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Applying Robust Decision Making (RDM) to ensure Robust Flood Management in Ho Chi Minh City, Vietnam

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Ho Chi Minh City (HCMC) faces significant future flood risk driven by hard-to-predict future climate and socio-economic trends. Many regions in the world face similar risk management challenges. But traditional quantitative methods for risk management often prove inadequate because they can produce strategies that are brittle to surprise, fail to build consensus, undervalue long-term thinking, and undervalue the flexible and integrated management plans that may be most effective at managing future risk.

RDM Improves Planning Under Conditions of Deep Uncertainty. RDM helps policy makers identify strategies that are robust over many plausible futures, rather than strategies that are optimal in any one best-estimate of the future but brittle in others. RDM most often proves useful when decision makers face conditions of deep uncertainty, where fast-changing and hard-to-predict future conditions leave decision makers unsure about the accuracy of their models or the likelihood of different future conditions.

To identify robust strategies, RDM conducts the analysis in reverse order compared to traditional risk analysis. Rather than begin with best-estimate projections of the future, RDM begins with one or more strategies under consideration. The analysis then examines the performance of the strategy under many future projections – hundreds or thousands -- and identifies scenarios in which the proposed strategy meets its goals, and scenarios in which it does not. This scenario analysis reveals the robustness of the strategy. Using this information, RDM then helps decision makers identify new or augmented strategies that address those vulnerable scenarios, and evaluate whether those new strategies are worth adopting.

RDM is not a new type of risk model. Rather, RDM provides innovative methods and tools that help planners use their models differently, and RDM itself is embedded in an explicit process of stakeholder engagement. Thus, RDM can be used with existing models and data, and can augment existing decision support processes. In this case study RDM provides novel results using an existing flood risk model for HCMC. The analysis helped facilitate and drew on the outcomes of two stakeholder workshops in HCMC with government authorities, local experts, consultants undertaking related studies, and representatives from international institutions.

The paper present the case study on how the RDM has been applied to ensure the robust flood management in HCMC. The RDM, is a new approach to managing conditions of uncertainty, addresses the challenge of integrated flood risk management in HCMC. RDM has been increasingly used in developed countries, but this study provides the first application in a developing country. RDM seems very promising for HCMC: the city's challenges loom large in the face of tremendous uncertainty about the future, and its planners have a strong interest in applying state of the art planning and risk management methods to meet these challenges. In particular, the city's planners seek to implement a sophisticated integrated flood risk management strategy that combines innovative infrastructure, adaptation, and retreat policy options. In short, this paper provided insightful sharing experience to link strategic S&T interventions through RDM to mitigate flood related hazards due to extreme natural events in HCM City.