

國立臺北大學自然資源與環境管理研究所

110 學年度第二學期『環境災害與風險管理』

課程講義 (04)：人為災害與技術災害

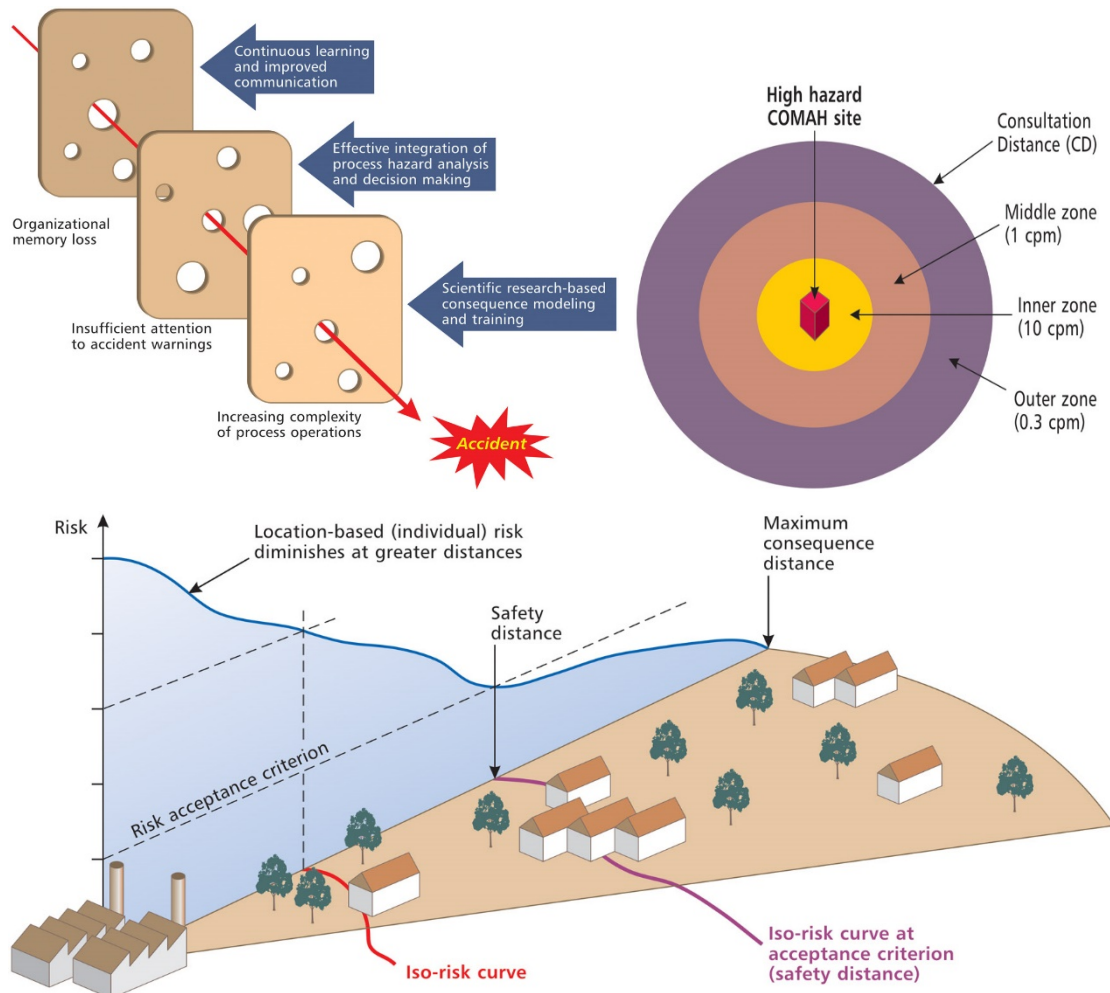
Anthropogenic and Technologic Hazards

- NATURE OF TECHNOLOGICAL HAZARDS (S. Chp.13)
 - “Man-Made” Accidents *c.f.* ‘Social’ Hazards => Deliberately harmful use of technology
 - Definition of Technological Hazards: *Accidental failures of design or management relating to large-scale structures, transport systems or industrial processes that may cause death, injury, property loss or environmental damage on a community scale.*
 - Technological Accidents
 - ⇒ Structures (Fire and Explosion)
 - ⇒ Structures (Collapse): Dam, Building, and Bridge => Stadium?
 - ⇒ Public Transport: Air, Sea, Rail => Tunnel and Highway; Ferry
 - ⇒ Industrial Accident => Physical, Chemical, Biological, and Complex Accidents
 - Arising Factors of Technological Hazards
 - ⇒ Defective Design
 - ⇒ Inadequate Management
 - ⇒ Sabotage or Terrorism
 - ⇒ Climate Change?
 - Transportation and Storage of Hazardous Material
 - ⇒ [PRTR \(Pollutant Release and Transfer Register\)](#)
A Pollutant Release and Transfer Register (PRTR) is a publicly accessible database or inventory of chemicals or pollutants released to air, water and soil and transferred off-site for treatment. It brings together information about which chemicals are being released, where, how much and by whom.
 - ⇒ [Global Inventory of Pollutant Releases - OECD](#)
 - ⇒ [列管污染源資料\(含裁處資訊\)查詢系統 - 行政院環境保護署 \(epa.gov.tw\)](#)
 - ⇒ [Hazardous Materials Regulations](#)
 - Facility Siting: NIMBY => Safety Distance (?) => Buffer Zone, Land Use Planning
- MAJOR TECHNOLOGICAL DISASTERS
 - Technological disasters archived by CRED (Centre for Research on the Epidemiology of Disasters, <https://www.emdat.be/> => <https://public.emdat.be/>) 1900-2017: 9,158.
 - [Bhopal Disaster](#): Bhopal India
 - ⇒ Dec. 03, 1984; official record: 3,800 deaths; general belief: 6,400 deaths
 - ⇒ Methyl isocyanate (MIC 異氰酸甲酯) => Phosgene (光氣)
 - ⇒ Emergency Planning and Community Right-to-Know Act
 - ⇒ Emerging Technology, Emerging Chemicals => Emerging Pollutants
 - [Exxon Valdez Oil Spill](#): Alaska’s Prince William Sound
 - ⇒ Mar. 24, 1989; spilled almost 11 million gallons of crude oil (total 53 million gallons)
 - ⇒ 阿瑪斯號貨輪油污事件 (2001 年 1 月 14 日)：墾丁國家公園龍坑生態保護區

- 高雄氣爆(2014/07/31)、八仙樂園氣爆(2015/06/27)
- Nuclear Disasters [Safety of Plants - World Nuclear Association \(world-nuclear.org\)](http://www.world-nuclear.org)
 - ⇒ [Chernobyl Disaster \(1986\)](#)
 - ⇒ [Fukushima Nuclear Disaster \(2011\)](#)

● INDUSTRIAL HAZARDS AND RESPONSIBLE CARE

- Industrial Hazards Related to the “Operation” of Toxic Chemicals
- [中央災害防救會報](#) ⇒ [行政院中央災害防救會報-災害防救白皮書\(ey.gov.tw\)](#)
 - ⇒ [毒性化學物質災害防救-行政院環境保護署毒物及化學物質局\(tcsb.gov.tw\)](#)
- [OECD Guiding Principles for Chemical Accident Prevention, Preparedness and Response](#)
 - ⇒ Responsible Care is an initiative developed and adopted by chemical industry associations to improve the health, safety and environmental performance of their member companies’ operations and products, and the level of community involvement and awareness of the industry.
 - ⇒ [Second Addendum \(2015\): Natechs--Natural Hazards Triggering Technological Accidents](#)



● Homework Assignment #3: Technological Disaster in Taiwan (2022/03/29 Due)

請註冊 Emergency Events Database (EM-DAT, <http://public.emdat.be/>), Centre for Research on the Epidemiology of Disasters (CRED) 使用者帳號，以查詢、彙整該資料庫收錄之台灣地區技術災害事件，並擇 2 災害概述事件歷程與其所造成之損失。