

DTI'S MODELING AND SIMULATION INITIATIVE PROJECT TO STRIVE FOR THE HADR MISSION OF THAILAND'S MINISTRY OF DEFENSE

Chamnan Kumsap^(a), Yongyoot Witheetriron^(b), Prakorn Pratoomma^(c)

^{(a),(c)}Defence Technology Institute (Public Organization), Ministry of Defence,

Office of the Permanent Secretary of Defence, Ban Mai, Pak Kret, Nonthaburi, Thailand 11120

^(b)Department of Geography, Faculty of Arts, Silpakorn University, Nakhon Pathom, Thailand 73000

chamnan.k@dti.or.th, witheetriron_y@silpakorn.edu, prakorn.p@dti.or.th

ABSTRACT

Military operations other than war have been put ahead of missions in battlefield in time of resource scarcity and disaster crisis management. Defence Technology Institute or DTI was established to conduct large-scale and nation-wide research and development projects with great impact at national scale. This paper reports an initiative of research and development to prepare the nation for earthquakes, flooding and landslides that have effected Thailand and inevitably led the world economy to numb, taking the 2011 Thailand major floods as an example. An HADR simulation and simulator project was initiated to prepare a ready hand of Thailand's armed forces, non- and governmental organizations, academic institutes and even private sectors to cope with the crisis. Modeling and simulation are embraced as a tool to predict the disasters. Standard Operating Procedures of best practices from actual and frequent experiences are input for the method development and incorporation with Thai own SOPs in response to the eruption. Similarly, records, mistakes and success are analyzed in the modeling and simulation research that fits Thailand's situation and come up with Thailand's SOPs to recover victims or effected people from the disasters. Sharing resources and knowledge, involving indigenous academia, creating forum and bringing in foreign expertise are media that will place DTI in the middle of disparate stakeholders where project management takes control. Three years are a major constraint that the project needs project management for cooperation, collaboration and integration. High success has been expected so that feasibility study with the demonstration of one sample disaster scenario is minutely planned to acquire foreign outsourcing. Targets are set to ensure and secure budget in from of formal and promised user requirements. Deliverables are set at the end of three consecutive fiscal years.

Keywords: disaster crisis management, standard operation procedure, HADR simulation and simulator, project initiative

1. INTRODUCTION

The world's citizen has faced mighty natural disasters during the past few decades. According to list25.com (Josef, 2013), Mozambique Flood in 2000 made many people homeless as it affected 1,400 sq km of arable land, killing 800 people and 20,000 cattle. The Indian Ocean Earthquake on December 26, 2004 that lasted only 10 seconds caused a tsunami that killed 200,000 to 310,000 people along the shores of Indonesia, Sri Lanka, South India, and Thailand. Hurricane Katrina in 2005 was also one of the costliest with estimated property damages of US \$81 billion. The Haiti Earthquake with a magnitude of 7.0 at the depth of 8.1 miles rocked Haiti on January 12, 2010, the strongest earthquake to hit the country since 1770 and it left over 200,000 deaths, 2 million homeless, and 3 million people in need of emergency aid. Tōhoku Earthquake and Tsunami (2011) recorded as the 7th largest earthquake in the world led to about 15 million dead or injured, and 2,814 people missing and caused a near nuclear disaster when there was a partial meltdown in 3 reactors of the Fukushima nuclear plant, which is the 2nd largest nuclear disaster after Chernobyl. The 2011 Christchurch earthquake with a magnitude of 6.3 severely damaged New Zealand's second-largest city, killed 185 people with 238 reported missing and 164 treated for injuries, with an estimated US \$16 billion worth of damages incurred.



Figure 1: Delegates from 18 nations join the AM - HEx 2016 Final Planning Conference

Upon Thailand's perspective, the agriculture-based country was positioned to be the world's kitchen due entirely to its vast natural resources, various crop yields and agricultural products. According to the 2014 annual report of the Bang of Thailand, rice export brought a revenue of approximately 4,995.80 million US dollars