

CHAPTER 6

CONSULTATION WITH STAKEHOLDERS

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6.1 GENERAL

The methodology and operational plan for this important crosscutting task have been designed based on the project objective: to inform decision making on the part of the government and the private sector on measures needed to address climate change and its consequence. Two technical consultations were held to verify data and methodology used in the report and validation and acceptance from the technical/academic community. The final stage consultation was arranged for public announcement, to create city awareness and to receive recommendation for improvement of the Final Report.

6.2 TECHNICAL CONSULTATION 1

The first technical consultation, “*Sea Level Rise and Land Subsidence in the Bangkok Metropolitan Area*”, was held on September 23, 2008 at the World Bank Office, Bangkok. The program and list of participants are given in Appendix N.

6.2.1 Objectives

Sea level rise and land subsidence are major problems that have close links to climate change impacts in the Bangkok Metropolitan Region. Future rainfall and sea levels during the rainy season will increase with the future climate conditions. The present flood protection may not be sufficient for the future flood risks. The consultation was intended to seek expert inputs that will be critically important to achieve a broadly agreed upon solution for these problems.

6.2.2 Presentation and Discussion

The Consultant presented the project scope, variables and assumptions in model development and simulation. The discussion by experts on land subsidence was focused on sources of data used. Two government units have collected land subsidence data for organizational interest. The Royal Thai Survey Department had extensive records but just changed some point of reference benchmarks in 2006. The Bureau of Groundwater Conservation and Restoration recorded land subsidence and its correlation with groundwater used by increasing urban expansion in Bangkok. The limitation of data currently available was discussed as was the intensity of points of sampling. The meeting discussed the application and limitation of the records from the two organizations and concluded the data recorded by The Bureau of Groundwater Conservation and Restoration is the only official record reliable for use in the project. The meeting accepted that land subsidence rate related to groundwater use but needed clarification on the magnitude and scaling factors. The Consultant proposed using a predictive model of accumulated land subsidence in 2007-2050 based on an average land subsidence rate in the last 5 years (2003-2007) of 10% decrease per year for the study and it was accepted. The experts recommended the Consultant remark on the technical limitation in the data and scaling factors in land subsidence, and also give precaution in using the predicted values.

The Consultant also presented a variety of sea level rise studies and forecasting. The meeting discussed the possibility of using predicted sea level rise records from tide gauges in the Gulf of Thailand and realized that the current data available was derived from too short a time period. The experts discussed the uncertainty in using sea level rise from data recorded in the Gulf of Thailand and agreed that the JBIC study was reasonable enough for the study as it is a regional model and in the range of the IPCC. The expert group accepted the Consultant’s proposal of using sea level rise forecasted by the JBIC (A1F1 and B1 scenario, 29 cm and 19 cm in 2050, respectively) and advised the Consultant to cite reference sources.

6.3 TECHNICAL CONSULTATION 2

The second technical consultation, “*Climate Change Impact and Adaptation Study for Bangkok Metropolitan Region*”, was held on February 19, 2009 at the Bangkok Metropolitan Youth Center (Thai-Japan), Bangkok. The program and list of participants are given in Appendix N.

6.3.1 Objectives

- 1) To verify the data and methodology used in model development and impact assessment and to report on progress up to the Initial Draft Final Report; and
- 2) To receive comments and recommendations from technical experts for study improvement.

6.3.2 Presentation and Discussion

Representative of the BMA introduced the project background and their interest and participation in the project. The Consultant briefly explained the scope and methodology of the study, the summary of technical consultation 1, and the findings up to the Initial Draft Final Report covering the Bangkok city description, model development and simulation, impact assessment and adaptation and proposal, including consultation with stakeholders.

There were several comments from the experts but no major challenges to the project assumption, the model development or impact assessment. Most of the technical comments were related to the source of data used in the model, especially the sea level rise, and mentioned incorporating the accumulate impact result from coastal buildings into the model. The Consultant responded by explaining the principles of using current data and its limitation. To absorb the cumulative impact from coastal buildings, the Consultant had put into the model a reduction rate factor. There were concerns about a change of climatic factor (e.g. atmospheric pressure) causing a sudden 10-30 cm rise in water level in the Chao Phraya River. The current trend of land use upstream in the Chao Phraya River Basin will have a negative impact in Bangkok as well as changing land use in Bangkok. The Consultant agreed with the comments on change of climatic factor, but could not find data for a projection to incorporate into the model, and also lacked data on land use change upstream of the basin relating to flood effects in Bangkok. The Consultant explained that the Bangkok area will not continue to grow at a significant rate as it is almost fully developed. Growth is expanding to its outer vicinities. Future land use in Bangkok will not significantly change. Other comments were to recheck and update data inputs. The Consultant has taken the remarks into consideration and they will be verified in the Draft Final Report.

6.4 FINAL STAGE CONSULTATION

The Final Stage Consultation, “*Climate Change Impact and Adaptation Study for Bangkok Metropolitan Region*”, was held on March 12, 2009 at the Grand Ayutthaya Hotel, Bangkok. The program and list of participant are given in Appendix N.

6.4.1 Objectives

- 1) To inform the general public about the study, the results and proposed measures needed to address climate change and its consequence for the BMA and Samut Prakarn; and
- 2) To compile feedback information, comments and recommendations to be used for final improvement of the final report.

6.4.2 Presentation and Discussion

The Deputy Bangkok Governor presided, delivered an opening address, elaborated on the project’s value to the BMA and Bangkok residents and cited the BMA’s intention and cooperation in the project formulation and progress. The Consultant briefly presented the background of the project,

objectives and scope of the study, the process, the summary of model and impact assessment results, and the purposed adaptation. The Consultant informed the participants that outputs presented are preliminary and require future data, calibration and verification to improve accuracy of the predicted impact.

The discussion session was chaired by the director of the Department of Drainage and Sewerage with two Consultants on the panel. Participation in the discussion was very active, expressing several remarks and giving advice. However, there were no challenging comments to the assumption, model development and impact assessment. The meeting proposed several adaptation options, and commented on investment cost and related issues. The consultation discussed various issues to be considered. Most issues were clarified by the panel.

The Department of Health was concerned flooding will increase wastewater volume, affecting health and living conditions in Bangkok. It suggested the BMA initiate a polluter pay principle and implement it as normal practice. Thousands of communities in the flood risk areas will have to improve their toilet systems to cope with projected higher flood levels and longer inundation periods. The chair person explained that the BMA has attempted to improve wastewater management by improving the capacity of the drainage system in many areas, but it is still not able to cope with increasing garbage and wastewater problems. At present, the BMA provides mobile and temporary toilet service to communities during flooding.

One suggestion was to include the indirect impact to tourism in the cost benefit analysis. The Consultant responded that this segment had been included in the economic analysis.

The groundwater expert pointed out that the most sensitive variable input to the model is land subsidence and requested the BMA to assist in establishment of a network of recording stations sufficient to provide reliable estimates for model improvement in the future.

There was a specific comment on the construction of dikes and consequent environmental impact. It was recommended that determination of environmental cost be incorporated in the economic analysis. The Consultant verified that the measure proposed had been to raise crest elevation of the existing dikes not to build new dikes, therefore the magnitude of environmental impact would not be substantial.

There were several comments recommending the Consultant reconsider allocation of investment cost to other alternatives, e.g. increasing drainage volume of the Chao Phraya River, construction of a new dam upstream, establishment of a Monkey Cheek, forest plantation, cheek dams and improving watershed management. The Consultant explained that during the process of preparing an adaptation proposal, it had made a comprehensive analytical review of existing adaptive practices including structural and non-structural measures. The proposal of improving dikes, increasing pumps, and reducing coastal erosion would be sufficient to absorb projected flood magnitude impact to Bangkok. Measures recommended to be conducted outside and around the BMR have been carried out by responsible organizations. The Consultant felt it was very important to integrate plans and functions for sentience in flood management.

Finally, the donor reminded the participants to consider the study the first attempt to seek understanding of the socio-economic impact of climate change and associated vulnerabilities of urban communities especially the poor, to such impact. This underscored the need to adapt urban infrastructure to mitigate the impacts and protect the urban population. The BMA still needs to improve its database and model reification in the future. The proposed investment cost has to be considered as long-term insurance coverage for flood risk for millions of Bangkok inhabitants, for considerable damage to several hundred thousand buildings and for substantial loss in the commercial and industrial sectors from climate change impact.