Preface

Sediment related disasters such as landslides and debris flows tends to increase in their magnitude and frequency in Asian and Pacific regions. Recent climate changes and the changes in the pattern cyclone and typhoons occurrences could associate the increases in sediment disasters. Sediment issues due to earthquake and volcanic eruption in Asian and Pacific regions are emerging issues for erosion controls and their counter measurements. Both hardware (i.e., erosion control structure) and software (i.e., natural hazard mapping and emergency response) solutions for disaster prevention countermeasures may not be inadequately developed in some area of Asia-Pacific counties. In 2009, Typhoon Morakot struck Taiwan and caused various types of sediment disasters such as landslides, debris flows, collapse of landslide dams, and flooding. The serious disasters in Taiwan were typical for a multi-modal sediment disaster, which various types of sediment movement caused disasters from hillslope to river systems. Unexpected combinations of sediment movement and resultant disasters may relate to changes in the climate patterns due to global warming. Therefore, prediction and mitigation of the natural disasters are getting more urgent missions for saving and protecting lives and proprieties for local people and planning and managing land and disasters for managers and scientists. Warning systems and countermeasures should be redesigned for the perspective sediment disasters which can overwhelm our understanding processes and prediction abilities. New and integrated strategies for sediment disasters are essential toward the prediction and mitigation of upcoming sediment and flooding disasters specifically focused on changing climate and environmental conditions in Asian and Pacific regions.

For predicting and mitigating sediment and flood disasters, we held “The Asia-Pacific symposium on new technologies for prediction and mitigation of sediment disasters” from 17th to 19th November, 2009 in Tokyo. The scientists, land managers, and technicians from Asian-Pacific countries including New Zealand, USA, Swiss, China, Korea, Taiwan, Philippine, Indonesia, Nepal and Japan, joined the symposium and discussed about the emerging issues of sediment disasters, mitigations, and perditions. From the symposium, we have 16 contributions to the special issues for International Journal of Erosion Control Engineering. The special issue consists with two invited commentaries, five original articles, five technical notes, and four reviews. Original article addressed new insights for understanding processes, modeling, and emergency responses sediment movement. Technical notes address new technological development for estimation, prevention, and mitigation of sediment disasters. Sequences of review articles showed emerging issues of sediment disasters around the worlds. These manuscripts had been peer reviewed by the members of editorial boards for this special issue. These excellent contributions will provide us newly comprehending process understanding of sediment movements and developing strategies of prevention and mitigation of sediment disasters.

Masaharu Fujita
Chief in editors for the special issue

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