

Application Form for World Centre of Excellence on Landslide Risk Reduction

2020-2023

1. Name of Organization

Department of Civil Engineering, National Taiwan University

2. Name of Leader

Professor Louis Ge

Department of Civil Engineering

National Taiwan University

No. 1, Sec. 4, Roosevelt Road, Taipei, Taiwan

Fax: +886-2-2363-1558

Phone: +886-2-3366-4345

Email: louisge@ntu.edu.tw

Core members of the activities

Professor Ko-Fei Liu

Department of Civil Engineering

National Taiwan University

No. 1, Sec. 4, Roosevelt Road, Taipei, Taiwan

Fax: +886-2-2363-1558

Phone: +886-2-3366-4366

Email: kfliu@ntu.edu.tw

Professor Kuo-Hsin Yang

Department of Civil Engineering

National Taiwan University

No. 1, Sec. 4, Roosevelt Road, Taipei, Taiwan

Fax: +886-2-2363-1558

Phone: +886-2-3366-4342

Email: khyang@ntu.edu.tw

Professor Tai-Tien Wang

Department of Civil Engineering
National Taiwan University
No. 1, Sec. 4, Roosevelt Road, Taipei, Taiwan
Fax: +886-2-2363-1558
Phone: +886-2-3366-4321
Email: ttwang@ntu.edu.tw

3. Date of Submission of Application

August 15, 2019

4. Activity scale and targeted region.

1) Global, 2) Intercontinental, 3) Continental, 4) Regional, 5) National
Global

5. Short Title (10 words maximum) characterizing past and planned activities

Capacity Development for Slope Land Disaster Reduction through Annual International Training Course

6. Objectives for the initial 3 years: (5 lines maximum; what you expect to accomplish?)

Education has been recognized as the most effective way of reducing the loss due to disasters. This Training Course for Slope Land Disaster Reduction was established in 2013, and has been held for five times since then. Starting from 2019, the selected course participants will come from at least 7 countries around the world. With the aim to reduce the loss from slope land disasters, the course consists of in class lecturing, field exploration and observation, and cultural experiencing.

7. Background Justification: (10 lines maximum)

Landslide related disaster has become more and more important as the global warming effect increases. Given its unique geographical location and natural environment, Taiwan often experiences natural disasters, resulting in casualties and loss of property. Therefore, disasters, especially disaster prevention and mitigation, are a major concern of the Taiwanese society. Government authorities have closely paid attention to disaster prevention and control, allocating massive human and financial resources to disaster prevention and relief. Studies on disaster prevention science and technologies

have also been increasing in number in recent years. As part of the international society, we would like to contribute our know-how and share our experience in disaster prevention and mitigation so we human kind can live a better life.

8. Resources available for WCoE activities

Personnel, Facilities, Budgets, and Affiliation and Contribution to ICL/IPL-GPC.

The organizing committee consists of a group of 6 internationally active scholars in landslides. Professor Masaho Yoshida from National Institute of Technology, Fukui College, Japan is the head of the committee. We also have Professor Ranjan Kumar Dahal from Tribhuvan University, Nepal, Professor Tonglu Li from Chang'an University, China, Professor Wei Shan from Northeast Forestry University, China, Professor Ko-Fei Liu and Professor Louis Ge from National Taiwan University, Taiwan. The Department of Civil Engineering is housing newly renovated classrooms, laboratory facilities, including the partnership of National Center for Research on Earthquake Engineering. The budgets of running the training course is USD 60,000 each year, where at least 20 course participants will be full financially supported. Course lecturers are invited throughout those scholars in landslide related areas from the universities and government agencies in Taiwan. There will also be at least 2 international lecturers invited. In addition, our training course is supported by several government agencies including Ministry of Science and Technology, National Science and Technology Center for Disaster Reduction, Soil and Water Conservation Bureau. There have been about 150 students from 26 countries all around the world participated this course since 2013, which we thought is one of the most valued contribution to the Global Promotion Committee (ICL/IPL-GPC).

9. Description of past activities related to risk reduction of landslides and other related earth system disasters (30 lines maximum)

The training course is designed according to Taiwan's natural disaster prevention system. The course contents include 1) Global Geo-disaster problem and scenario; 2) Introduction to Emergency response procedure; 3) Landslide and debris flow hazard mapping; 4) Landslide and Debris flow numerical simulation; 5) Land use planning regulations and policy; 6) Landslide field investigations; 7) Debris flow warning system; 8) Landslide and Debris flow monitoring system; 9) Landslide mitigation methods and countermeasures; and 10) Hazard loss and Social Vulnerability for slope land problem. Theories and practices are given in the lectures to help the course participants to learn effectively. For example, demonstration of debris flow monitoring devices and mobile center is provided when

teaching debris flow monitoring. For understanding of administrative affairs, we take participants to Water and Soil Conservation Bureau and New Taipei City's emergency response center. So officers from other countries can really appreciate our system and policies. The field trip to Xianlin village brings another impact to participants. Experience is shared and discussed by all the participants. In this short activity, good friendship and future cooperation between other countries and Taiwan will be promoted by this communication activity. Since 2013, there have been 294 applicants and 147 from 26 countries selected, including 16 Professors, 19 Ph.D., 34 Masters, 35 Government Officers, and 5 Non-Government Engineers, to participate this training course.

10. Planned future activities /Expected Results: (20 lines maximum; work phases and milestones)

There are 3 major activities in due course.

- A. First thing is the promotion of the training course. The training course will be conducted every year from 2020 to 2023. Social media is found very effective in disseminate information. As for now, we have a private Facebook society hosting 231 members. We plan to make it public and available to everyone who is interested in landslides prevention and mitigation. A collection of feedback on the innovation or improvement of individual country's practice will also be collected. This can be a very useful reference for all.
- B. Secondly, we are planning another training course on liquefaction prevention and mitigation, which is scheduled to be delivered in Spring 2021. The course contents include site investigation, liquefaction monitoring, liquefaction hazard mitigation, liquefaction potential assessment, liquefaction hazard map, site response analysis and community-based hazard mapping, etc.
- C. Lastly, we plan to publish a disaster prevention manual, which covers the scientific and technological aspects of disaster prevention. Many of the tools in Landslide Dynamics: ISDR-ICL Landslide Interactive Teaching Tools will be included. It is our long-term hope that we can contribute know-how and provide feedback on disaster prevention and mitigation to the international community.

11. Beneficiaries of WCoE: (5 lines maximum; who directly benefits from the work?)

The members of the international landslide research community using LITT (Landslide Interactive Teaching Tools), and the numerous participants of the Annual International Training Course.

12. References: 10 lines maximum, i.e. relevant publications, international/regional/national recognition supporting items 9-10.

Lu, C.W., Ge, L., Chu, M.C., and Chin, C.T. (2018) Liquefaction-induced settlement of structures on shallow foundation, *Geotechnical Engineering Journal of the SEAGS & AGSSEA*, 49(2), 138-141.

Ueng, T.S., Wang, Z.F., Chu, M.C., and Ge, L. (2017) Laboratory tests for permeability of sand during liquefaction, *Soil Dynamics and Earthquake Engineering*, 100, 249-256.

Yang, K-H, Nguyen T.S. and Thuo J.N., (2018) “Discussion of Influence Factors involving Rainfall-Induced Shallow Slope Failure: Numerical Study”, *International Journal of Geomechanics, ASCE*, 18(4), 07018003.

Wu,Y.H., Liu, K.F. and Chen, Y.C. 2013 Comparison between FLO-2D and Debris-2D on the application of assessment of granular debris flow hazards with case study. *Journal of Mountain Science*, Vol. 10(2): 293-304

13. If your organization is an ongoing WCoE 2014-2017, please attach the articles reporting activities of WCoE, IPL project and ICL network published/contributed to either in *Landslides: Journal of International Consortium on Landslides* or/and the Fourth World Landslide Forum 2017.

14. List of published or planned reports of WCOE 2017-2020 in journal “Landslides” or “WLF5 books” for ongoing WCOE organization.

(Those organizations with no activity report/no achievement in WCOE 2017-2020 will not be accepted as the candidate of WCOE 2020-2023 to be submitted to the Independent Panel of Experts for WCOEs.)

Note: Please fill and submit this form **by 15 August 2019** to ICL secretariat <secretariat@iclhq.org>