Natural Disaster and Coastal Geomorphology

Shigeko Haruyama · Toshihiko Sugai
Editors

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Preface

Flooding, tsunami, and earthquake are important natural disaster issues for local people to understand the disaster process and to make evacuation method and reconstruction method in discussion in each local participant. The disaster mitigation research is needed for us to continue to better living together in nature. The geographers have been discussing natural disaster science and finding out the appropriate methodology of disaster mitigation program with disaster risk assessment and hazard mapping or risk mapping. Utilizing geographical information system and satellite remote sensing, the current situation of hazardous regions has been clarified and visualized in the global scale and the resuscitation or restoration process in local scale after natural disaster has been discussed with geographical views.

In geographical view, natural disaster should be dealt with more comprehensive between human dimensions, including social science, human science, psychology under natural disaster, gender, and minority science in natural disaster, and physical dimensions including geomorphology, climatology, vegetation geography, and hydrology in integration. Human dimension of disaster science is the important analysis process for clarification toward future regional planning both urban and rural coupling for disaster mitigation. Thus, the substantial reduction of disaster risk and losses in lives has been discussed for long period but the quality of natural disaster has been rapidly changed with transformation for growth to immense under the global environmental change in specific Asia region. The recent rapid land use change and land cover change are the other factors for a tendency toward great size in disaster in the world because of human disturbance on earth surface.

Geomorphology tried to explain that the natural disaster process continues on the specific locations in land forming and repeated damage in selected sites. Also, geomorphology should make to understand the natural disaster occurrence nature-oriented process on each site. If we have an appropriate information or knowledge of geomorphology of coastal and fluvial plains in each living region, the disaster mitigation planning should be more harmonious with nature in future. The hazard map and risk map are now open for all in several Web sites of local

government offices in Japan, but these were not used for understanding the study for place features before natural disaster. After natural disaster occurrence, these maps are remembered for confirmation of disaster location and the knowledge of natural disaster process. The knowledge of geomorphology would support evacuation on site and lifestyle before disaster occurrence.

In January 2015 and March 2015, the Tokyo Conference on International Study for Disaster Risk Reduction and Resilience was held in Tokyo and the 3rd World Conference on Disaster Risk Reduction was held in Sendai city, respectively. In the two international disaster risk reduction symposiums, the importance of science and technology for future disaster mitigation was discussed for future sustainability.

We, all of authors contributed this book chapters, are desirous of conveying a mitigation message in the voice of coastal and fluvial geomorphology in Japan. Geomorphologic knowledge is connected to professional reciters of natural disaster. 2011 Eastern Japan Earthquake was one of the historical memorized natural disasters in Japan, and we should convey several messages and lessons for future mitigation and prevention action. In this publication, we tried to explain coastal geomorphology related to natural disaster in specific tsunami, and in the final, all of regional planners should make a challenge to future suitable regional planning in the study area with offering up a silent prayer for disaster area in Eastern Japan coastal area. Still now, the discussion between residents and government with distinguished academic experts has been continued and we should present geomorphologic data for these discussion.

We express our thanks the opportunity for conveying message from geomorphologic narration by Springer.

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Toshihiko Sugai

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