

國立臺北大學自然資源與環境管理研究所
101 學年度第一學期 『環境災害與風險管理』

課程講義(二)：基本定義與相關概念
Fundamental Definitions and Related Concepts

- S.: Smith, K. and D. N. Petley *Environmental Hazards – Accessing Risk and Reducing Disaster*, 5th Edition, Routledge, London, 2010.
- W.: Wisner, B. and J. Adams (Editors), [*Environmental Health in Emergencies and Disasters -- A Practical Guide*](#), World Health Organization, Geneva, Switzerland, 2002.
- B.: Baas, S., S. Ramasamy, J. D. DePryck and F. Battista, [*Disaster Risk Management Systems Analysis -- A Guide Book*](#), Food and Agriculture Organization, United Nations, Rome, 2008.

● DEFINITIONS OF HAZARD, DISASTER AND RISK

- Hazard 危害、Risk 危機/風險、Disaster 災害 (S. p.12)
 - ⇒ **Hazard (cause)** -- a potential threat to humans and their welfare
 - ⇒ **Risk (likely consequence)** -- the probability of a hazard occurring and creating loss
 - ⇒ **Disaster (actual consequence)** -- the realisation of hazard
 - ⇒ “Risk is opportunity” (Risk or Crisis) = (Danger + Opportunity)
- Disasters, Emergencies, Extreme Events, and Hazard (W. p.4-13)
 - ⇒ **Disasters** are events that occur when significant numbers of people are exposed to hazards to which they are vulnerable, with resulting injury and loss of life, often combined with damage to property and livelihoods.
 - ⇒ **Emergencies** are situations that arise out of disasters, in which the affected community’s ability to cope has been overwhelmed, and where rapid and effective action is required to prevent further loss of life and livelihood.
 - ⇒ **Extreme events** are known natural or manmade events that occur outside their normal range of intensity, energy or size, which often produce life-threatening hazards.
 - ⇒ **Hazards** are phenomena or substances that have the potential to cause disruption or damage to humans and their environment. The words threat and hazard are often used in the same way.

● RISK ASSESSMENT AND DISASTER MANAGEMENT– PERSPECTIVES AND ASPECTS

- Environmental Hazards vs. Natural Disasters
- Environmental Risk Assessment and Management
- Changing Perspective (S. p.4~9)
 - ⇒ Paradigms: Dominant (Behavioural), Development, and Complexity
- Disaster Management Cycle (W. p.3)
 - ⇒ Humanitarian Action vs. Sustainable Development

● ENVIRONMENTAL HAZARDS AND RISK ASSESSMENT

- Natural Hazards, Technological Hazards, New-Concern Threats (S. p.9~12)
- Voluntary vs. Involuntary; Natural vs. Manmade; Intense vs. Diffuse
- Risk Assessment: Safety, Health, Ecological, Public Welfare, and Financial

- Exposure and Vulnerability
 - ⇒ ‘End-Points’ vs. Scales (Temporal, Spatial, etc.): Chronic vs. Acute
 - ⇒ Risk vs. Security
 - Vulnerability to Disasters
 - ⇒ Vulnerability, Resilience, and Reliability (S. p.15~19)
 - ⇒ High Susceptibility and Low Resilience (W. p.13~15)
 - Risk Assessment and Risk Management (S. Chp.4)
 - Steps in Disaster Management (W. p.20~22)
- Homework Assignment #1 (2012/09/27 Due)
- 請用你自己的文字定義、說明“Hazard, Risk and Disaster”、“Vulnerability, Resilience and Reliability”、“Preparedness, Prevention, Mitigation and Adaption”、“成長管理、適應性管理、滾動式管理”。

Table 1.2 Major categories of environmental hazard

| | |
|---|--|
| NATURAL HAZARDS (extreme geophysical and biological events) | |
| Geologic – earthquakes, volcanic eruptions, landslides, avalanches | |
| Atmospheric – tropical cyclones, tornadoes, hail, ice and snow | |
| Hydrologic – river floods, coastal floods, drought | |
| Biologic – epidemic diseases, wildfires | |
| TECHNOLOGICAL HAZARDS (major accidents) | |
| Transport accidents – air accidents, train crashes, ship wrecks | |
| Industrial failures – explosions and fires, release of toxic or radioactive materials | |
| Unsafe public buildings and facilities – structural collapse, fire | |
| Hazardous materials – storage, transport, mis-use of materials | |
| CONTEXT HAZARDS (global environmental change) | |
| International air pollution – climate change, sea level rise | |
| Environmental degradation – deforestation, desertification, loss of natural resources | |
| Land pressure – intensive urbanisation, concentration of basic facilities | |
| Super hazards – catastrophic earth changes, impact from near-earth objects | |

Notes: Drought is a slow-onset environmental hazard. Key context hazards are reviewed in Chapter 13.

Figure. 1.1 The disaster-management cycle

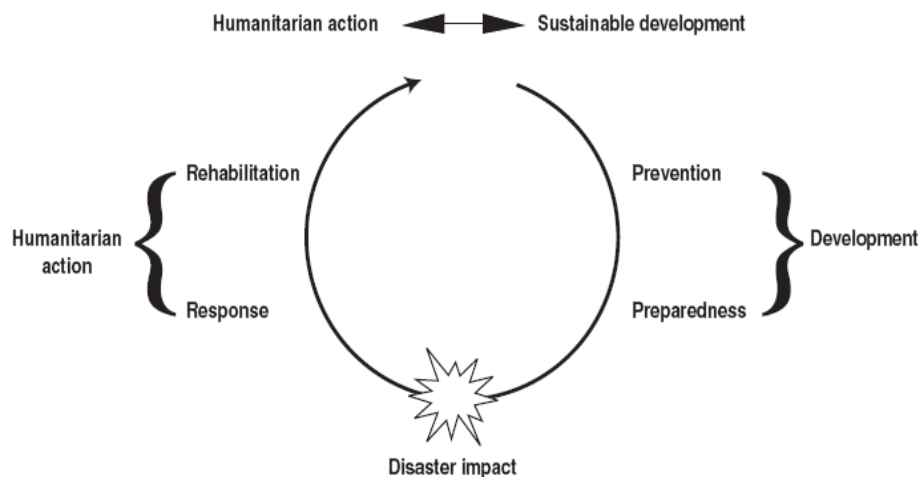


FIGURE 1.1

Revised Disaster Risk Management Framework (DRMF)

