leyte Gulf, namely: city of Tacloban; and the municipalities of Palo, Tanauan, Dulag, Tolosa, Mayorga, Mac Arthur and Abuyog in Leyte; Basey and Marabut in Western Samar; and Lawaan and Balangiga in Eastern Samar.

2. The Ecotown Framework being adopted by the Climate Change Commission (CCC) in the localization of the National Climate Change Action Plan (NCAP) will be the approach used in providing long-term recovery support for Haiyan-affected areas. The ecotown approach enables communities to pursue their social, economic and environmental goals consistent with the pillars of sustainable development. Natural resource assessment and climate change vulnerability assessments are important layers to ensure that development paths are optimal and inclusive.

3. In preparing the groundwork for the NRA, concerns on determining the appropriate approach, scope and outputs of the NRA in relation to the RAPID program, and disaster risk reduction (DRR) and climate change adaptation (CCA) in general, would have to be clarified. Determining the appropriate form or approach to adopt for the assessment, and prioritizing the resources and issues to assess are some of the things that the program wants to ascertain.

4. The RAPID program organized an Expert Meeting on NRA to bring together and seek input from leading experts; to learn and be guided from their knowledge and experience in conducting an NRA.

5. The Expert Meeting was held on 26 September 2014 at Astoria Plaza Hotel, Pasig City.

II. Organization and Attendance

6. The Experts Meeting on Natural Resource Assessment (NRA) was conducted to meet the following objectives:

   a. To orient program staff with up-to-date knowledge with regards to various approaches on NRA;

   b. To solicit comments and suggestions from experts on the conduct of NRA for the RAPID program;

   c. To seek consensus among experts on the appropriate design for the NRA;

   d. To identify opportunities for building synergies with related initiatives.

7. The meeting brought together leading experts, both independent and professionals, from government and partner organizations. It was attended by 22 experts and professionals coming from government, donors, and academe; 10 from the government agencies such as Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCARRD), National Mapping and Resource Information Authority (NAMRIA), Department of Environment and Natural Resources (DENR) and Bureau of Fisheries and Aquatic resources (BFAR); five (5) from the academic institutions such as Visayas State University (VSU) and University of the Philippines; seven (7) from private service providers such as GHD Philippines, Geosphere, and Resources, Environment and Economics Center for Studies, Inc. (REECS). Attachment A provides the list of participants.

8. The broad participation of the meeting also provided a unique opportunity for the government, academic community, and the private sector to discuss and share their respective approaches and priorities on environment and natural resource assessments.

Program

9. The expert meeting consisted of presentations on selected topics and two (2) sessions to organize the discussions.The presentations provided insights on the various practices in conducting an NRA. The first session focused on determining what was the appropriate form or approach to adopt including which resources to prioritize in the assessment. Session 2 was dedicated to exploring practical ways and options to gather data for the assessment.

10. The meeting was opened by Ms. Amelia Supetran of United Nations Development Programme (UNDP) and formally closed by Asec. Joyceline Goco, Deputy Executive Director of Climate Change Commission - Climate Change Office (CCC-CCO) and Project Manager of Project Climate Twin Phoenix (PCTP). In her opening message, Ms. Supetran welcomed the participants in the meeting and gave her views on the complexity of natural resources, which limits the various approaches in

characterizing it. She said that the challenge is for the project to move a step forward through developing a probabilistic approach in determining the effects of climate change in the environment. She believes that the expertise of the participants will contribute in developing the applicable scope and methodologies for the program. For the closing remarks, Asec. Goco said that the inputs of the experts will be valuable in drafting the methodology for the NRA. She said that this approach of consultations and partnerships with different organizations will continue in the conduct of the NRA.

III. Presentations

11. The meeting featured four(4) presentations: (a) NRA in the context of the RAPID program, (b) Framework for Environment and Natural Resource Accounting (ENRA), (c) NRA Experience of Ecotown Project, (d) Applicability of LiDAR to NRA.

(a) *NRA in the context of the RAPID program*. Ms. Susan Rachel Jose, Chief Technical Advisor of RAPID, presented the significance of the NRA vis-à-vis the objectives and outputs of the RAPID program. The presentation provided the experts with insights on how the NRA fits in the overall program approach, particularly in helping the program fully understand the risk of climate change to the environment and the community. Ms. Jose noted that while there are numerous documentation of typhoon Haiyan's (Yolanda) destruction on infrastructure, economy and people, there are gaps on the comprehensive assessment of the damages in the environment.

She explained that the NRA, together with the disaster risk and climate change vulnerability assessments, would serve as inputs in the formulation of a bay-wide land use plan. The objective is to guide local government units (LGU) in the preparation of their Comprehensive Land Use Plans (CLUP) and Comprehensive Development Plans(CDP). In this context, she discussed the efforts of CCC, Housing and Land Use Regulatory Board (HLURB), National Economic and Development Authority (NEDA), UNDP and Australian Government (AusAiD) in formulating guidelines to mainstream climate change and disaster risks factors in local development and land use plans, and added that the conduct of the NRA would also impact on further refining the guidelines to consider natural resource implications.

She added that the program has a ClimEx.db component, which is a database that contains geo-tagged information of household, economic activities, infrastructure, and flood hazard information. She said that the conduct of the NRA would use this database and thus, the NRA would have an effect on efforts to further improve this database.

(b) *Framework for Environment and Natural Resource Accounting (ENRA).*Mr. Reynaldo Fulleros of the Philippine Statistics Authority (PSA) discussed the basic framework of the Environment and Natural Resource Accounting (ENRA) in the context of the Philippine experience. The presentation familiarized the participants, particularly the program staff, on natural resource accounting. Mr. Fulleros explained the 2012 UN Systems of Economic and Environmental Accounting (SEEA) Conceptual Framework and suggested that this could be used as guide in formulating an applicable NRA for the RAPID program. He also presented the detailed categories of natural resources as well as the process of physical and monetary accounting. Moreover, he shared PSA's experience on natural resource accounting projects in Cordillera Administrative Region (CAR) and Palawan. He suggested RAPID to consider the Palawan project in outlining its NRA methodology.

(c) *NRA Experience of Ecotown Project*. Dr. Gem Castillo of the Resources, Environment and Economics Center for Studies, Inc. (REECS) shared their experience in conducting an NRA in Siargao Island, Surigao del Norte, as part of CCC's Ecotown Framework Demonstration. The presentation provided a glimpse of how an NRA is practiced as well as insights on factors that need to be considered in selecting which resources to include in the assessment. Dr. Castillo shared that lack of data was a major difficulty in the conduct of their assessment. To compensate for the data gaps, he said that they conducted household surveys, focus group discussions (FGD), and field samplings. He said that the comprehensiveness of an NRA is influenced by the accuracy and availability of data.

(d) *Applicability of LiDAR for NRA*. Dr. Ariel Blanco of theTraining Center for Applied Geodesy and Photogrammetry (TCAGP) of UP-Diliman presented the features and capabilities of LiDAR and its applicability and potential to enhance natural resource assessments through more precise data inputs. The presentation provided an option for gathering data for the NRA. According to Dr. Blanco, LiDAR can determine details and features of a land area, its river systems, including forest canopy, which maybe obscured in traditional mapping approach. While initial investment in the technology is more expensive than the traditional mapping approaches, he believed that the accuracy of the result is worth the investment. Dr. Blanco also pointed out that LiDAR has some limitations such as generating data on wild life and fish stocks, but this can be addressed through ground assessment/survey and integration with other data sources.

IV. Discussions and Suggestions for the NRA

12. Ms. Noela Lasmarias of REECS moderated the discussions. She explained the need to get inputs from the participants regarding the scope, data requirements, data sources and other arrangements that is appropriate for the NRA under the RAPID program.

13. The following inputs were generated:

- To address the climate change aspect, the physical assessment of natural resources should be detailed and should include climate scenario building aspects to determine what resources are going to be affected, and what will be the effects in terms of physical damage and cost. For example, the most vulnerable resources should be identified and the possible effects of hazards to the resource stock should be inputted to different scenarios.

- Given the complexity of the assessment, there is a need to adopt a priority-based approach. The RAPID team will need to identify the resources that will be most affected by climate change as priorities in the assessment.

- In order to understand the effects of typhoon Yolanda in the assessment; the baseline should consider the inventory of natural resources before the occurrence of the typhoon. In addition, two accounting period (pre-and post-Yolanda) should be established.

- A valuation of the resources should be conducted to put value on the physical accounting. This is for the LGUs to appreciate the importance and the worth of conserving their resources.

- The UN SEEA should be used as reference in the methodology of the physical and monetary accounting of the natural resources. Given the experiences of PSA in terms of natural accounting, the agency should be consulted in the conduct of the valuation process.

- The RAPID program should consider collaborating with the Phil-LiDAR 2 project and the VSU and its consortium–Visayas Consortium for Agriculture and Resources Program (ViCARP).

- The coverage for the assessment should be“ridge-to-reef,” i.e., includes up-land forest, agricultural, inland water and coastal and marine resources.

- Local practices and indigenous knowledge related to resource management should also be documented as part of the FGD.

- The five natural resources included under the Phil-LiDAR 2 project resource assessments should also be included for the NRA of RAPID

- Assessment of forest resources should include beach and mangrove forest, carbon sequestration, Non-Timber Forest Products (NTFP), and wildlife assessment. The focus of the wildlife inventory should be the birds and mammals. Carbon sequestration accounting should include measurements of carbon from the first branch up to the tip of the trees, on the root system and on the soil through statistical sampling plots.

- Assessment for agriculture should include agriculture land use, crop produced, threats of insect infestation and recovery of the rice fields. In addition, climate resilient crop varieties should be considered as part of the assessment.

- Assessment of inland water should include water quality of both the surface water and groundwater. The groundwater usage as to the extraction and recharge is considered vital in the assessment.

- Assessment of marine and coastal resources should cover stock and reef estimation. Stock assessment should cover fish biomass while reef assessment should include coral cover and seagrass. The sampling methodology should be through manta tow or any current approach of UP MSI. There might be a need to conduct coastal erosion studies in the inner cove areas where this event is most likely to occur.

V. Conclusion

14. This section summarizes recommendations of the experts as it relates to the general questions/concerns introduced during the meeting sessions.

Concerns	Suggestion
Type of assessment	
▪ Physical inventory and accounting	– Include primary and secondary data of pre- and post-Yolanda resource conditions – Combination of qualitative and quantitative accouting – Accounting should be based on the UN SEEA framework
▪ Valuation of resources	– Valuation should be based on the UN SEEA framework
▪ Scenario analysis	– An in-depth analysis of resources through climate change and disaster risk scenario building
Approach of assessment	
▪ Ridge to reef	– Assessment of resources should cover from the upland watershed up to the coastal resources – Assessment should also include ecosystem services, carbon sequestration and socio-economic profiles. – Assessment should also document local knowledge and indigenous practice for resource management

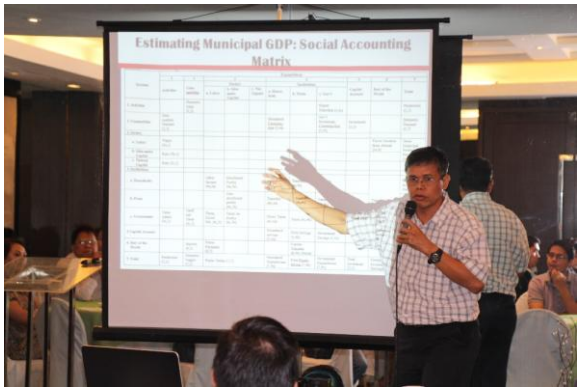
Concerns	Suggestion
▪ Risk-based	– Approach should include evaluation of resources to be prioritized in the assessment based on area dependency and magnitude of impacts
▪ Integrative	– The whole process of the assessment shouldhave an integrative approach
Resource coverage	
▪ Agriculture resources	– This module/componentshould include land cover/use (related to agriculture use) and crop produced – This module/component should also include documentation on insect infestation and recommendation of climate change resilient varieties of crops and vegetation
▪ Forest resources	– This module/componentshould include forest cover, fauna (birds and mammals), carbon sequestration, beach forest, mangroves and non-timber forest product (NTFP)
▪ Marine and coastal resources	– This module/component should include stock and reef assessment. – Stock assessment should cover fish biomass of demersal fish. – Reef assessment should cover coral cover and seagrass. – This module should also include discussions on coastal erosion
▪ Inland water resources	– This module/component should include assessment of surface and sub-surface water. – Surface water includes lakes and major river system and tributaries – Sub-surface includes groundwater resources. An analysis of extraction and recharge should also be discussed
▪ Renewable energy	– This should include assessment of the potential renewable energy sources
Modes of Data Gathering	
▪ Review of secondary data	– The assessment should use secondary data from different agencies and academic institutions – The data can be sourced from the following:

Concerns	Suggestion
	• NAMRIA – land cover, municipal waters and sea level rise (SLR) • MGB for groundwater data • NWRB for groundwater data • Coastal environmental profiles from LGUs • CBMS data of LGUs • UP MSI • UP TCAGP – anomalies and varying SLR • VSU • ADB – funded fishery resources program • Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) researches • Samar Island Natural Park (SINP) of UNDP • ECOFISH program of USAID
▪ Household survey	– The assessment should use household survey and focus group discussions (FGD) to gather and validate data – The FGD should include discussions on natural resources (e.g. agricultural and fishing trends), local knowledge and practices, and CCVA related topics
▪ Field sampling	– Field sampling should be conducted to gather and validate data – Sampling plots should be used to assess the forest inventory – Manta tow method should be used to assess the marine ecosystem
▪ Remote Sensing/GIS	– The resource maps that will be developed should be based on the Phil-LiDAR 2 approach

Photo documentation

Amelia Supetran of UNDP welcomes the participants and shares her views on the complexity of assessing the natural resources.

Leading experts from government and partner organizations participated in the meeting.



Dr. Gem Castillo of REECS shares their experiences in conducting an NRA in Siargao Island in Surigao del Norte, as part of CCC's Ecotown Framework Demonstration.

Dr. Ariel Blanco of UP TCAGP presents the features and capabilities of LiDAR and its potential to enhance natural resource assessments.

Ms. Noela Lasmarias of REECS moderates the discussions in gathering inputs from the participants regarding the scope, data requirements, data sources and other arrangements.

Dr. Tony Balangue, expert on forest resources, shares the significance of accounting the carbon sequestration in the assessment.