

## **Class name: Basic Concepts of Integrated Flood Risk management (IFRM)**

Course number: DMP2820E

Instructor: Kuniyoshi Takeuchi

Term / Time: Fall through Winter

### 1 Course Description

This course teaches the basic concepts of “Integrated Flood Risk Management (IFRM)” as part of Integrated Water Resources Management (IWRM). The mechanism of forming disaster risk as a combination of natural hazard, exposure of vulnerability and coping capacity will be emphasized. International policy development in the fields of environment, sustainable development, water resources management and disaster risk reduction will be extensively covered. New concepts of IWRM at basin scale will be introduced and, as a concrete example, Japanese flood management experiences will be studied. Adaptation to anticipated climate change and other global changes will also be covered.

### 2 Course Outline (Course Topics)

1. Introduction: What is natural disaster? Risk, Hazard and Vulnerability
2. PAR Model (1) Root causes, progress of dynamic pressure and unsafe conditions
3. PAR Model (2) Concrete examples
4. ACCESS Model
5. Disaster management cycle; Hyogo Framework for Action
6. IFRM and traditional FRM; IFRM as part of IWRM
7. Concept of IWRM (1): Agenda 21, Global Water Partnership
8. Concept of IWRM (2): Guideline for IWRM at basin scale
9. Japanese experiences (1) Flood damages and flood control investment
10. Japanese experiences (2) Pollution and ground subsidence control
11. Japanese experiences (3) Comprehensive flood management measures and policy evolution from river to basin
12. Global trends (1) Impact of climatic change
13. Global trends (2) International actions
14. Future Issues of IFRM: Adaptation; Aging society; Depopulation; Social Capital;
15. Examination

### 3 Grading

Active participation(25%), Reports(25%), Final Examination(50%)

### 4 Textbooks

#### 4-1 Required

1. Ben Wisner, Piers Blaikie, Terry Cannon and Ian Davis, At Risk -natural hazards, people's vulnerability and disasters- (Routledge, London & NY, 2004)
2. UNESCO IWRM guidelines steering committee, IWRM Guidelines at River Basin Level: Part 1-1 Principles, 2-1 Part 2-1 Coordination, 2-2 Flood Management, 2-3 Irrigation. (UNESCO, 2009)