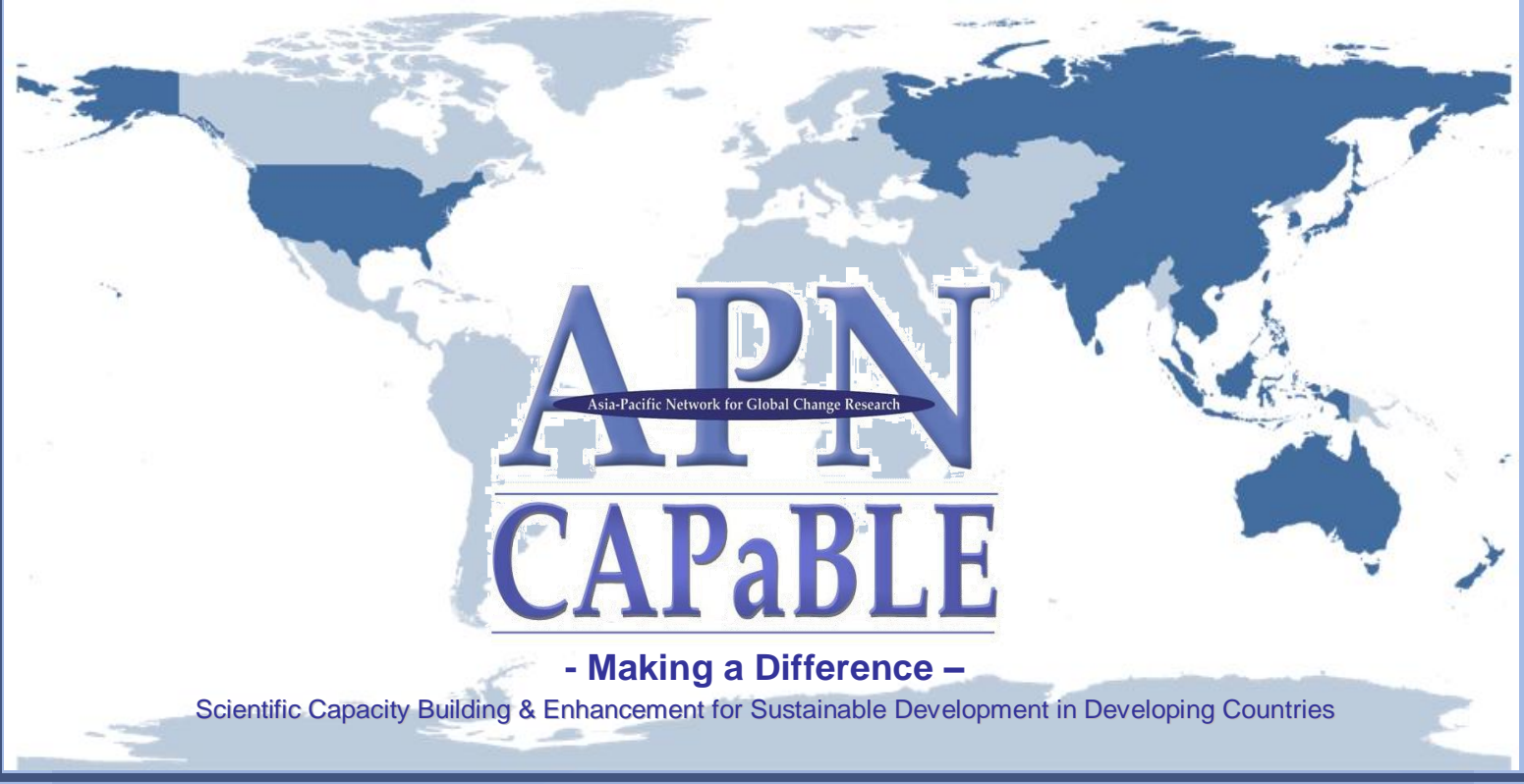


Scoping Workshop to Develop an APN Proposal on “Capacity Building of Climate Change Adaptation on Urban Planning in the Southeast Asia”



APN
Asia-Pacific Network for Global Change Research
CAPaBLE

- Making a Difference -

Scientific Capacity Building & Enhancement for Sustainable Development in Developing Countries

The following collaborators worked on this project:

Dr. Erna Sri Adiningsih, National Institute of Aeronautics and Space, Indonesia, ernasri@lapan.go.id

Mr. Sem Sundara, Ministry of Environment, Cambodia, semsundara@yahoo.com

Dr. Ngo Kim Chi, INPC – Vietnam Academy of Science and Technology, Vietnam, chikimngo2@yahoo.com

Dr. Jariya Boonjawat, SEA-START Chulalongkorn University, Thailand, jariya@start.or.th

Dr. Mario Delos Reyes, Urban Planning School, Philippines, Email

Prof. Kem Lowry, East West Center, Hawaii, USA, Email



Scoping Workshop to Develop an APN Proposal on Climate Change Adaption in Urban Planning in the Southeast Asia

SCOPING WORKSHOP TO DEVELOP AN APN PROPOSAL ON CLIMATE CHANGE ADAPTATION IN URBAN PLANNING IN THE SOUTHEAST ASIA

Hotel Grand Cempaka, Jakarta, Indonesia / 6 to 7 May 2013



Sponsored by

APN CAPaBLE and the Indonesian National Institute of Aeronautics and Space

Project Reference Number: CBA2012-14NSY-Adiningsih
Final Report submitted to APN



OVERVIEW OF PROJECT WORK AND OUTCOMES

Non-technical summary

The urgency for climate change risk management and reduction to become “part and parcel” of urban planning in the region has been recognized in recent report by the UN and NGO for a related to climate change. APN, as an international research organisation and networking, has contributed many works related to climate change. Climate change adaptation has become major issue in the SEA. APN SEA-SRC through its meetings concluded that climate change impacts in urban areas are of its concerns. Previous APN project, addressing mega cities at risks, revealed common problem in urban areas in the SEA. Appropriate urban planning as an adaptation action to climate change was then identified as a common interest. Unfortunately, planning schools in the SEA region currently do not include this as the part of their curricula. A proposal of APN SEA-SRC addressing that issue was submitted under the APN 2011 Calls for Proposals. Based on the proposal review result, the original proposal is needed to be developed further. Therefore, using the seed grant awarded, this project was aimed at development and enhancement of the original proposal through a scoping workshop. A two-day workshop was held in Indonesia to accommodate participants from all APN SEA-SRC members and local participants. The venue of the scoping workshop was in Jakarta. Two centers of LAPAN (in Jakarta and Bandung) will be serving as local hosts. A strong and qualified proposal will be developed after intensive and deep discussions during the workshop to address climate change adaptation in urban planning in the SEA.

As the result of the last APN SEA-SRC meeting in Hanoi in 2011 and the APN 17th IGM/SPG Meeting in Jakarta in 2012, this project will be a part of APN SEA-SRC core activities. The project therefore involved the APN SPG members for Cambodia, Indonesia, Lao PDR, Malaysia, Philippines, Thailand, and Vietnam. East West Center expert was the main partner to share experiences in training workshop in the sub-region. The roles of APN SPG members for the SEA countries was to identify and coordinate their respective stakeholders, identifying potential target groups, and as resource persons in the scoping workshop to represent and reveal real problems and needs in their own countries.

As the seed grant following the previous proposal submitted under APN 2011 Calls for Proposals, the project is aiming at enhancement and improvement the quality of the original proposal on climate change impacts and adaptation in urban planning. The project basically consisted of a scoping workshop to develop an APN proposal on climate change adaptation in urban planning. The workshop will consist of discussions as the continuation of a series of discussions among the members of the APN SEA-SRC in the past two years. The workshop was held in Jakarta, Indonesia. As it is located in coastal area, floods are major disasters in Jakarta due to land use/cover change, dense settlement along river banks and increasing rainfall. Urban planning is then become an interest among climatologists and planners, as well as local government officials.

Approximately 40 participants attended the scoping workshop. The workshop was attended by more than 30 participants and local organiser members from Indonesia, 1 participant from Cambodia, 1 participant from Philippines, 1 participant from Thailand, 1 participant from USA, and 1 participant from Vietnam. Several topics discussed were: (1) Climate Change Adaptation and Urban Planning in the SEA; (2) Reassessment of the original proposal and combined proposal based on the questions of reviewers; (3) Compilation and analysis of related previous works and national systems related to urban planning school development; (4) Identification key issues in urban planning related to climate change adaptation; (5) Identification of resource persons to involved in the future works and the roles of SPG members and nFPs of the APN SEA-SRC; (6) Formulation specific topics, scope of activities, and mode of operation in the proposal development and the way forward to come up with an enhanced and qualified proposal of the APN SEA-SRC.

Keywords

Climate change, adaptation, vulnerability, urban planning, and summer school.

Objectives

The main objectives of the project were:

1. To identify real problems and needs in climate change adaptation on urban planning in the SEA;
2. To identify the gap that exists in human resources and technical skills necessary for climate change adaptation in the region among planners, government officials and universities;
3. To formulate the responses on questions to the original proposal;
4. To discuss and formulate related previous works to enhance the proposal content, including APN past projects, IPCC works, national and regional works;
5. To formulate the activities needed in capacity building of climate change adaptation on urban planning and the mode of operation;
6. To identify related resources and resource persons in respecting countries to be integrated capacity building of climate change adaptation;
7. To develop a solid and qualified proposal to be submitted under APN 2013 Calls for Proposals.

Amount received and number years supported

The Grant awarded to this project was:

US\$ 15,000 for Year 1: 2013

Total amount of US\$ 12,000 was received.

Activity undertaken

The main activity undertaken by the project was a scoping workshop. Two preparatory meetings and two post-meetings were also held in Jakarta. The first preparatory meeting was attended by participants representing LAPAN, Ministry of Environment, local government of Jakarta (Bureau of City Planning), and universities. The first preparatory meeting was basically a kick-off meeting to inform the aim and objective of the scoping workshop to relevant stakeholders. The second preparatory meeting discussed detailed planning of the scoping workshop. This meeting was attended by participants representing more institutions including LAPAN, Ministry of Environment, Ministry of Public Works, and local government of Jakarta Province (Bureau of City Planning, Bureau of Environment, and Bureau of Development Planning). The second preparatory meeting agreed the date, venue, agenda, and invited speakers.

A Scoping Workshop to Develop an APN Proposal on Climate Change Adaptation in Urban Planning in the Southeast Asia was successfully held in Jakarta on 6 to 7 May 2013. The venue was at Hotel Grand Cempaka. A number of more than 30 participants attended the workshop. Among the APN member countries, there were six country representatives attended the workshop, i.e. Cambodia, Indonesia, Philippines, Thailand, USA, and Vietnam. There were nine presentations made during the workshop. The topics of presentations consisted of:

1. Overview of APN and CAPaBLE programme;
2. Jakarta's Strategy to Anticipate the Impacts of Climate Change;

3. Climate Change Adaptation in Urban Planning in Thailand;
4. Ciliwung-Cisadane Watershed Management;
5. Jakarta City Urban Planning;
6. Indonesian National Policy on Climate Change Adaptation;
7. Climate Change Adaptation, Strategies, and Urban Planning in the SEA;
8. Curricula in Urban Planning School;
9. Climate Change Adaptation in Urban Planning in Vietnam;
10. Land Use / Land Cover Change and Urban Heat Island.

A fieldtrip was conducted to visit Jakarta City Planning Gallery. Before visiting the Gallery, all participants convened at meeting room of City Planning Bureau. The Secretary of City Planning Bureau gave presentation on Jakarta City Planning and Development. Visit to the Gallery gave insight to all participants on public participatory city planning since the Gallery was built to provide 3-dimension city planning in miniature and enable public participation in urban planning.

Results

Participants of the workshop discussed and identified some common problems in SEA as follows:

- Coastal areas and big cities in the SEA countries have been experiencing impacts of climate change.
- These areas are also very vulnerable to climate change.
- Water-related disasters such as floods, inundation, and droughts are more frequent as the result of rainfall change.
- Local governments of big cities in SEA realized the importance of climate change issues, but related programs were not sufficient.
- Big and growing cities in SEA need spatial planning to adapt climate change.
- Some urban planning schools in SEA have courses related to environmental issues but no specific course on climate adaptation.

Some common needs in SEA were also identified:

- The project proposal development also addressed how to develop modules for the summer school, and who will be the target group and participant of the summer school. There were also deep discussions on possible actions to develop a summer school initiative in the Southeast Asia under a capacity building project. It was expected that the proposed project should have the scope and output as follows:
 - To promote educational activities in urban planning;
 - To promote research in climate change adaptation strategies in urban planning;
 - To promote community service to adapt climate change in urban areas.

Further discussion on proposal development, all participants agreed that the type of proposed activities should include:

- Training of trainers (TOT) and faculty exchange;
- Accommodating climate change concern to planning studio, particularly for master program;

- To develop research based activities on urban planning and climate change adaptation;
- To develop serial climate change TOT in the Southeast Asia.
- Two year capacity building project is needed to accommodate training activities in all SEA member countries.

Relevance to the APN Goals, Science Agenda and to Policy Processes

The proposed project is aimed to establish summer schools in SEA region at initial steps to enhance the capacity of lecturers and practitioners (planners) in planning schools to incorporate the issues of climate change adaptation for urban planning, and to develop curricula in planning schools for urban climate adaptation. The topic is very relevant with APN science agenda, particularly Climate Change and Variability, Land Use, and Sustainable Development. Since the project is aimed to develop capacity among lecturers and practitioners in adapting to climate change for urban planning, it is relevant with APN scientific capacity development. It is also relevant with one of the APN Policy Agenda which is to strengthen Science-Policy linkages in addressing global change issues.

Self evaluation

The scoping workshop was successfully held and could achieve the objectives in sharing experience in related topics. A site visit to Jakarta City Planning Gallery was very interesting and related to give a more realistic feature of how a big city developed its urban planning by involving environmental aspects and open to public interactions. All experts from the SEA member countries could achieve a common understanding on how to formulate regional problems to be addressed in the new proposal of capacity development (CAPaBLE). However, two experts from Malaysia and Lao PDR cancelled their attendance in the scoping workshop, so the experience sharing did not include the two member countries accordingly.

Potential for further work

The results of the scoping workshop were mainly used to develop a new CAPaBLE proposal. It was expected that through the proposed project, a summer school in climate adaptation for urban planning in the SEA could be established. Recommendations on future works are as follows:

- Suggested title of the full proposal is: **“Building capacity of urban planners for climate change adaptation in the Southeast Asia”**. The main target group is: urban planners. Other option for broader title and main target group: **“Building Capacity for Urban Climate Change Adaptation in Southeast Asia Region”**.
- General 5 days course will be develop based on training priorities and modules identified by network participants.
- The summer school will be 2 years activities, and each training will have duration about one week or 5-6 days with 25 participants.
- At least the summer school should have 3 components such as in class learning, field trip and laboratory experiments.

Publications

No papers resulted from the project were published yet, since the main activity was a scoping workshop to develop an APN proposal.

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Acknowledgments

We acknowledge APN for the major funding support for the workshop, and the National Institute of Aeronautics and Space for its kind-contribution as well as in-cash contribution for the pre-meetings, site visit, and post-meetings. We would also acknowledge the Ministry of Environment of Indonesia for its assistance and in-kind contribution, and the local government of Jakarta Municipality for its contribution, assistance and facilitation of site visit to Jakarta City Planning Gallery.

TECHNICAL REPORT

Preface

Climate change is noticeable in the Southeast Asia and it has various impacts on many sectors and ecosystems. In recent decades, it has worsened due to increasing population and human activities resulting greenhouse gases emission. Increasing temperature, sea level rise, and increasing or decreasing rainfall are of the indicators. Major impacts of those indicators in the region are frequent extreme climate, tropical storms, floods, droughts, landslides, increasing water-born and air-born diseases, increasing land fires, and decreasing crop production.

Having long coast lines of many islands, most countries in the Southeast Asia are very prone to coastal ecosystem degradation due to climate change and variability. As many urban areas are located at coastal zones, they also become very vulnerable to climate change. Vulnerability to climate change is determined by three factors: sensitivity, exposure, and resiliency. Sensitivity is how susceptible are structures, individuals and the environment to hazard impacts. Exposure is what in harm's way—people, structures, infrastructure and environmental assets that could be affected by a hazard. Resiliency is ability to cope hazards. Community resiliency includes hazard awareness, hazard planning, identifying evacuation routes, placing shelters in non-exposed areas, pre-placing emergency supplies, etc. Urban areas, particularly in coastal areas, are among of vulnerable ecosystems to climate change. Sea level rise, coastal ecosystem degradation, and frequent floods are major impacts.

Realising the importance to reduce vulnerability to climate change, it is necessary to enhance adaptive capacity of urban areas. Urban planning is part of enhancing capacity of urban areas to climate change. Incorporating climate change adaptation issue in urban planning would be then essential for urban planners to cope with. Although climate change is not a new issue in the SEA. However high education on climate change and adaptation in urban planning would be fundamental as the basis of appropriate understanding of the practioners and decision makers in related works.

APN Southeast Asia Sub-Regional Cooperation members agreed upon the relevance of climate adaptation and urban planning as part of national action plan on climate change. Through discussions in its meetings since 2010, it was then agreed to propose an activity under CAPaBLE. A CAPaBLE proposal was developed and a seed grant was awarded by APN to improve the proposal by conducting a scoping workshop. Scoping workshop was held in Jakarta, Indonesia, on 6-7 May 2013. The workshop was successful and attended by about 40 people consisting of participants from APN SEA-SRC members and local people of Indonesia (scientists, academicians, and decision makers).

We acknowledge APN for the major funding support for the workshop, and National Institute of Aeronautics and Space (LAPAN) for its kind-contribution as well as in-cash contribution for the pre-meetings, site visit, and post-meetings. We would also acknowledge the Ministry of Environment of Indonesia for its assistance and in-kind contribution, and the local government of Jakarta for its contribution, assistance and facilitation of the site visit to Jakarta City Planning Gallery.

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1.0 Introduction

Between 2007-2050, the world urban population is expected to increase by more than 3 billion. The majority of this growth will occur in Asia – most extraordinarily in Southeast Asia (SE Asia) where urban areas will continue to expand into agricultural lands, forests and other natural land covers (Seto et al. 2010). Whereas in 1950, the geographic distribution of large cities was more evenly distributed worldwide, a majority of the largest cities – more than half of the world’s cities with populations of 500,000 or more – will be located in Asia.

Climate change is now recognized as a major environmental challenge facing the world. Urban areas contribute to climate change, and climate change is a major threat for global urban areas. The impacts of climate change, including increases in extreme weather events, elevated temperatures, sea level rise, biodiversity loss and reduced water availability and supply, pose threats to urban areas where people, resources and infrastructure are concentrated. In global surveys, ASEAN coastal cities have been identified as those at greatest risk of loss of life, property and critical infrastructure due to flooding brought on by climate change, land subsidence and rapid, unregulated urban development of low-lying coastal areas (OECD, 2007; Nicholls 2007; Mimura 2009; DeSherbinin *et al.* 2007).

There is urgent need to understand how climate change is likely to affect these regions and what viable risk management and adaptation strategies may be taken to reduce their vulnerability and increase their resilience (DeFries *et al.* 2005; Brook et al. 2003; Maneepoog and Webster 2008; Hudalah *et al.* 2007). In doing so, there is need to move from traditional top-down impacts modeling approaches to risk and vulnerability assessments to critical threshold approaches to understanding impacts of present climate and how changes or shifts in that climate will stress urban settlements. In addition, priority attention must be given to communicating science and vulnerability in particular, more effectively and to building capacity for individual and institutional participation in responding to climate change (APN CAPaBLE 06NSY-Fuchs 2008).

Increased and more effective engagement between communities of science, planning and policy that enables better informed and more integrated and sustainable responses to climate change is imperative if urban areas in SE Asia are to successfully manage risks and vulnerabilities and adapt to climate and other global changes. Adapting to climate change will require planners and policymakers to develop and apply new skills and knowledge in identifying vulnerable areas and designing and applying appropriate interventions (Birkmann *et al.* 2010; Fuchs *et al.* 2011; Satterthwaite 2008; World Bank, 2010; UN and World Bank 2010; McGranahan 2007). Urban planners will experience new demands as adaptation strategies increasingly shift from engineering to spatial planning remedies. However, urban planning schools in Asia generally lack staff and curricula to train planners/officials, and a recent report indicates that of the 28 planning schools in SE Asia, none has a teaching program related to climate change and adaptation (Yuen and Kong, 2009).

As the results of discussions of APN SEA-SRC meetings since the SEA-SRC meeting in Manila in 2010, the 16th APN IGM in Colombo in 2011 followed by SEA-SRC meeting in Hanoi in 2011, and continued in the discussion during the IGM in Jakarta on March 2012, all members of the APN SEA-SRC agreed that climate change adaptation is still becoming a major issue in the SEA. The implementation of the scoping workshop was finally decided very recently in the last IGM in Kobe on April 2013, that all SEA-SRC members agreed to hold the workshop in Jakarta on 6-7 May 2013.

The main objectives of the project were:

1. To identify real problems and needs in climate change adaptation on urban planning in the SEA;
2. To identify the gap that exists in human resources and technical skills necessary for climate change adaptation in the region among planners, government officials and universities;
3. To formulate the responses on questions to the original proposal;
4. To discuss and formulate related previous works to enhance the proposal content, including APN past projects, IPCC works, national and regional works;
5. To formulate the activities needed in capacity building of climate change adaptation on urban

planning and the mode of operation;

6. To identify related resources and resource persons in respecting countries to be integrated capacity building of climate change adaptation;
7. To develop a solid and qualified proposal to be submitted under APN 2013 Calls for Proposals.

2.0 Methodology

The APN SEA-SRC, together with LAPAN received funding from APN for one year project to support a scoping workshop that brought together members of SE Asia scientific, planning and policy communities to develop an APN CAPaBLE proposal to be submitted under the APN Calls for Proposals 2013. The original CAPaBLE proposal and combined APN-START proposal were examined, the questions of the reviewers were analysed, and the scope of activities were defined.

As the seed grant funding is awarded by the APN, the following activities were implemented during the project period:

a. Preparatory meetings

The meetings are aimed to discuss the preparation for the workshop. LAPAN as local organiser invited representatives of some organisations and resource persons in Indonesia to decide the venue of the workshop and to develop detailed agenda, timetable and other business. The meetings will be held in Jakarta and the costs will be covered by LAPAN.

b. Scoping Workshop

Scoping workshop was the core activity of the project. The two-day workshop was held in Jakarta on 6-7 May 2013. In day-1, the workshop discussed main topics as follows:

- Identification of real problems and needs in climate change adaptation on urban planning in the SEA;
- Identification of the gap that exists in human resources and technical skills necessary for climate change adaptation in the region among planners, government officials and universities;
- Formulation of the responses on questions to the original proposal;
- Discuss and formulation of related previous works to enhance the proposal content, including APN past projects, IPCC works, national and regional works;

A site visit was conducted to provide more concrete figure and information on how to build a growing city based on environmental relevant city planning. All participants visited Jakarta City Planning Gallery, located at the building of Spatial City Planning Department of Jakarta Province.

In day-2, the morning session of the workshop addressed the following items:

- Formulation of the scope of activities needed in capacity building of climate change adaptation on urban planning and the mode of operation;
- Identification of related resources and resource persons in respecting countries to be integrated capacity building of climate change adaptation;

At the end of day-2 (afternoon session), the participants of the workshop have developed a draft of full proposal to be submitted to APN Calls for Proposals. Post-meetings were also conducted in Jakarta to formulate the results of the workshop and prepare the report. The draft proposal was then discussed with collaborators before submission to APN CAPaBLE Calls for Proposals.

Participants of the workshop were project collaborators (APN SEA-SRC members), Indonesian scientists and stakeholders (LAPAN, Meteorological Agency, universities, local governments of Jakarta and Bandung, etc.). Prof.

Lowry of East West Center was invited as a resource person, since he would be asked to be the collaborator in the new proposal. He was also recommended by Prof. Roland Fuchs who was involved in the initial development of the original proposal. The scoping workshop was attended by totally 40 participants.

c. Post-meetings

Two meetings were held after the scoping workshop. The meetings were held in Jakarta and attended by local organiser of LAPAN. These meetings were necessary as the results of the workshop would be reported. The meetings discussed technical matters as well as financial items.

d. Reporting

Final technical report was produced after the scoping workshop. An enhanced APN CAPaBLE proposal were the ultimate goal of the project. The proposal will then be submitted under APN Calls for Proposals.

3.0 Results and Discussion

Preparatory Meetings

After the SEA-SRC ad-hoc meeting in Kobe on April 2013, preparatory meetings were held in Jakarta to discuss the agenda and target groups of scoping workshop. The first preparatory meeting was held on 19 April 2013 and attended by several representatives of MOE, LAPAN, Regional Planning Bureau of Jakarta Provincial Government, and Bandung Institute of Technology. The first meeting discussed general climate change in the SEA and its adaptation strategy to reach a common understanding about the important issues which would be addressed in the scoping workshop. In this meeting some issues were raised including identification of stakeholders and speakers of Indonesia to be invited as well.

The second preparatory meeting was held on 25 April 2013 and attended by more stakeholders including MOE, Ministry of Public Works, LAPAN, Regional Planning Bureau of Jakarta Provincial Government, Development Planning Bureau of Jakarta Provincial Government, Environmental Bureau of Jakarta Provincial Government, and Bandung Institute of Technology. The third preparatory meeting was attended by representative of LAPAN and Bandung Institute of Technology.

Urban Climate Change and Adaptation Strategies in the Southeast Asia

A presentation on urban climate change and adaptation strategies in the Southeast Asia was delivered by Prof. Kem Lowry of East-West Center. Climate adaptation for coastal cities is facing certainties as well as uncertainties. First, global temperatures will continue to increase even if major reductions in greenhouse gas emissions are substantially reduced. Furthermore, climate change will increase the frequency of some natural hazards, especially extreme weather events. Climate change will also have disproportionate negative impacts on the urban poor and residents of informal settlements. As the result, building urban resilience to the impacts of climate change will be an on-going process of planning, managing, monitoring and adaptation.

Second, there is uncertainty regarding the response of climate system in urban areas to global greenhouse emissions. It is also uncertain about the scale and scope of climate impacts across regions and at the local level. On the other hand, the response of ecosystems and flow of ecosystem services could vary from region to region and from country to country. There is also questionable on how climate change will interact with other physical, hydrological and other systems. Furthermore, in adapting the climate change impacts, it needs a combination of management interventions, but it is uncertain about what combination will be most cost-effective in reducing adverse impacts.

In the context of the Southeast Asian region, there is more than 80% of GDP generated in urban areas. Growing economic opportunities also attract urban migrants, so in 2008 more than 45% of people live in urban areas while the number increased up to 56% of population live in urban areas by 2030. As the urban areas are becoming more populated, 28% of SE Asian urban residents live in slums and squatter settlements, often in flood prone areas. Generally the urban poor are most vulnerable to climate change impacts.

There are several steps to design local adaptation strategy. The first step is to assess vulnerabilities to climate change. The second step is to identify management options which could fit to local condition and practices. The third is to select management tools which are developed by local managers. The fourth is to implement selected management tools at local level. The last step is to conduct ongoing monitoring, evaluation and adaptation.

Risk and vulnerability assessment could be done based on some considerations. The most important consideration is the type of hazards caused by climate change. The degree of the hazards is likely to be serious. Therefore it is necessary to identify what research or analysis is needed to address such hazards. More specifically, it is also crucial to determine where planners and policy makers should focus their adaptation efforts.

National Policy on Climate Change Adaptation

Representative of the Ministry of Environment of Indonesia delivered a talk on Indonesia's national policy on climate change adaptation. There were two major reasons of national policy development. First was increasing of the intensity and frequency of climate-related disaster and extreme events. Secondly, Indonesia has national target on emission reduction by 26% in 2020 compare to business as usual. The frequency and intensity of climate-related disasters and climate extreme events increased in Indonesia (National Newspaper Kompas, Dec 2012). Statistical data indicates that tropical storms increased 28 times in last ten years, as a-14 percentage of a total number of disasters. In 2011 there were 285 tropical storms events caused 21 people died, 9,081 refugees, and 13,684 houses damaged. Floods and landslides are the most common climate related disasters in Indonesia. To combat climate change, it is necessary to understand climate change assessment process consisting of adaptation and mitigation. For climate adaptation, scientific basis is fundamental in conducting vulnerability assessment and impact assessment to develop adaptation strategy in various sectors as shown in the diagram of Figure 1.

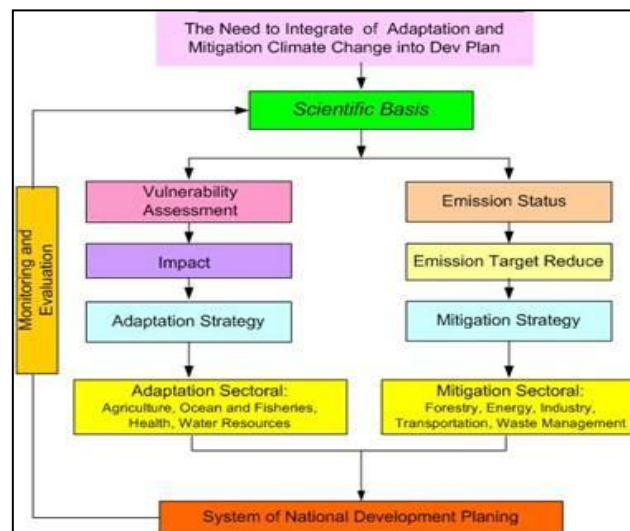


Figure 1. Assessment Process of Climate Change Adaptation and Mitigation

National policies on climate change have been strengthened through issuance of several regulations. Two main related acts, which were issued and implemented, are Act Number 6 of 1994 on UNFCCC Ratification and Act Number 32 of 2009 on Environment Protection and Management. There are four main national activities related to climate change addressed in Act No 32 / 2009, which are formulation of Environment Protection and Management Plan (including adaptation and mitigation), Strategic Environmental Assessment (including analysis on vulnerability and adaptive capacity), development of standard criteria for damage attributed to climate change, and environmental preservation through preservation measures of atmospheric functions including mitigation and adaptation. Presidential Decree Number 61 of 2011 on Greenhouse Gases National Action Plan and Presidential Decree Number 71 of 2011 on Greenhouse Gases Inventory are also complement to those acts. MOE of Indonesia has also established strategies to combat climate change. The strategies are documented in Climate Change National Action Plan 2007 and Indonesia Climate Change Sectoral Roadmap (ICCSR) 2010.

After COP-17 in 2011 in Cancun, an Indonesia's Adaptation Framework was established. The framework consisted of five components as follows:

1. Implementation:
 - all parties to plan, prioritize and implement adaptation actions,
 - a process to enable LDC Parties to formulate and implement NAPs,
 - a work programme to consider approaches to address loss and damage associated with CC impact in developing countries
2. Support:
 - Developed country Parties to provide developing country Parties to implement adaptation actions, plans, programmes and projects at local, national, subregional and regional levels, including activities under the CAF.
3. Institutions:
 - At global level: Adaptation Committee;
 - At the regional level: regional centres and networks;
 - At the national level: national-level institutional arrangements
4. Principles:
 - Be undertaken in accordance with the Convention;
 - Follow a country-driven, gender-sensitive, participatory and fully transparent approach;
 - Be based on and guided by the best available science and traditional and indigenous knowledge;
 - Be undertaken with a view to integrating adaptation into relevant social, economic and environmental policies and actions.
5. Stakeholder engagement.

Based on the Adaptation Framework, MOE of Indonesia developed Adaptation Agenda at national level comprising of two steps of actions, i.e. urgent action and short term actions, and mid-term actions and long-term actions on adaptation to climate change. These actions should be in line and incorporated with long-term, mid-term, and annual National Development Plans. Urgent Action

and Short-term Actions would be focusing on building adaptive capacity and resilience for current climate variability. In this regard, some agendas were defined to include accurate-reliable and accessible climate information (for planning and anticipation); information disseminating on climate change at every level of community (participation of NGOs, stakeholders, and private sectors); risk management program in climate-related events (e.g. program on reforestation in degraded lands); capacity building to mainstream adaptation issue into national development plan and in every sector or infrastructure design.

Implementation of adaptation framework at national level comprises of two approaches, i.e. policy approach and community participation approach in climate adaptation and mitigation (see Figure 2). The first approach would be conducted through assessment of vulnerability and adaptation capacity. The second approach would be conducted through awareness raising, independency, and leadership as well as cultural and traditional wisdom.

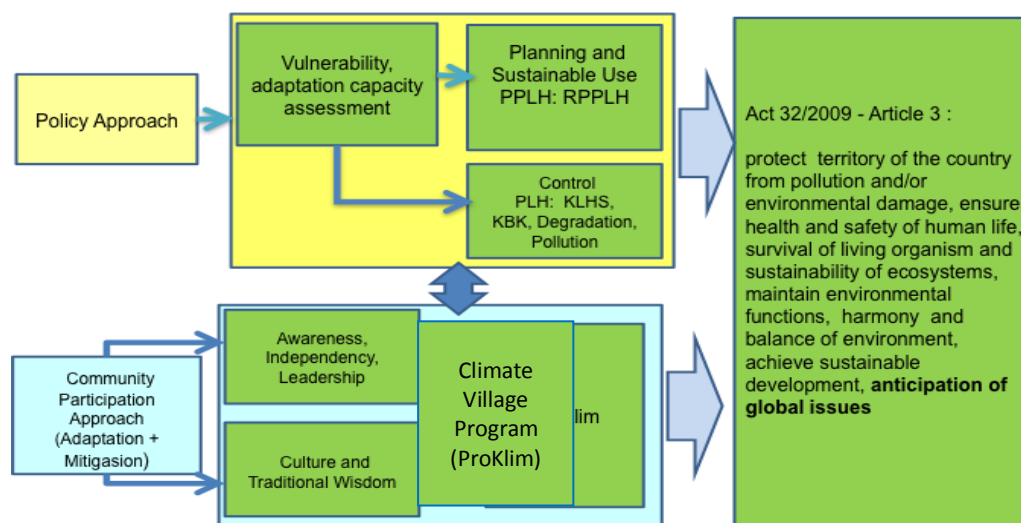


Figure 2. Indonesia Adaptation Implementation Framework

To promote community participation in climate adaptation and mitigation, MOE developed climate village programme (Program Kampung Iklim or ProKlim). “Kampung” in Indonesian or “Village” in English is administered according to local traditions and customary law, located in rural areas and urban subdivisions, practices the culture of helping one another as a community, as well as being family-oriented (especially the concept of respecting one’s family, particularly the parents and elders), courtesy and believing in God as paramount to everything else. ProKlim is a program to recognize active participation of local communities in implementing actions of integrated climate change mitigation and adaptation, which contributes in achieving national greenhouse gas reduction target and increasing community resilience to climate change impacts.

ProKlim has the roles in climate adaptation and mitigation through implementations of the following programmes:

- (1). National Adaptation Plans (NAPs): Proklm and its implementation as input for the development of NAPs related to developing countries’ action and its role for policy development.
- (2). Nairobi Work Programme (NWP): Proklm as an input for strengthening adaptation actions, in particular “Adaptation planning and practice” at local-level. Its implementation could be submitted as a part of NWP, related to concrete actions on adaptation which will be potentially supported by developed countries.

- (3). Loss and Damage (LnD): The implementation of ProKlim draws vulnerability in the area and will play an important role for baseline-setting in terms of insurance mechanism for the losses and damages caused by the climate change.

According to Suroso *et al.* (2010), vulnerability and adaptation assessment process consists of participation, monitoring, and evaluation. The steps in assessment process are identification of vulnerable sectors and infrastructures, analysis of risk/hazards (projection of temperature rising, rainfalls, climate extreme events, sea level rise), analysis of vulnerable sectors, analysis and evaluation of risks, formulation of risk-based adaptation strategies, and integration of adaptation strategies into development policies (medium- and long term planning, land use planning).

ProKlim is also as a part of global actions and UNFCCC. Although this programme has been implemented at local level, but it contributes to national as well as global levels. It plays an important role as a part of national communication (NATCOM) and Biennial update Report (BUR). Some benefits of ProKlim are (1) contribution of the local community for the achievement of 26% national emission reduction target in 2020 compare to business as usual; (2) enhancement of adaptive capacities to the impact of climate change and climate variability in local level; (3) provide data and information on potential climate change mitigation and adaptation activities in local level. The strategies of ProKlim implementation would cover private sector partnership, national or international organizations involvement, facilitation by the government, enhancement of local government capacity, community empowerment, and environmental pioneers participation.

Criteria of ProKlim have been set up as follows:

- (1). The existing mitigation and adaptation activities in a specific area;
- (2). The continuity of mitigation and adaptation activities;
- (3). The contribution of concrete activities in achieving the GHG emission reduction target and in enhancing the community resilience to the climate change impact;
- (4). The availability of local community institutions and supports on sustainability of the activities.

ProKlim programme comprises of activities (60%) in adaptation and mitigation, and Local Community and Sustainability Aspects (40%) which are related to proponents who are conducting the activities and to ensure the sustainability of activities

Components of ProKlim:

- a. Adaptation activities, i.a.:
 - Management of drought, floods and landslide
 - Enhancement of food security
 - Anticipation to sea level rise, and other risks/hazards in coastal area
 - Management of climate-related diseases
- b. Mitigation activities, i.a.:
 - Management of waste and solid waste
 - Liquid waste treatment and utilization
 - Energy consumption (e.g. energy efficiency, renewable energy)
 - Reducing emission from agriculture activities
 - Forest conservation
 - Management of land and forest fire

c. Local Community and Sustainability Aspects, i.a.:

- Availability of local organization to manage and implement the activities
- Adoption of local policies, traditional ethics and other local knowledge to support the implementation of activities
- Community dynamics (e.g.: community self-sustain, self-finance scheme, gender participation)
- Local community capacities to implement the activities
- External support from governments
- External support from private sectors, NGOs, universities and other
- Continual improvement of existing activities
- Positive impacts (economic benefits, environmental benefits, and/or minimize the impact of climate extreme events)

ProKlim has been implemented successfully in many districts and sub-districts of Indonesia. Since 2012, the Government through the Ministry of Environment has awarded certificates and trophies annually to successful districts, sub-districts, and villages in implementing adaptation and mitigation to climate change.

Dr. Reyes of the Philippines shared on how Philippines' national policy response on climate change. Beginning by Climate Change Act – RA 9729, he further explained that RA 9729, Rule VI, Sec. 1(a) – is to ensure the mainstreaming of climate change, in synergy with disaster risk reduction and risk management, into the national, sectoral and local development plans and programs which have to be well informed and knowledgeable. In Rule VIII, Sec. 4 – Local Climate Change Action Plan is conducted through land use management and capacitated and willing. Philippines also developed a National Framework Strategy on Climate Change (Figure 3). The strategy includes mitigation and adaptation as important components in combating climate change of 2010-2022.

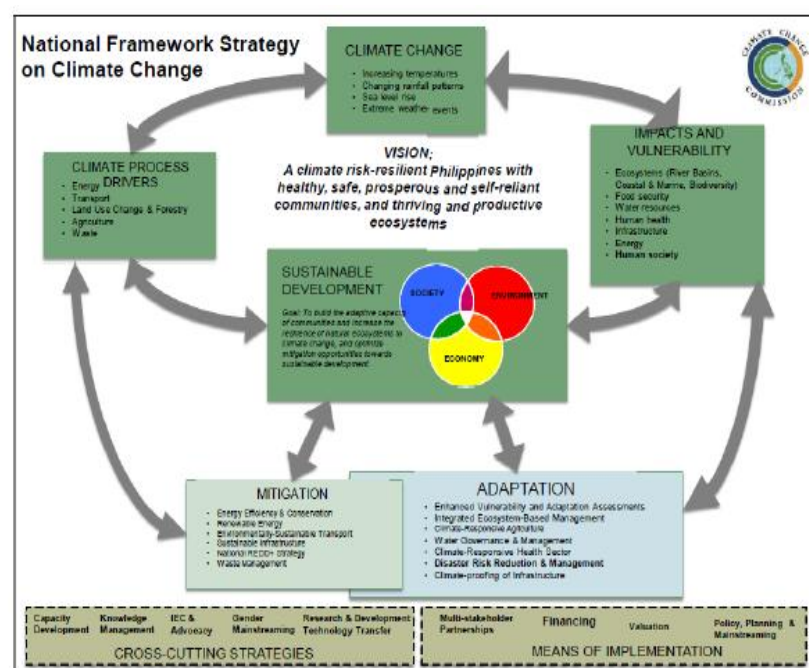


Figure 3. National Framework Strategy on Climate Change in the Philippines.

Adaptation strategies in the Philippines are focusing on:

- Vulnerability and Adaptation Assessments
- Integrated Ecosystem-based Management
- Climate-responsive Agriculture
- Water Governance and Management
- Climate Responsive Health Sector
- Disaster Risk Reduction

Mitigation strategies in the Philippines include:

- Energy efficiency and conservation
- Sustainable Infrastructure
- Renewable Energy
- Sustainable Transport
- REDD Strategy
- Waste Management

It was demanding that some actions should be implemented in the Philippines. The actions are:

- CAPAs and LAPAs driving NAPAs
 - *Learn from good experiences*
- Explore synergies between local development and adaptation
 - *Get the attention of the 'development' bits of local government*
- Build on innovations in local development successes
 - *community-led & municipal led 'slum' and squatter upgrading & housing finance; a lot of innovation to draw on*

National Climate Change Action Plan of the Philippines for 2011 – 2028 was adopted in 2011. The Action Plan addresses urgent and immediate needs and concerns related to dangerous consequences of climate change to vulnerable sectors such as agriculture, water resources, ecosystems, human and infrastructure services. It is also keeping the Promise in the President's Social Contract.

Climate Change and Urban Planning in Big Cities in the Southeast Asia

On behalf of the Environmental Management Board of Jakarta Province, Prof. Rizaldi Boer pointed out increasing environmental pressures to Jakarta Province area particularly by dense population, slum area, public transportation, and energy consumption. Jakarta has a total area of 650 km² and population of 9.6 million (or about 11.6 million at day time) is facing serious pressures of population growth, rapid city development, and transportation problem. The pressure also comes for environmental problems such as 40% area is under mean sea level, passed by 13 rivers, land subsidence, sea water intrusion, and increasing vulnerability to climate change impacts. Climate change has impacts of on water supply.

With changing climate, flood occurrences in Jakarta have increased. Other impacts of climate change in Jakarta are sea level rise and increasing water-borne diseases like dengue and

malaria. Jakarta has developed a climate change adaptation plan with the goals of energy sufficiency, slum and coastal areas resilience to climate change, as well as reducing health risks. Some adaptation programs include flood control infrastructure, maintenance of shore line barrier, mangrove forest rehabilitation, and giant sea defense development. The government of Jakarta Province has established a Committee on Resilient City Development who has tasks to guide and evaluate the development actions to achieve a resilient Jakarta.

Environmental and biophysical condition of DKI Jakarta have deteriorated which increase the vulnerability. Level of exposure and sensitivity increased particularly due to land subsidence, increase population density, improvement of waste management is not in balance with its generation, drainage capacity is low and open space area is decreasing, transportation system. Without adaptation, impact of climate change may be severe and economic loss due to climate hazards is getting higher. Therefore late actions will lead to much higher investment required for the adaptation.

Environmental deterioration in Jakarta was mainly related to land use and land cover change. Series of satellite imageries more than four decades indicate that urban areas in Jakarta and its surrounding have been developed very fast since 1972 (Figure 4). As seen from Figure 4, most of developments in Jakarta were centered near the coast and high ground water extraction. This accelerated land subsidence (20-25 cm per year). Many of coastal areas would be inundated as the results of land subsidence. Maps of land subsidence level since 1982 are shown in Figure 5. Local Government of Jakarta Municipality has defined the goals of climate change adaptation as described in Table 1.

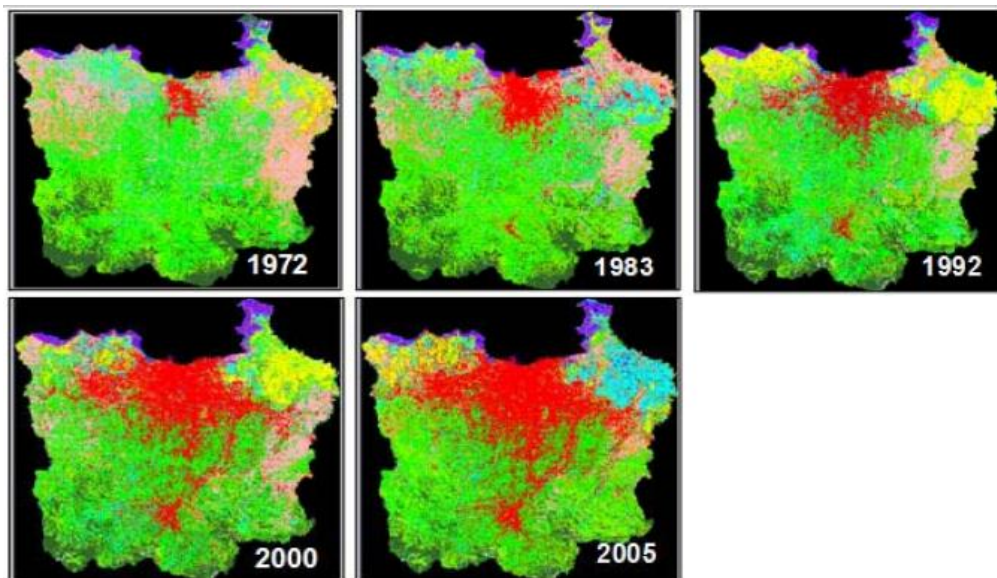


Figure 4. Land use land cover change in Jakarta and its surrounding from 1972 until 2005.

(Source: Djakapermana, 2008).

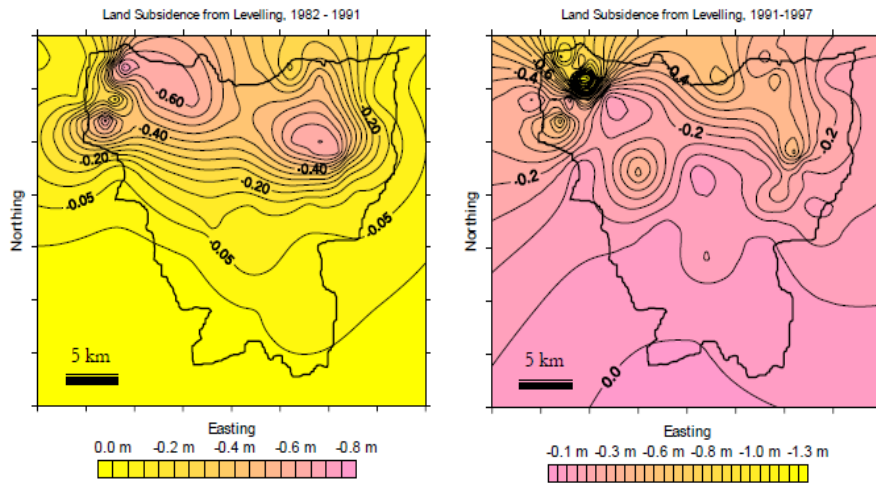


Figure 5. Land subsidence maps of Jakarta in 1982-1991 and 1991-1997 (Source: Abidin *et al.*, 2001)

Climate change together with land subsidence would increase flood probability in Jakarta. Simulations under assumptions of low and high greenhouse gases emissions showed that flood risk will increase in the future either low or high emission as the probability of rainfall exceed the threshold will significantly increase in the future (Figure 6).

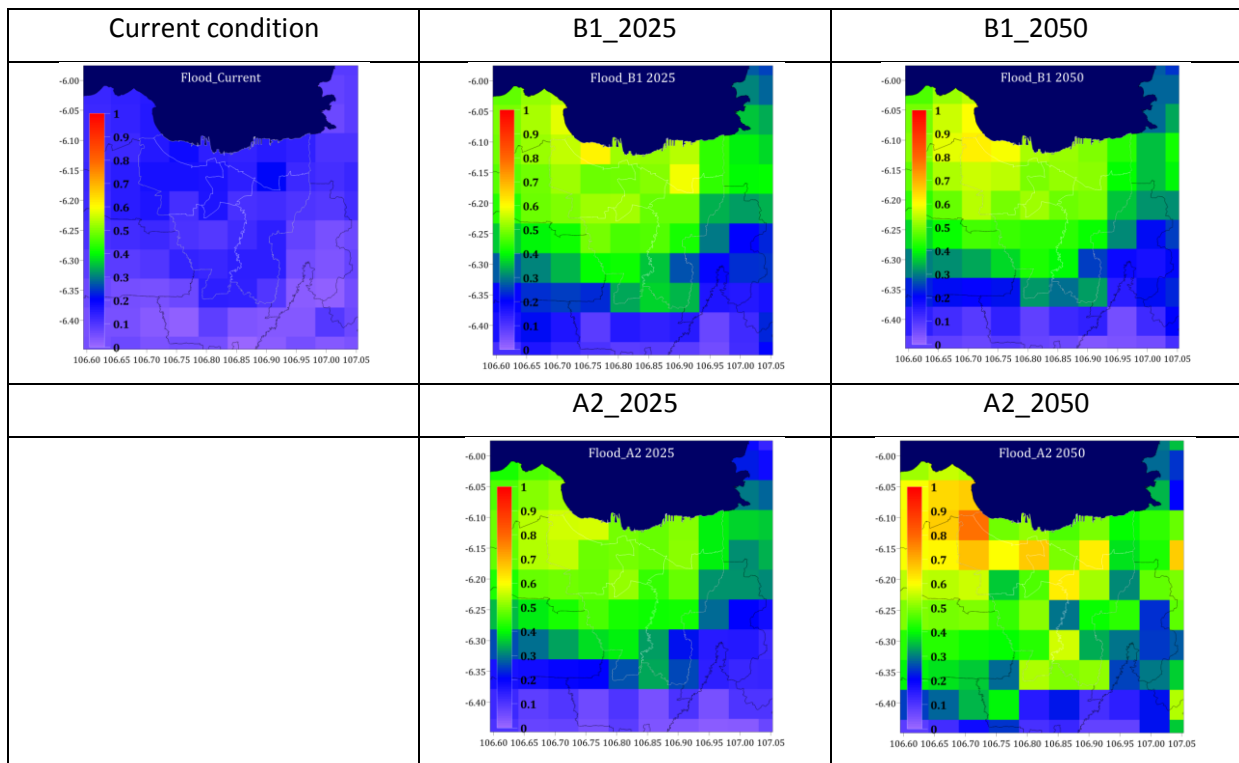


Figure 6. Change of flood probability under changing Climate.

Ultimately, the goals of climate change adaptation plan of Jakarta Municipality should be identified and formulated. This is also in line with national policies in climate change adaptation drawn by the Ministry of Environment. The goals should address main sectors related to climate change adaptation. The sectors are energy, environment of coastal areas, health, and other supporting sectors such as building synergy among sectors. Table 2 shows the goals of climate change adaptation of main sectors.

Table 1. Goal of climate change adaptation plan of Jakarta Municipality.

Sector	Goal
Self Energy Sufficiency	<ul style="list-style-type: none"> Increasing energy self sufficiency through the utilization of household waste and domestic waste to meet energy needs for reducing burden on environmental Enhancing cooperation between the city and the local government in the upstream region to maintain and improve the condition of the rain catchment area as source of hydroelectric power plant
Specific Areas (Slump and coastal areas)	<ul style="list-style-type: none"> Increasing community knowledge and adaptability, particularly in slums areas, coastal, and small islands in addressing climate risk Reducing slum settlements areas, especially in river side and coastal areas
Health	<ul style="list-style-type: none"> increasing early warning system for disease control and health disorders and accidents due to climate change Reducing health disorders (dengue, malaria, etc.) as well as accidents due to climate change
Supporting	<ul style="list-style-type: none"> Establishing a city committee facilitate coordination and synergy among sectors and stakeholders for increasing community and city resilience

Climate Change Adaptation Program of Jakarta City consists of:

- Flood Control Infrastructure Development
- Maintenance of Shore Line Flood Barrier and Construction of Flood Channel
- Rehabilitation of the mangrove forest
- Plan of Giant Sea Defense Development

Climate change adaptation efforts include:

- Plan of Giant Sea Defense Development
 - Activities that have been / are running:
 - Building concept of Giant Sea Wall Development
 - Deepening of Giant Sea Wall Development substances for flood controlling, wastewater, raw water, forestry, and marine sector.
 - The plan further activities:
 - Giant Sea Wall Development will be started in year 2015
 - Giant Sea Wall will be operated in year 2020
 - The raw water from retention reservoir can be processed as drinking water in year 2022.

To ensure implementation of urban city climate adaptation, local government of Jakarta established City Resilience Committee.

Ciliwung is one of the main rivers passing through Jakarta City. The representative of Ciliwung Catchment Area Management explained some programs on Ciliwung river management including the area of river banks across Jakarta Province. Some programs related to climate change adaptation are flood control, sea wall development, and multi purpose deep tunnel. Ciliwung river basin management is very essential related to flood disaster mitigation since it affects river water

debit passing through Jakarta area. During rainy season, river water debit monitoring is always crucial in providing information on flood early warning for people in Jakarta. Ciliwung river basin management basically consists of programs to improve and maintain environment along the river.

On day one of the scoping workshop, a technical visit was conducted to provide a practical view to the participants on Jakarta city planning. A visit to Jakarta City Planning Gallery showed how a provincial government undertakes sustainable and user-friendly city planning through a dynamic and interactive city planning. The gallery is managed by the City Planning Agency of Jakarta Province. Before the visit, the Secretary of Jakarta City Planning Agency made a presentation on the strategy of city planning. Some issues in city planning are traffic jam, floods, open space, climate change, increasing energy consumption, population growth, water supply, and waste management. The local government developed policies to combat climate change impacts. The policies are increasing open green space, reducing greenhouse gases emissions, and increasing adaptation as well as mitigation options. Some strategies were also developed to address spatial plan 2030 related to climate change. The strategies include how to apply green building and sustainable urban design, to improve existing green space, to reduce disaster risks through management and application of technology, and to develop the northern coastal area of the city. In adaptation to climate change, some programs have been developed, including flood management, giant seawall construction, and open space allocation. Based on experiences in the past, as a lowland ecosystem, Jakarta City has a motto “living with water” as the core of climate change adaptation strategies.

Dr. Laras Tursilowati of LAPAN shared a study on urban heat island phenomenon as the result of land use and land cover change. As Jakarta City represents one of mega cities in the Asia, urbanization has become its major problem. The consequences of urbanization are increasing slum areas, rapid growing population, increasing land use change, and lastly inducing increased greenhouse gases emissions and urban climate change. She developed a model to simulate the impact of land use and land cover change on urban climate and vice versa the model could be utilized to study land use planning which could result better urban climate condition.

Dr. Jariya Boonjawat shared experience of Thailand in combating climate change. She explained Climate Change Impact and Adaptation Study for Bangkok Metropolitan Region in 2009. The project is financed by the World Bank, focus on BKK and vicinity. Objective of the study is to strengthen the understanding of: (i) The socio-economic impacts of climate variability and change, and associated vulnerabilities of the urban communities, especially the poor, to such impacts; and (ii) The need to adapt urban infrastructure to mitigate these impacts and protect the urban population. Bangkok Metropolitan Region (BMR) includes 5 more provinces in the vicinity and the climate impacts require study of the whole Chaophaya river basin to understand the hydrology system e.g. basin precipitation, sea level rise, land subsidence and monsoon-driven storm surge in the Chaophaya river mouth. The study revealed that flood-prone areas will increase by 2050, and infrastructure (building and houses) in Bangkok and Samut Prakan will be more vulnerable to climate change impacts.

Hydrological characteristics of the Chaophaya Basin are described as follows:

- **Flood-prone area will expand in the future.** We estimate that an additional 180 km² of Bangkok and Samut Prakarn may be inundated under varying depths and to varying number of days under the A1FI climate change condition in 2050. The change marks about a 30% increase in the flood-prone area between 2008 and 2050. Furthermore, 7% of these provinces may remain inundated for over one month. Much of the increase in flood-prone area will be in the western part where the existing and planned flood protection infrastructures (dikes and pumps) may be inadequate to save the area from higher depths of flood in the future.
- **Flood volume will increase by the same percentage as precipitation, but flood peak discharge will increase more.** We observed a linear relationship between future

precipitation and flood volume in the Chao Phraya River. Nevertheless, flood peak discharge in the Chao Phraya River will increase by a larger percentage than precipitation. This observation corresponds to unequal travel times of floods from upstream catchments.

- **Storm surges are important, but will have less effect on flooding.** Storm surges are common in the Gulf of Thailand. They are also responsible for flooding the BMR area. However, we estimate that the flood-prone area in Bangkok and Samut Prakarn will increase by about 2% due to affecting storm surge striking western coast of the Gulf of Thailand.

Impacts of climate change in study area are:

- **Large population will live in flooded area.** About one million inhabitants of Bangkok and Samut Prakarn will be affected by the A1FI climate change condition in 2050. One in eight of the affected inhabitants will be from the condensed housing areas where most live below the poverty level. One-third of the total affected people may be subjected to more than a halfmeter inundation for at least one week. This marks a two-fold increase of that vulnerable population. The impact will be critical for the people living in the Bang Khun Thian district of Bangkok and the Phra Samut Chedi district of Samut Prakarn.
- **The economic damage of flooding will rise four-fold in 2050.** We found that under current climate and infrastructure conditions, economic damage from flooding (at current prices) would be 35 billion baht (about one billion U.S. dollars), which might rise to 148 billion baht (about 4.22 billion U.S. dollars) in 2050. However, 70% of the cost in 2050 would be attributed to land subsidence alone.
- **Buildings and houses are the most affected infrastructure.** More than a million buildings and housing (residential, commercial and industrial) units in Bangkok and Samut Prakarn might be impacted by flooding in 2050. These impacted buildings will include about 300,000 units in the western areas such as Bang Khun Thian, Bang Bon, Bang Khae, and Phra Samut Chedi districts. The total partial damage (to buildings and assets) may exceed 110 billion baht (3.14 billion U.S. dollars) at current prices. Nevertheless, half of the cost will be due to probable partial damage caused to the large number of new buildings that will be subjected to land subsidence in the flood-prone areas.
- **Commercial and industrial sectors will suffer substantially.**

It was also raised that mix structural and non-structural adaptations were developed for Bangkok Metropolitan Region. Adaptation options included mainstreaming climate change in national and sector development planning. This was due lack of awareness of climate change within the government and insufficient relevance of available climate information to development-related decisions poses considerable difficulties in mainstreaming adaptation in the city's development planning. We proposed mainstreaming climate concerns at both policy and operational levels. At the policy level, projected impacts of climate change should be embedded in all development planning. Mainstreaming at operational level or climate proofing, on the other hand, would involve critical analysis of adaptation options for actual implementation of activities. In case of big flood in 2011 there were several adaptation plans including spatial planning, from upstream watershed, all the river basin in the middle part and all the BMR at the river mouth. Financial plan of 350,000 million Baht was proposed to cover the program.

Dr. Mario R. Delos Reyes from School of Urban and Regional Planning, University of the Philippines, shared experience in the Philippines on climate change adaptation. Strong evidence of temperature increase in the Philippines was shown by time series of mean annual temperature anomalies from 1951 to 2006 (Figure 7). Major climate change impacts in the Philippines are increasing typhoon frequency, extreme climate events, and flood occurrences (Figures 8, 9, and 10).

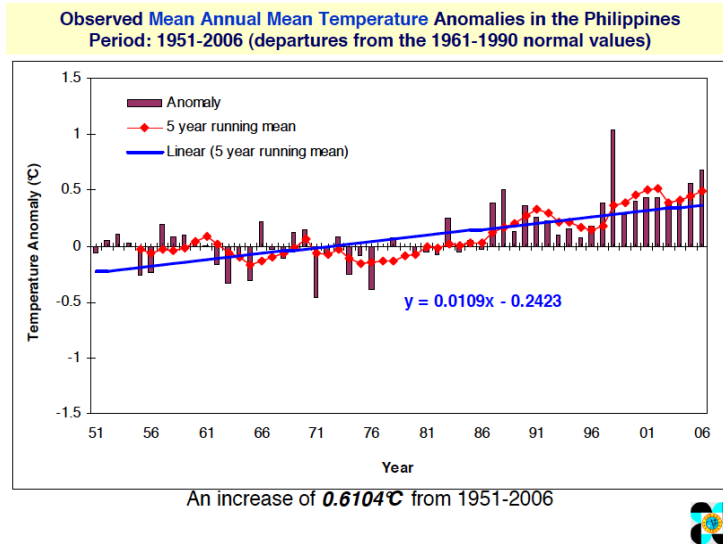


Figure 7. Observed mean annual temperature anomalies in the Philippines in period 1951 – 2006.

Some major impacts of climate change in the Philippines are stronger and more frequent typhoons, increasing heavy rainfall causing flooding and landslides, increasing temperature resulting to drought, heat island, water and power shortage, sea level rise, storm surges and coastal inundation.

Analysis of climate impacts in the Philippines includes:

- Scarcity of government resources to address impacts of climate change and disasters
- Overlapping functions and mandates of the NDRRMC and the Climate Change Commission
- Local government units are required to provide a Local Climate Change Action Plan and Local Disaster Risk Reduction Management Plan

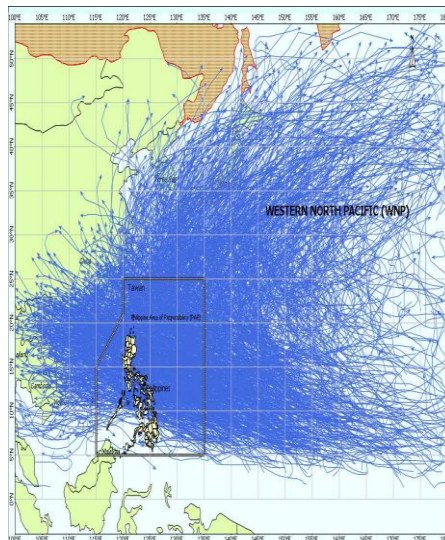


Figure 8. Typhoon tracks over western north Pacific

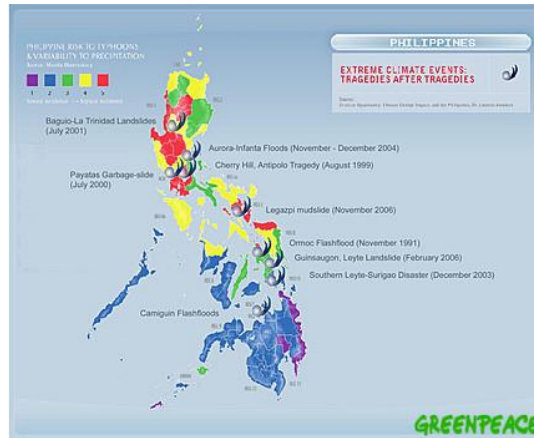


Figure 9. Impacts of Extreme Climate Events in the Philippines

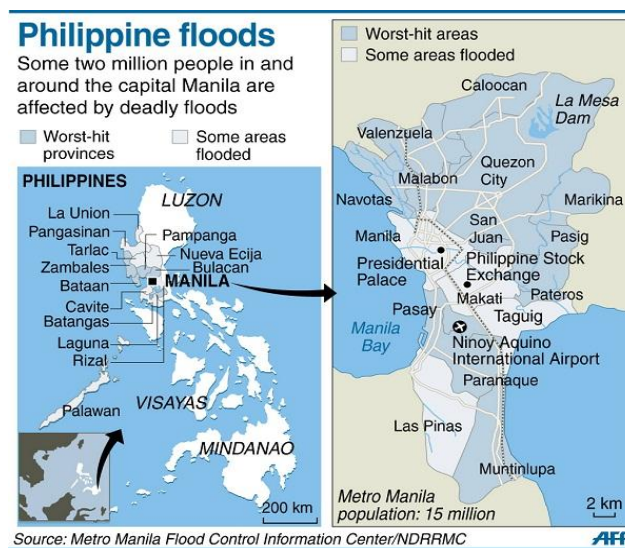


Figure 10. Flooded areas in the Philippines

(Source: Metro Manila Flood Control Information Center/NDRRMC)

Climate Change and Urban Planning Education

Dr. Ridwan of Bandung Institute of Technology (ITB) presented urban planning school activities conducted by ITB. Curricula of urban planning school consist of three types of knowledge. Those are basic knowledge, expertise knowledge, and synthesis of planning knowledge. Core expertise knowledge in urban planning school is consisting of planning theory, planning method, institution, spatial system, social and demography, and environmental and natural resources. Since climate change and its impacts are related to environmental and natural sciences, there are some challenges to incorporate the issues of climate change adaptation in regional and city planning.

Nowadays, the Department of Regional and City Planning of Bandung Institute of Technology (ITB) has ongoing functional planning training and thematic training, including climate change training. The training program was conducted in collaboration with national and international partners such as universities of other countries and Indonesian National Development Planning Agency with the target group of local government employees. ITB has also some experiences in conducting training in regional and urban planning which accommodated environmental issues.

Meanwhile, climate change and education in the Philippines are considered to be essential as it has concerns on some important issues as follows:

- Addressing climate change requires global, regional and local level actions and capacity;
- Cities/municipalities need to identify priorities, policies and actions to address climate change;
- Planning education, mitigation and adaptation to climate change;
- Climate change education in the North Hemisphere made progress;
- Large investments on climate change research and establishment of research institutions;
- Limited publications on climate change and planning.

The concern of Philippines in climate change and planning was indicated by a number of related publications as shown in Figure 11. Meanwhile, there are five important key inputs to urban planning components in the Philippines. The key inputs are identified as seen in Table 2.

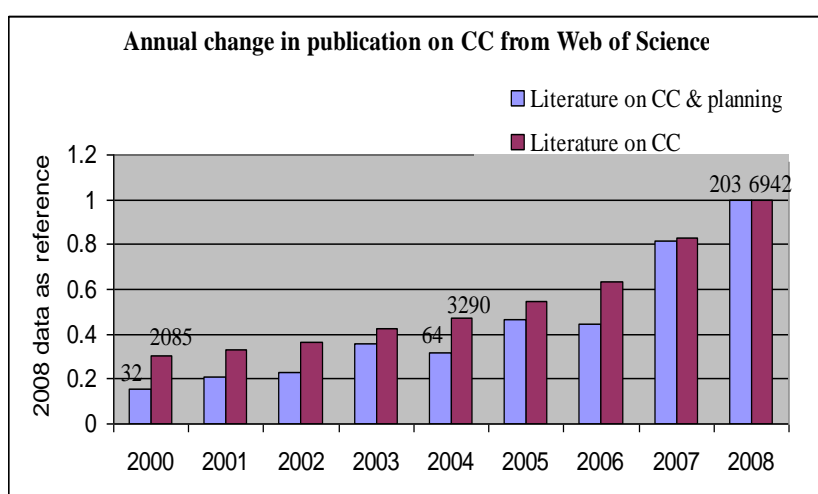


Figure 11. Annual change in publication on climate change in the Philippines from Web of Science

Table 2. Key inputs to urban planning components in the Philippines.

Climate Change and Disaster Reduction Inputs	Planning Process and Component
Climate change projections (temperature and rainfall variability) for 2020 and 2050	Profiling (future projections of hydro-meteorological conditions)
Climate change impacts and attendant natural disasters	Situation analysis (setting future scenarios)
Vulnerability assessment	Situation analysis (Defining present and future issues and problems and challenges)
Vulnerability mapping	Strategic spatial planning (Land use and resource development and management planning: Development constraints and potentials)
High risk areas based on multi-hazards	Prioritizing development and management programs and projects in high-risk locations

Common Problems and Needs in the Southeast Asia

Discussions made during the workshop had identified some common problems and needs related to climate change adaptation and urban planning in the Southeast Asia. Some common problems identified by participants of the workshop are as follows:

- Coastal areas and big cities in SEA countries have been experiencing impacts of climate change.
- These areas are also very vulnerable to climate change and extreme climate or weather. Wet rainy season and tropical storms are of extreme climate or weather in the SEA.
- Water-related disasters such as floods, inundation, and droughts are more frequent as the result of rainfall change or extreme condition. Extended and even prolonged floods more frequently occurred in coastal and big cities for the last decades. Jakarta, Bangkok, and Manila are among of the cities in SEA which experienced big floods.
- Local governments of big cities in SEA realized the importance of climate change issues, but related programs were not sufficient.
- Big and growing cities in SEA need spatial planning to adapt climate change. As an example, the Government of Jakarta Province has a program in city planning which incorporates environmental issues in city development.
- Some urban planning schools in SEA have courses related to environmental issues but no specific course on climate adaptation.

Furthermore the discussions were concluded with identification of common needs of climate adaptation and urban planning in the SEA as follows:

- Current existing activities in several countries such as Indonesia, Thailand, Philippines, and Viet Nam related to urban planning need to be further extended
- The project proposal development also addressed how to develop modules for the summer school, and who will be the target group and participant of the summer school. There were also deep discussions on possible actions to develop a summer school initiative in the Southeast Asia under a capacity building project. It was expected that the proposed project should have the scope and output as follows:
 - To promote educational activities in urban planning;
 - To promote research in climate change adaptation strategies in urban planning;
 - To promote community service to adapt climate change in urban areas.

Proposal Development

A brief explanation by Dr. Erna Sri Adiningsih about the project proposal development also addressed how to develop modules for the summer school, and who will be the target group and participant of the summer school. There were also deep discussions on possible actions to develop a summer school initiative in the Southeast Asia under a capacity building project. It was expected that the proposed project should have the scope and output as follows:

- a. To promote educational activities in urban planning;
- b. To promote research in climate change adaptation strategies in urban planning;
- c. To promote community service to adapt climate change in urban areas.

The type of proposed activities should include:

- a. Training of trainers (TOT) and faculty exchange;
- b. Accommodating climate change concern to planning studio, particularly for master program;
- c. To develop research based activities on urban planning and climate change adaptation;
- d. To develop serial climate change TOT in the Southeast Asia.

There were two topics of interest of the project proposal raised during the scoping workshop. The first topic identified was “Building capacity of urban planners for climate change adaptation in the Southeast Asia”. The main target group consists of urban planners. For broader title and main target group, the second topic identified was “Building Capacity for Urban Climate Change Adaptation in Southeast Asia Region”.

During the discussion some detailed issues are also addressed. Both in Thailand and Philippines also have some kind of sustainability training (summer school) conducted by their University. The students will be a volunteered trainee in a village, they will study the problems and they'll bring back designs about green village and how to cope up with the extreme weather. According to Dr. Boonjawat, at least the summer school should have three components such as in class learning, field trip and laboratory experiments. Prof.Lowry questioned about the audiences of the summer school. If the summer school is aimed for practitioners so it should be known about what they're regard as a training gap, for example is GIS (Geographic Information System).

Duration of proposed summer school would be 2 years activities, in which each training would have duration about one week or 5-6 days with 25 participants. Training in Thailand could invite more than 25 participants because Thailand would invite Lao participants. The budget estimation depends on local condition in participating or host countries. Representatives of Vietnam, Lao and Cambodia said that it would be good to combine a topic related to Mekong River management. The training would also invite Myanmar as participant. Representative of Thailand is willing to be the coordinator among four countries (Thailand, Vietnam, Cambodia, and Lao PDR) and there would be two trainings to be conducted in Thailand and Vietnam respectively. Duration of each training would be a 5-day course. The courses would be develop based on training priorities and modules identified by network participants.

Recommendations for Future Work

- Suggested title of the full proposal for broader topic is “**Building Capacity for Urban Climate Change Adaptation in Southeast Asia Region**”. The main target group will consist of scientists (or academicians) and practioners of urban planning in the Southeast Asia.
- General 5-day course will be developed based on training priorities and modules identified by collaborators.
- The summer school will be two-year activities, in which each training will have duration about one week or 5-6 days with 25 participants.
- Proposed summer school should at least have three components such as class learning, field trip, and laboratory experiments.

4.0 Conclusions

Coastal areas and big cities in SEA countries have been experiencing impacts of climate change. These areas are also very vulnerable to climate change and extreme climate or weather. Wet rainy season and tropical storms are of extreme climate or weather in the SEA. Water-related disasters such as floods, inundation, and droughts are more frequent as the result of rainfall change or extreme condition. Extended and even prolonged floods more frequently occurred in coastal and

big cities for the last decades. Jakarta, Bangkok, and Manila are among of the cities in SEA which experienced big floods. Local governments of big cities in SEA realized the importance of climate change issues, but related programs were not sufficient. Big and growing cities in SEA need spatial planning to adapt climate change. As an example, the Government of Jakarta Province has a program in city planning which incorporates environmental issues in city development. Some urban planning schools in SEA have courses related to environmental issues but no specific course on climate adaptation.

Identification of common needs of climate adaptation and urban planning in the SEA has showed that current existing activities in several countries such as Indonesia, Thailand, Philippines, and Viet Nam related to urban planning need to be further extended. The project proposal development also addressed how to develop modules for the summer school, and who will be the target group and participant of the summer school. There were also deep discussions on possible actions to develop a summer school initiative in the Southeast Asia under a capacity building project. Therefore the proposed project should have the scope and output as to promote educational activities in urban planning; to promote research in climate change adaptation strategies in urban planning; and to promote community service to adapt climate change in urban areas.

5.0 Future Directions

All representatives of APN member countries attending the workshop agreed to develop further a full proposal of CAPaBLE on “Building Capacity for Urban Climate Change Adaptation in Southeast Asia Region”. The proposal would be developed by improving original proposal and incorporating the results of scoping workshop and electronic discussions among the members. Expected output and outcome of the proposed activities would be a sustainable summer school for urban planners to enhance their capacity and understanding on climate change adaptation and urban planning.

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Appendices

Appendix 1. Workshop Agenda



**The Asia-Pacific Network for Global Change Research (APN) Scoping Workshop
on Capacity Development of Climate Change Adaptation in Urban Planning,
Hotel Grand Cempaka, Jakarta, Indonesia, 6th to 7th May 2013**

WORKSHOP AGENDA

DAY-1	06 MAY 2013	Person in Charge
08.00 – 09.00	Registration	
	Opening Session	
09.00 – 09.15	Opening	APN nFP for Indonesia
09.15 – 09.25	Self-Introduction	All Participants
09.25 – 09.30	Adoption of the agenda	Workshop Coordinator
09.30 – 09.45	Group Photo Session	
09.45 – 10.15	Coffee Break	
	Session-1	Moderator: Prof. Kem Lowry
10.15 – 10.30	An Overview of APN	Dr. Erna Sri Adiningsih / SPG member for Indonesia
	Technical Presentations	
10.30 – 10.45	Presentation 1: Jakarta's Strategy to Anticipate the Impacts of Climate Change	Mr.M.Tauchid Tjakraamidjaja & Prof. Rizaldi Boer / Local Government of Jakarta (BPLHD)
10.45 – 11.15	Presentation 2: Climate Change Adaptation in Urban Planning in Thailand	Prof. Dr. Jariya Boonjawat, Thailand
11.15 – 11.45	Presentation 3: Climate Change Adaptation in Urban Planning in Philippines	Dr. Mario Delos Reyes, Philippines
11.45 – 12.15	Presentation 4: Ciliwung-Cisadane Watershed Management	Ms. Yunita Candra Sari / Ministry of Public Works (BBWSCC)
12.15 – 12.45	General Discussion	
12.45 – 14.00	Lunch Break	

14.00 – 17.00	Site Visit: Jakarta City Planning Gallery: - Presentation on Jakarta City Urban Planning - Visit Gallery	Guided by Local Government of Jakarta (City Planning Department)
17.00 – 18.00	Free Time	
18.00 – 19.30	Dinner (at Hotel Restaurant)	Workshop Organiser
	Session-2	Moderator: Dr. Erna Sri Adiningsih
19.30 – 20.00	Presentation 5: Indonesian National Policy on Climate Change Adaptation	Ms. Sri Tantri A. / Ministry of Environment of Indonesia
20.00 – 21.00	Preparation for Proposal Development: Brief Explanation	Dr. Erna Sri Adiningsih

DAY-2	07 MAY 2013	Person in Charge
	Session-3 Technical Presentations	Moderator: Dr. Mario Delos Reyes
08.30 – 09.00	Presentation 6: Climate Change Adaptation and Urban Planning in the SEA	Prof. Kem Lowry, East West Center - USA
09.00 – 09.30	Presentation 7: Curricula in Urban Planning School	Dr. Ridwan Sutriadi/ Planning School of Institute Technology Bandung
09.30 – 10.00	Presentation 8: Climate Change Adaptation in Urban Planning in Vietnam	Dr. Kim Chi Ngo / SPG Member for Vietnam
10.00 – 10.30	Presentation 9: Land Use / Land Cover Change and Urban Heat Island	Dr. Laras Tursilowati / LAPAN
10.30 – 11.00	General Discussion	
11.00 – 11.30	Coffee Break	
	Session-4	
11.30 – 12.00	Proposal Development: CAPaBLE Proposal and Review Results	Dr. Erna Sri Adiningsih
12.00 – 12.30	Discussions on improvement of the proposal: literature, methodology, collaborators, proposed budget, timeline, contribution, etc.	All participants
12.30 – 14.00	Lunch Break	

14.00 – 15.30	Proposal Development (continued)	All participants
15.30 – 16.00	Coffee Break	
	Session-5	
16.00 – 16.45	Wrap up	Dr. Erna Sri Adiningsih
16.45 – 17.00	Conclusion and Action Item	
17.00 – 17.15	Closing	Mr. Hendra Setiawan / Assistant Minister of Environment for Economic and Sustainable Development
17.15 – 19.00	Free Time	
19.00 – 21.00	Farewell Dinner	LAPAN

Appendix 2. Workshop List of Attendance



**The Asia-Pacific Network for Global Change Research (APN) Scoping Workshop
on Capacity Development of Climate Change Adaptation in Urban Planning,
Hotel Grand Cempaka, Jakarta, Indonesia, 6th to 7th May 2013**

LIST OF PARTICIPANTS

CAMBODIA

1. Chho Somony, Ms. (National Focal Point alternate)
Director, Department of ASEAN and International Cooperation, Ministry of Environment,
Kingdom of Cambodia, #48, Preah Sihanouk Blvd., Tonle Bassac, Khan Chamkarmon, Phnom
Penh, CAMBODIA
Tel: +855-23-213-462 / Fax: +885-23-214-185 / Email: semsundara@yahoo.com;

INDONESIA

2. Agil Sutrisnanto
Aeronautics Assessment and Information Center, The National Institute of Aeronautics and
Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330,
Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: agil_sutrisnanto@yahoo.com
3. Akhmad Subekhi, Mr.
Aeronautics Assessment and Information Center, The National Institute of Aeronautics and
Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330,
Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: bromo_diponegoro@yahoo.com
4. Andira Resputra, Mr.
IAP Jl. Tambak No. 21, Jakarta 10320, Tel: +62-21-3905067/ Fax: +62-213905067 Email:
resputra.andira@gmail.com
5. Andromeda, Mr.
BAPPEDA, DKI Jakarta, Jl. Medan Merdeka Selatan No. B-9, Jakarta, INDONESIA / Tel: +62-21-
3822261/ Fax: +62-213860521 Email: penelitianstatistik@gmail.com

6. Andy Bato Raya, Mr.
Biro Tata Ruang LH DKI Jakarta, Balaikota Blok G Lt. 11, Jl. Medan Merdeka Selatan No. 8-9
Jakarta Pusat-10110, Tel: +62-21-3823417/ Fax: +62-213822516 Email: aibatoraya@gmail.com
7. Asmali, Mr.
Aeronautics Assessment and Information Center, The National Institute of Aeronautics and
Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330,
Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: ally7171@yahoo.com
8. Baharlin, Mr.
Aeronautics Analysis and Information Center, The Indonesian National Institute of Aeronautics
and Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330, INDONESIA
Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: baharlin_80Yahoo.co.id
9. Dhani Muttaqim, Mr.
IAP, Jl. Tambak No. 21, Jakarta 10320 / Tel: +62-21-3905067 / Fax: +62-213905067 / Email:
dani.muttaqim@gmail.com
10. Dikjiratmi, Ms.
Aeronautics Assessment and Information Center, The National Institute of Aeronautics and
Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330
Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: dije97@yahoo.com
11. Diogenes, Mr.
Aeronautics Assessment and Information Center, The National Institute of Aeronautics and
Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330
Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: genesdio@yahoo.com
12. Efni Andriani, Ms.
Regional Environmental Agency (BPLHD),
Gedung Nyi Ageng Serang Lt. 10 Jl. Hr. Rasuna Said Kav 22C, Setiabudi,
Jakarta, Tel: +62-21-5209651/ Fax: +62-21-5265309 rita.rahardiatn@yahoo.co.id
13. El Khobar, Mr.
Univesity of Indonesia Jakarta, INDONESIA Tel: +62-21-7270029/ Fax: +62-21-7270028 /Email:
elkobar@eng.ui.ac.id
14. Erna Sri ADININGSIH, Dr.
Director, Aeronautics Assessment and Information Center, The National Institute of Aeronautics
and Space (Lapan), Jl. Cisadane No. 25, Cikini, Jakarta 10330
Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: ernasri@lapan.go.id; ernasri@yahoo.com
15. Hendra SETIAWAN, Mr.
Assistant Minister for Economy and Sustainable Development, Ministry of Environment,
JL. D.I Panjaitan kav 24, Kebon Nanas, Jakarta 13410
Tel : +6221-85904937 / Fax: +6221-85904937 / Email: hendra61@gmail.com
16. Hendy Gunawan, Mr.

Aeronautics Assessment and Information Center, The National Institute of Aeronautics and Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330

Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: hendygun5@yahoo.com

17. Herawati, Ms.

BBWSSC, Ministry of Public Work, Jl. Inspeksi Saluran Tarum Barat No. 58, Jakarta 13620 Tel: +62-21-8575852/ Fax: +62-21-85758819/Email:herawa2005@yahoo.co.id

18. Husni Nasution, Mr.

Aeronautics Assessment and Information Center, The National Institute of Aeronautics and Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330

Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: nasution.husni@yahoo.com

19. Indah, Ms.

Atmospheric Science and Technology Center, The National Institute of Aeronautics and Space, Jl. Dr. Djunjunan No. 133, Bandung, 40173

Tel: +62-22-6012602/ Fax: +62-22-6014998/ Email:

20. Izhar Chaidir, Mr.

Dinas Tata Ruang DKI Jakarta, Jl. Abdul Muis No. 66 Lt. 3, Jakarta 10160, INDONESIA, Tel: +62-21-3865745/ Fax: +62-21-3865745

21. Kuswati, Ms.

Aeronautics Assessment and Information Center, The National Institute of Aeronautics and Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330, INDONESIA

Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: kuswati.lapan@yahoo.com

22. Laras Tursilowati, Dr.

Atmospheric Science and Technology Center, The National Institute of Aeronautics and Space, Jl. Dr. Djunjunan No. 133, Bandung, 40173 / Tel: +62-22-6012602 / Fax: +62-22-6014998 /

Email: laras@bdg.lapan.go.id, laras_lapan@yahoo.com

23. Laras, Ms.

Dinas Tata Ruang DKI Jakarta Jl. Abdul Muis No. 66 Lt. 3, Jakarta 10160, Tel: +62-21-3865745/ Fax: +62-21-3865745

24. Mahmud, Mr.

Atmospheric Science and Technology Center, The National Institute of Aeronautics Aeronautics and Space, Jl. Dr. Djunjunan No. 133, Bandung, 40173

Tel: +62-22-6012602/ Fax: +62-22-6014998/ Email:

25. Mardianis, Mr.

Aeronautics Assessment and Information Center, The National Institute of Aeronautics and Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330

Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: mardianis65@yahoo.com

26. Melissa Retno K, Ms.

Aeronautics Assessment and Information Center, The National Institute of Aeronautics and Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330

Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: melisyow@yahoo.com

27. Muhaimin, Mr.

Aeronautics Assessment and Information Center, The National Institute of Aeronautics and Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330

Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: muhaimin_pussis@yahoo.com

28. Resfaniarto, Mr.

Biro Tata Ruang LH, DKI Jakarta, Balaikota Blok G Lt. 11, Jl. Medan Merdeka Selatan No. 8-9 Jakarta Pusat-10110, Tel: +62-21-3823417/ Fax: +62-213822516/

Email: fani_indraka@yahoo.com

29. Rebecca, Ms.

Dinas Tata Ruang DKI Jakarta, Jl. Abdul Muis No. 66 Lt. 3, Jakarta 10160,

Tel: +62-21-3865745/ Fax: +62-21-3865745

30. Ridwan Sutriadi , Mr.

Planning School of Institute of Technology Bandung (ITB) – Bandung West Java ,

Tel: +62-22-2509171/ Fax: +62-22-2501263 Email: ridwansutriadi@gmail.com

31. Rita Rahardiatna, Ms.

Regional Environmental Agency (BPLHD),

Gedung Nyi Ageng Serang Lt. 10 Jl. Hr. Rasuna Said Kav 22C, Setiabudi,

DKI Jakarta, Tel: +62-21-5209651/ Fax: +62-21-5265309/

Email:rita.rahardiatn@yahoo.co.id

32. Rizaldi Boer, Prof.

CCROM- IPB, Gedung Fisik dan Botani Lt. 2 Kampus IPB Bogor, West of Java Tel: +62-251-8313709/ Fax: +62-251- 8313779Email:rizaldeboer@gmail.com

33. Sakti Sitindjak, Mr.

Aeronautics Analysis and Information Center, The Indonesian National Institute of Aeronautics and Space, Jl. Cisadane No. 25, Cikini, Jakarta 10330

Tel: +62-21-31927982/ Fax: +62-21-31922633/ Email: saktisitindjak@yahoo.com

34. Siti Puspitasari, Ms.

Dinas Tata Ruang DKI, Jakarta, Jl. Abdul Muis No. 66 Lt. 3, Jakarta 10160,

Tel: +62-21-3865745/ Fax: +62-21-3865745

35. Sri Tantri A. , Ms.

Minister for Economy and Sustainable Development, Ministry of Environment,

JL. D.I Panjaitan kav 24, Kebon Nanas, Jakarta 13410,

Tel : +6221-85904937 / Fax: +6221-85904937

36. Y. Chandra Sari, Ms.

Ministry of Public Works (BBWSCC), Jl. Inspeksi Saluran Tarum Barat No. 58, Jakarta 13620,

Tel: +62-21-8575852/ Fax: +62-21-85758819/Email: ysandrasari@yahoo.co.id

PHILIPPINES

37. Prof. Mario R. Delos Reyes
Dean of School of Urban and Regional Planning
University of the Philippines
E. Jacinto St., Diliman, Quezon City 1101, PHILIPPINES
Tel: +632 920 6853; 981 8500 local 4081 / Mobile: +63 947 8878747 / Fax: +632 929 1637 /
E-mail: mrdelosreyes@up.edu.ph; mario@delos-reyes.org / Website: surp.upd.edu.ph

THAILAND

38. Dr. Jariya BOONJAWAT (SPG Member)
Advisor, Atmospheric Research Group, Southeast Asia START Regional Center Chulalongkorn
University, 5th Floor, Chulawich 1 Building, Henri Dunant Road, Pathumwan, Bangkok, 10330,
THAILAND / Tel: +662-2189466 / Fax: +662-2519416 / Email: jariya@start.or.th

USA

39. Prof. Kem Lowry
East West Center
Honolulu, Hawaii, USA
Email: lowry@hawaii.edu

VIETNAM

40. Dr. Kim Chi NGO (SPG Member)
Head of Research, Development Department on Natural Resources Utilisation and
Environmental Protection Institute of Natural Products Chemistry, Vietnam Academy of Science
and Technology 18 Hoang Quoc Viet, Cau Giay District, Hanoi, VIET NAM
Tel: +84-4-37912731 / Fax: +84-4-37564390 / Email: chikimngo2008@gmail.com

Appendix 3. Photo Gallery of the Scoping Workshop



Photo 1. Participants of the scoping workshop.



Photo 2. Dr. Jariya Boonjawat, SPG member for Thailand explained climate change adaptation strategies in Thailand.



Photo 3. Dr. Mario Delos Reyes of the Philippines explained climate change and urban planning school.



Photo 4. Participants were listening to the presentation.



Photo 5. Mr. Hendra Setiawan, MOE of Indonesia, gave speech during opening session.



Photo 6. Prof. Kem Lowry of USA, explained the concept on climate change adaptation strategies.



Photo 7. Discussion among participants



Photo 8. Dr. Ridwan of Indonesia explained the urban planning curricula and the inclusion of environmental aspects.



Photo 9. The participants from Jakarta municipal government.



Photo 10. Dr. Laras Tursilowati of LAPAN presenting urban heat island study of Jakarta.



Photo 11. Prof. Rizaldi Boer representing BPLHD of Indonesia was talking about environment program of local government of Jakarta.



Photo 12. Dr. Jariya Boonjawat of Thailand made comments on the strategy of climate adaptation.



Photo 13. The participants were in the meeting room of Jakarta City Planning Department.



Photo 14. The participants were in front of Jakarta City Planning Gallery.

Appendix 4. Funding sources outside the APN

The project received supports from the Aerospace Assessment and Information Center, National Institute of Aeronautics and Space (LAPAN). The supports included:

- Equipments for meetings and workshop (computers, printers, projector, fax machine, etc.);
- Salaries for administrative staffs and researchers;
- Honorarium for staff to prepare the venue (extra working hours on Saturday and Monday);
- Local transportation for all participants from the hotel to site visit location;
- Snacks for all participants during site visit;
- Meeting rooms and transportation for pre-meetings;
- Farewell dinner for all participants;
- Souvenirs for all participants;
- Report delivery to national participants.

All supports are totally valued about USD4,000.00

Appendix 5. Presentations during the Scoping Workshop