

### **Workshop 3: Water Urban Risks: Designing Evacuation Strategies in Case of Flooding with Agent-Based Modeling and GAMA**

**Description:** The training session will provide student with fundamental knowledge on urban flood crisis management and practical skills on agent-based model of horizontal flood evacuation. First, trainees will be introduced to the necessary fundamental concepts to understand urban flood from an hydrological as well as crisis management perspectives. Then, they will be introduced to Agent - based modeling techniques as a mean to test a variety of evacuation scenario through computer simulation. The trainee will also be introduced the urban flood modelling. Thanks to the efficiency of the simulated approach, trainees will be able to explore specific aspects of evacuation management on their own.

**Keywords:** hydrological model, Agent-based modelling, urban flood modelling, GAMA platform, crisis management, evacuation plan

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**The outcome of the course:** After participating in this course, the participants will have acquired the following skills:

- Acquire basic knowledge about urban flood in the context of climate change and understand the intertwined problematic of disaster management and horizontal evacuation in the particular context of South-east Asia's mega-cities
- Acquire the knowledge on urban flood modelling using storm water management modelling tool with Flo2D.
- Measure the importance of preparedness in the context of rapid crisis management and potential negative outcomes when evacuation is badly planned. This aspect will be put in practice using computer simulation making it possible to exemplify and explore various scenarii
- Master fundamental principles and develop simple application of agent based modeling applied to horizontal evacuation of urban area

**Teaching methodologies:** The course is taught with the learner-based approach to promote the participation and involvement. The learners are encouraged to be actively engaged in group work, discussion and presentation.

**Trainers:** Kong Chhuon (ITC - Cambodia), Truong Chi Quang (CTU - Vietnam), Huynh Quang Nghi (CTU - Vietnam), Kevin Chapuis (IRD - France/Vietnam), Edouard Amouroux (RMIT - Australia/Vietnam).