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One page project management application on flood preparedness: case study of Thailand

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Abstract

Since the disaster of flooding in 2011, it realized over Thailand how important the powerful water management is. It was the worst flooding that caused the severe losses to Thai economy and society of which the contributed factor to this crisis are not only the natural but also manmade. Therefore, the idea of providing effective information of water resources system to the decision makers is considered as necessary tool for coping with flood situation. In order to support the immediately response during flood crisis, the powerful decision support system that can provide important information is needed. Even, the water resource system over a river basin contains a lot of information that is too complex to understand. The decision makers still need all necessary data in the simple form that can assist them to decide not only to minimize loss from flood but also to state the problem in different scenario. Therefore, the one page project management (OPPM) principal has been introduced by Department of Water Resources (DWR) to simplify all necessary information over the river basin in different flood scenario. This information contains the details of flood scenario, tasks in each process of flood risk management as well as the list of responsible organizations in each scenario. The objective of this paper is to share Thailand's experience on application of OPPM on flood preparedness. It is obviously that coupling with the result from hydrological study, OPPM can be a powerful visual tool to communicate all the information contained on the one page report for flood risk management purpose.

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1. Introduction

Thailand is one of the tropical countries, located in the tropical area between latitudes $5^{\circ} 37' N$ to $20^{\circ} 27' N$ and longitudes $97^{\circ} 22' E$ to $105^{\circ} 37' E$. The total area of the country is 513,115 square kilometers or around 200,000 square miles. Thailand's climate is under the influence of Monsoon wind of seasonal character i.e. southwest monsoon and northeast monsoon. Coupling southwest monsoon with the Inter Tropical Convergence Zone (ITCZ) and tropical cyclones cause rainfall over the country during mid-May to mid-October. From the effect of summer southwest monsoon, 80% of the normal annual rainfall occurs between May and October. Whereas, the northeast monsoon which starts in October brings the cold and dry air from the anticyclone in China mainland over major parts of Thailand, especially the Northern and Northeastern Parts which is higher latitude areas [1]. In 2011, Thailand had faced the big flood that caused enormous loss in country's economy and society. Year of 2011 is the wettest year of the 61-years record (1951–2011) of which the annual rainfall was about 24% above normal [2]. The return period for the 2011 Thai flood is 10–20 years, which is possible to occur again [3]. Flooding in 2011 caused by heavy rain combined with multiple tropical storms throughout the extended rainy season. The tropical depression Haima arrived in June followed by Nock-Ten in July, combined to produce the widespread flood over the central plain of the Chao Phraya river basin, as shown in Fig.1. Human factors of deforestation was also a factor that increased the flooding crisis stem larger. Deforestation erodes soil, which settles at the bottom of waterways, rising of water level of water and consequently causing flood. The geographic extent of the floods was large, covered 66 of Thailand's 77 which mainly in the northeastern and central regions. The provinces impacted in the central plains are located in the Chao Phraya River Basin, of which runoff resulted from rainfall over the northern, mountainous regions of the country during August/September. Bangkok, located at the lower part of Chao Phraya River Basin, is partially flooded as the river drains into the Gulf of Thailand. The Bangkok metropolitan area and its surrounding areas were affected by severe and record-high flooding. Overall, the floods affected more than 13 million people and resulted in more than 680 deaths. It caused total damage and losses amount to THB 1.43 trillion (USD 46.5 billion), with losses accounting for 56 percent of the total GDP [4].

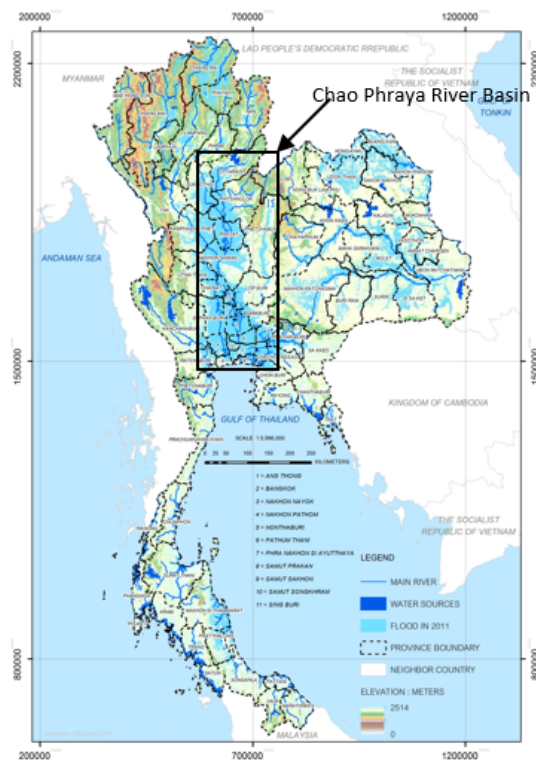


Fig. 1. Flooded area over Thailand in 2011

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