WORKSHOP ON CLIMATE SCIENCE FOR LOSS AND DAMAGE PROJECTIONS
11 June 2015, Thistle Port Dickson, Malaysia

REPORT

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The Workshop on Climate Science for Loss and Damage Projections was held on 11 June 2015 in Thistle Port Dickson, Malaysia. It was attended by a number of researchers, students and local stakeholders. This workshop was convened by Professor Pereira and Dr. Prabhakar, a prominent member of ANCST and APN respectively. The purpose of the workshop was to get an overview of the current status of loss and damage assessment for climate related disasters. The workshop was presented in two sessions: (1) Keynotes session; and (2) local level studies session.

The keynotes session commenced with the presentation by Mr. Kumarenthiran from MetMalaysia on current status of weather monitoring and climate modeling. He briefly described about MetMalaysia's current works and consideration on working with several models including CMIP 5 and CMIP 3. The next presentation was by Dr. Prabhakar from the Institute for Global Environment Strategies (IGES) on assessing non-economic loss and damage from climate-related disasters. In-depth discussion on the Loss and Damages (L&Ds) concept has been presented in the context of climate change. L&Ds is the residual negative impacts that still occur after adaptation measures have been taken as well as the negative impacts that people have not been able to cope with or adapt to. While loss is unrecoverable, damage is the negative impacts that are recoverable. The L&Ds is the result of reaching the adaptation limits due to the uncertainty in future climate change and also the failure of adaptation interventions which can occur due to limited understanding of the changing climate.

Based on economic values, L&Ds can be categorized as economic and non-economic. Economic losses include loss of resources, goods, and services that are commonly traded in the markets. Economic damages can be objectively verifiable monetary losses. There are many L&Ds that are not economic in nature since they have no market value. The non-economic L&Ds losses are those that are not commonly traded in markets while the non-economic damages can be subjective and non-verifiable losses. According to Dr. Prabhakar, there are some issues on the non-economic L&Ds where unreported cases might constitute as much as 50% or more than reported economic L&Ds. Hypothetically, non-economic L&Ds can be more significant than economic L&Ds especially in developing countries. Non-economic L&Ds also have not been well considered in climatic and non-climatic assessments and in designing insurance and compensation mechanisms and have not been sufficiently reported in most post-disaster reports and databases.

The APN project aims to develop simplified methodologies for identifying, prioritizing and assessing important non-economic L&Ds in national and sub-national plans and policies on disaster risk reduction (DRR) and climate change adaptation (CCA). This is due to the possibility that non-economic L&Ds are more significant than economic L&Ds. However, non-economic L&Ds are currently less understandable, and there are insufficient assessment frameworks for addressing non-economic L&Ds. This poses greater challenges, including underestimation of actual total loss and damage and leads to insufficient recovery, limited progress in DRR and CCA, and limited information (e.g., disaster database & reports) for decision-making by practitioners and policymakers on DRR and CCA.

The first session ends with a first discourse session. The purpose of the first discourse is for open discussion among participants in terms of what kind of information that are required for projection in climate-related disaster studies. Several key points from the discussion are as follow:

- The cascading effect from the socio-economic micro modeller to a larger economy scale has not yet been considered in projection study. In terms of physical sciences, there are experts. However

in economy wide impacts, it may not be easily analysed. There is a need for better understanding of the internal linkages between individual and monetary losses from a particular disaster to overall well-being of the country due to cascading impacts (impacts to various sectors, prosperity of the country, sustainability, etc.). This kind of assessment does not exist today. It may be critical to bring this to the attention of policy makers for loss and damage in macro-scale.

- The released information on projection of loss economically and non-economically need to be carefully handled to public in order to avoid panic, ensure society order and various other reasons. However, there are different schools of thought on that. Community must be aware of the information and investors who know the information can prepare for it. By doing this way, preventive measures can be employed. There are some evidence that adaptation cost (preventive measure) is only a fraction of the actual clean-up (curative cost). The important thing here is what we are trying to emphasize from the information (the scale of information) and what the focus of the information is.
- How well can insurance compensate for disaster-related cases. Sometimes we are dealing with third party losses, which can be more complicated compared to first party losses. Therefore in a forensic study, there is a need for designing how insurer can compensate.
  [A forensic study is a retrospective assessment, learning or feedback after disaster, usually some preventive measures are being identified from forensic studies].
- The thought of decision makers on "cost" is that everything is contributed by climate change. But in reality, there are other factors that play more crucial roles to the disaster event. The concern of a physical scientist on this is that these decision makers are not giving the correct information. The necessity for attribution is unambiguous. Yet for economists, attribution is not important in doing projections.
- In the context of L&D, government need to start realizing that in areas susceptible to the risk of climate change, people need to be educated of their risks so they can be more tolerant and focus on those which can be avoided in order to be more effective. This discourse has not been brought to government and policy makers, and there is no implementation of it yet.
- The importance of educating local communities. There are certain cases in Malaysia whereby the vulnerable communities had been relocated and were given nice houses. However, after a few years the later generations eventually go back to the old residing place and live there because there are not properly educated about the risks.

The workshop was then continued with the second session with a presentation on local level studies. The first presenter, Ms. Nurfashareena has presented on Local Level Hazards Mapping – Case Study of the Kajang Area. This study highlighted on the needs of the Integrated Disaster Risk Map which incorporate include both physical and social aspect to reduce the vulnerability of disaster to guide decision makers to make informed decision. The next presentation was done by Mr. Azizul Bari on the L&Ds evaluation the Kajang Area as well. In this presentation, Mr. Azizul estimated the physical, social and economic L&Ds caused by floods in Kajang town as well as recommending the appropriate policy and planning for the affected area.

The final session ends with a second discourse session. The purpose of the second discourse is for open discussion among participants on the topics of issues and challenges in local level assessments. Several key points from the discussion are as follow:

- Modification of the L&D discourse to fit the country purposes.
- There is a need to differentiate between what is loss and what is damage. It is also better to have disintegrated analysis, say, based on gender, race or ethnicity, socio-economic, and many more.
- The threshold level of rainfall that would trigger the flood which should differ in time and space has not yet been defined empirically. There are many uncertainties to this process.
- Indicators in assessing the L&Ds for local level should be much more nuanced. In an urban area, there are people with much higher capacity to deal with this situation. Therefore more nuanced indicators are needed in order to capture all the costs. However, these things may appear a bit

trivial. For researchers, this may seem significant, but when brought to the government, they will see it as too trivial of an issue.