

# PROGRAM BOOK

**The 6th International Conference  
on Sustainable Future for Human Security (SUSTAIN) 2015:  
"Sustainable Development and Global Change"**

**Sanur Paradise Plaza Hotel & Suites, Bali, Indonesia  
Bali, November 17 - 19, 2015**





				Rajamangala University of Technology Lanna, Tohoku University
56	DM08	A. Besse Rimba, Putu Edi Yastika, Fusanori Miura, Norikazu Shimizu	Land subsidence impact to flood inundation area by Interferometry Synthetic Aperture Radar (InSAR) method in Semarang	Yamaguchi University
57	DM13	Faizatul Akmar Abdul Nifa, Chong Kai Lin, Syukran Abdul Rahim, Khairin Norhashidah Khalid	Collaborative-Integrated Procurement Methods For Post-Disaster Reconstruction	Universiti Utara Malaysia, Kyoto University
58	DM14	Dame Manalu	Sociocultural Aspect of Community Resilience in the Disaster-Prone Area (Case Study of Koa Community in Rokatenda Volcano of Palu'e island in NTT)	University of Indonesia
59	DM15	Ni Made Pertiwi Jaya, Fusanori Miura	Estimation of Tsunami Inundation Areas in Chile Based on Remote Sensing Analysis of ALOS/PALSAR Satellite Data	Yamaguchi University
60	DM16	Mingji Cui, Kohei Sakai, Yusuke Toyoda, Hidehiko Kanegae	Economic Impacts on World Heritage Site of Ayutthaya in 2011 Thailand Floods	Ritsumeikan University
61	DM17	Kohei Sakai, Cui Minji, Yusuke Toyoda, Hidehiko Kanegae	A study on Disaster Responses at a Tourism Area based on a Tourists' Attitude Survey	Ritsumeikan University
62	DM19	Puji Harsanto, [REDACTED]	Experimental Study on Erosion Process of Banks with Composed of Both Cohesive and Non-cohesive Layers	University of Muhammadiyah Yogyakarta
63	DM20	Miguel Esteban, Vana Tsimopoulou, Vivek Anand, Hiroshi Takagi, Takahito Mikami, S. N. (Bas) Jonkman	Lessons From the 2011 Tohoku Earthquake Tsunami: Need for Flexible Multi-layer Defence Systems	The University of Tokyo, The University of Delft, Waseda University
64	DM21	Wignyo Adiyoso, Hidehiko Kanegae	Tsunami Resilient Preparedness Index (TRPI) as a Key Step for Effective Disaster Reduction Intervention	National Development Planning Agency (BAPPENAS), Ritsumeikan University
65	SA02	Imam Hariyanto, Surip Mawardi, Soetrisno	Determining a Scenario to Protect Typical Origin-based Product Using the Geographical Indication Case Study on the Milkfish of Sidoarjo	The University of Jember, Indonesian Coffee and Cocoa Research Institute
66	SA03	Sinung Rahardjo, A. Harsono Soepardjo, D. Djokosetiyanto, Abimanyu Takdir A	Seaweed Utilization As Phytoremediation Of Vanamei Shrimp Farming Waste In Recirculation Systems (Environmental Friendly Design of Sustainable Shrimp Culture)	University of Indonesia, Agriculture Institute of Bogor
67	SA04	Tri Esti Purbaningtias, Puji Kurniawati, Bayu Wiyantoko, Didik Prasetyoko, Suprpto	Mesopore Modified Bagasse for Improving Patchouli Oil Quality	Islamic University of Indonesia Institut Teknologi Sepuluh Nopember
68	SA05	Andi Patiware Metaragakusuma, Osozawa Katsuya, Hu Bai	The current situation of sago production in South Sulawesi: Its market and challenge as a new food industrial source	Ehime University

**Paper Code** : DM19  
**Title** : **Experimental Study on Erosion Process of Banks with Composed of Both Cohesive and Non-cohesive Layers**  
**Author** : **Puji Harsanto, J. Ikhsan**

**Abstract**

Cohesive and non-cohesive materials are always coexists in rivers whether on bank or bed. The presence or absence both of them affect on river morphology due to different characteristics on erosion process. However, this effect is simplified by many scientists especially the effect of cohesive material. Many numerical analysis and experimental studies have developed to study the evolution of channel. Most of them use non-cohesive material and ignore the presence of cohesive material. The experiments of bank erosion characteristic using cohesive and non-cohesive layers were conducted. Three types of bank are used in this research. First type is the bank that composed of non-cohesive material layer. Second type is the bank that composed of cohesive and non-cohesive material layer. Third type is the bank that composed of cohesive material layer. The results show that mass failure mechanism occurs in case bank composed cohesive layer on the top and non-cohesive layer at the bottom. Some of the failed blocks shelter near the bank toe. The local scouring occurs at around the failed block and a part of them remain for a long time on the bed near the bank toe. This phenomenon is very important because most of scientists ignore this phenomenon in numerical calculation and it assumed flush away with flow.

**Keywords** : debris flows; sand mining; morphology; Progo River

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**Paper Code** : DM20  
**Title** : **Lessons From the 2011 Tohoku Earthquake Tsunami: Need for Flexible Multi-layer Defence Systems**  
**Author** : **Miguel Esteban, Vana Tsimopoulou, Vivek Anand, Hiroshi Takagi, Takahito Mikami, S. N. (Bas) Jonkman**

**Abstract**

The 2011 Tohoku Earthquake tsunami caused great devastation throughout the North-Eastern coast of Japan. Following the disaster important reconstruction efforts are currently underway to improve the safety and resilience of coastal communities against future events. To do so the government is investing considerable resources in the creation of a true modern multi-layer safety system, involving reclassifying coastal areas into “Disaster Hazard Areas” where only businesses and public use areas are allowed, and residential areas where people should live. These residential areas are being elevated throughout the region, theoretically ensuring that people living in them should be safer in the case coastal defences are overcome by a tsunami. This paper will include discussion on various reconstruction issues, including the ever-present dilemma inherent to any disaster reconstruction process, were the need to improve disaster resilience is confronted with the desires of survivors to rebuild their houses and livelihoods as quickly as possible. Furthermore, the authors will argue that current reconstruction will profoundly transform the multi-layer defence system by making it far more flexible than it used to be, and ensure a “gradual” rather than “brittle” collapse, which would be far more helpful during the evacuation process. Nevertheless, this will come at great expense, and it appears that creating a true multi-layer defence might be far more expensive than just reinforcing layer 1 measures. To observe such issues the authors will present the case study of Otsuchi Town in Iwate prefecture, one of the settlements worst hit by the disaster, and highlight the particular socio-economical and demographic challenges facing the town.

**Keywords**: Tsunami; counter-measures; Japan, multi-layer defence, resilience, flexibility

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