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Drs. Srikantha Herath and Janos Bogardi of UNU and other experts are available for interviews. Please use contacts above to schedule a time.

Preparing for Bigger Floods

UNU Begins Training Course in Asia to Mitigate Flood Damage

In an effort to foresee and mitigate flood damage, United Nations University and partners will convene trainees from five South Asian nations next month to begin mapping the dangers to people and property posed by more frequent and more severe storms expected due to climate change. The pilot training programme in Thailand, announced 15 October, is spurred by concern that many people live in areas (including cities) that could be submerged under certain storm conditions.

Floods constitute Asia's most common natural disaster and, as a result of high-population density in flood plains, affect the most people of all such disasters. In recent months alone, flooding has killed more than 3,000 persons and affected nearly 100 million people as South Asia experienced its worst monsoon floods in recent memory, with property damage estimated in the billions of dollars.

“Floods created the fertile plains on which agriculture and populations have flourished,” says Janos Bogardi, Vice-Rector of UNU, which leads the training programme. “The success of control systems, coupled with fast-growing populations, has drawn more people and investment into flood-prone areas, driving up the stakes involved in a catastrophic storm. With climate change threatening to increase the intensity, frequency and magnitude of storms, the time to assess the risk to people and property, and to act on that information, is now.”

UNU's international pilot programme involves six weeks of hands-on and eight weeks of onsite activities to train officials, initially from China, the Philippines, Vietnam, Nepal and Sri Lanka, to create “what if” scenarios:

- Estimate probable maximum precipitation and model extreme floods;
- Develop worst case estimates of flood peaks and simulate inundation; and
- Assess the number of people and the fragility of property under threat in flood zones.

In order to select and design appropriate mitigation measures, UNU will also work to standardize damage estimation methodologies for flood prediction. The trainers will employ detailed case studies from Japan, one of only a few countries today with sophisticated methodologies to make such estimates. Other case will include the 1991 storm that dropped half-meter of rain on Ormoc City, Philippines, in just six hours, resulting in more than 5,000 deaths; the three days of rainfall in December 1999 in northern Venezuela, which resulted in massive mudslides that killed tens of thousands and caused some \$3.5 billion in economic damage; and flood experiences of Hanoi, Vietnam, home to nearly four million people.

A state-of-the-art GIS system will be made available for the participants for preparing high-resolution spatial information for simulation as well as visualization of flood propagation. Participants will reconvene in February to compare and refine the results of studies they conduct in their home countries.

“It may be human nature to gamble rather than invest when rare but potentially large losses are involved. However, climate change is changing the odds of the gamble – the threat of catastrophic flood is growing, and with it the importance of devoting time and resources to remove the consequences of surprise,” says Srikantha Herath, Senior Academic Officer at UNU. “We need to anticipate and prepare now for the growing intensity and frequency of storms said to lie ahead.”

The programme also will emphasize the particular flood vulnerability of urban underground spaces. Such facilities in many areas have not been used sufficiently long to be exposed to low-frequency flooding events. While modeling a variety of catastrophic events, especially floods, is essential for building contingencies into underground infrastructure designs (including evacuations, emergency containment and the elimination of flood waters), there are often no subsurface maps.

“How to calculate the risk, how to determine what constitutes reasonable precaution against a rare flood event, and how to evaluate the costs and benefits to people who live under the shadow of a flood threat – these are the key questions at the heart of the new UNU training programme,” says Dr. Herath.

"When a catastrophic storm hits, it is extremely difficult to prevent widespread flooding. The emphasis should be shifted from the impossibility of 'fail-safe' systems to 'safe-fail'— knowing in advance the steps needed to minimize damage and destruction when rare catastrophic floods overwhelm even the best systems."

UNU's partners in the training programme are Monash University, Australia; UNESCO-IHE, Netherlands; the Asian Institute of Technology, Thailand; and Nippon Koei Co., Ltd., Japan.