Progress Report Form of WCoEs 2015

1. January 2015 to 31 December 2015

1. Short Title of WCoE

Risk identification and land-use planning for disaster mitigation of landslides

2. Name of Institution (Name of leader and email)

Research Institute for Natural Hazards and Disaster Recovery, Niigata University/

3. List of core members

Hiroshi Fukuoka, professor, vice director
Hideaki Marui, Prof. Emeritus and adjunct professor,
Naoki Watanabe, Associate. Prof.,
Chunxiang Wang, Adjunct Associate Prof.
Hiroshi Kawabe, Prof., Faculty of Agriculture, Niigata University
Gen Furuya, Associate Prof. / Toyama Prefectural University

4. Progress report of activities up to 31 December 2015 (up to 30 lines)

(1) International Symposium in Niigata: In March 2015, following the ICL Sendai partnership meeting, a international symposium was held in Niigata city inviting 3 ICL members and one delegates from Austria. It was attended by about 80 participants, mostly geological engineers and researchers.

(2) April 2015 Nepal-Gorkha Earthquake-triggered landslides: Field investigation of landslides which took place in 2015 in Nepal; (a) Reconnaissance was conducted immediately after the quake on the landslide disasters induced by the April 2015 Nepal – Gorkha earthquake, with two ICL member institutions; Dr. Negandra and Dr. Basanta Adhikari of the Tribhuvan University and Dr. Mandila Shrestha and Deo Raj Gurung of ICIMOD (International Center for Integrated Mountain Development) as well as Dr.
Christian Manhart, director of UNSECO Kathmandu Office. Second visit was organized in November. This focused on the landslides induced by the heavy rain in the subsequent monsoon season and Langtang hanging glacier fall – debris/ice avalanche triggered by the main shock. The April – May reconnaissance revealed that (a) landslides in Kathmandu basin was limited because of extremely slow predominant period of shaking due to its damping; (b) most of the induced landslides are small rockfalls, and large scale deep-seated landslides are limited in Himalaya region. However they blocked the river and landslide dam reservoirs were created but most of them were breached immediately; (c) A large scale hanging glacier fall – debris/ice avalanche took place in Langtang in Himalaya. Total fall distance exceeded 3,000 m and claimed hundreds of lives; (d) part of the highways crossing a valley constructed with artificial fill were subjected to subsidence and sliding. Those were repaired soon. (e) landslide damage to the three UNESCO World Heritage Sites on hills in Kathmandu is limited, although potential landslide zoning was completed. There is a concern that inside the heritage sites, new monuments and buildings were constructed close to the edge of cliff. Second joint investigation was conducted in November and revealed that (f) largest aftershock triggered a number of rockfalls and claimed a lot of lives, and heavy rainfall thereafter induced debris flows in the affected area and devastated as many communities. (g) almost all of the devastated ruins were cleaned up, however, many buildings partly damaged are supported by wooden beams and still under unstable conditions. Some of the artificial foundations should be monitored.

The second investigation in November revealed that the 2015 monsoon rain was not so severe to induce swarm landslides in the quake-affected area. While, the vicinity of the largest scale aftershock epicenter, located northeast of Kathmandu to the border with China, was found severely affected by debris flows. Those were induced by heavy rainfall. A helicopter was chartered to survey the landslide distribution as well as land in the Langtang village to collect soil samples of the debris/ice avalanche deposits.

5. Plan of future activities (up to 30 lines)

The Fifth WLF 2020 was approved to be organized in Niigata city by the ICL-BOR 2015. Niigata University and the Japan Landslide Society will host as the domestic organizing committee. As the WLF4 will be held in 2017, we will launch preliminary organizing committee in 2016 to examine the design of the meeting, editorial committee, and finance.

6. Publication (in Landslides, proceedings, meeting reports, or WEB)