

# 國立臺北大學自然資源與環境管理研究所

## 九十七學年度第二學期

### 『環境災害與風險管理』課程講義（八）

主題：生態風險評估與經濟社會風險評估

#### Ecological & Socio-economical Risk Assessment

- MORE ON HEALTH RISK ASSESSMENT

- Assessment Procedures and “Risk Characterization”
  - ⇒ Incremental Lifetime Cancer Risk:  
Potency Factor for Carcinogens and Chronic Daily Intake (CDI)
  - ⇒ Hazard Index for Acute Toxicity Effects:  
Average Daily Doses and Reference Dose (RfD)
- Examples
  - ⇒ Toluene and TCE in Drinking Water (Masters, 1998; Example 4.6)
  - ⇒ The Arsenic Dilemma (Kolluru et al., 1996; p.4.30)

- ECOLOGICAL RISK ASSESSMENT

- What is Ecological Risk Assessment (<http://www.epa.gov/superfund/programs/nrd/era.htm>):  
An ERA evaluates the potential adverse effects that human activities have on the living organisms that make up ecosystems. The risk assessment process provides a way to develop, organize and present scientific information so that it is relevant to environmental decisions. When conducted for a particular place such as a watershed, the ERA process can be used to identify vulnerable and valued resources, prioritize data collection activity, and link human activities to their potential effects.
- The Assessment Framework
  - ⇒ Problem Formulation
  - ⇒ Analysis Phase
  - ⇒ Risk Characterization
  - ⇒ Communication and Risk Management
- The Guidebooks
  - ⇒ U.S.EPA [Guidelines For Ecological Risk Assessment](#)
  - ⇒ U.S. Oak Ridge National Laboratory:  
[Guide for Developing Conceptual Models for Ecological Risk Assessments](#)
- [Examples of Completed Ecological Risk Assessments](#): Watershed and Reservoir

- SOCIAL RISK ASSESSMENT

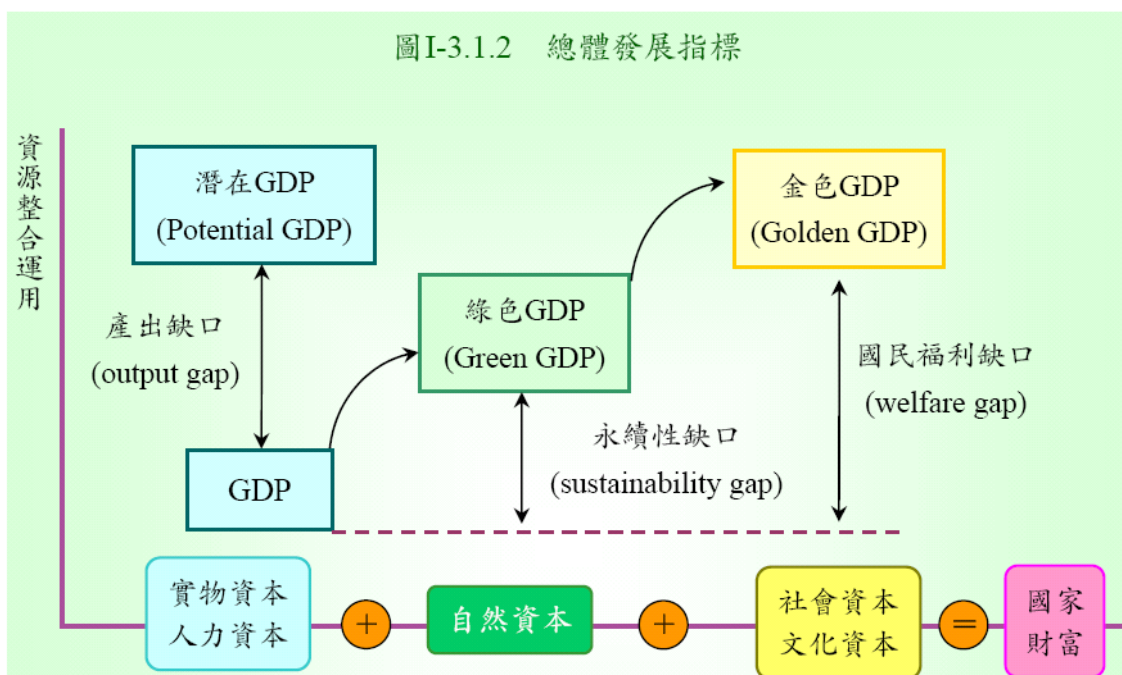
- Public Welfare or Goodwill
  - ⇒ Golden GDP and Gross National Happiness (GNH),  
4 pillars of GNH are: the promotion of equitable and sustainable socio-economic development, preservation and promotion of cultural values, conservation of the natural environment, and establishment of good governance. ([http://en.wikipedia.org/wiki/Gross\\_National\\_Happiness](http://en.wikipedia.org/wiki/Gross_National_Happiness))
- Social Risk Assessment: Poverty and Social Impact Analysis (PSIA)
  - ⇒ World Bank Guidebook: [A Users' Guide to Poverty and Social Impact Analysis](#)

## 第一節 總體經濟目標設定

本計畫依循「以人為本，永續發展」理念，從「文化－環境－經濟－社會」層面，積極採行有利於增強國家財富各種資產〔實物資本、人力資本、自然資本及社會資本（文化資本）〕平衡發展的總體經濟政策，發展目標設定重點有三：

- (一)縮小產出缺口：運用國內外總體資源及創新力量，厚植經濟成長潛力，提高GDP與潛在GDP。
- (二)縮小永續性缺口：加速生態建設，減緩國內生態及環境資源退化，提高綠色競爭力；逐步建立完善的綠色GDP帳。
- (三)縮小國民福利缺口：強調人文、生活價值，重視制度與社會信任，研發、推動金色GDP之編算。

圖I-3.1.2 總體發展指標



- 註：1.根據世界銀行（1997）定義，國家財富分為四類：(1)實物資本（人造資本），如機器設備、工廠、道路等公共設施；(2)人力資本，表現於人民的教育與健康程度；(3)自然資本（環境資本），如礦物、土地、水資源、環境品質、景觀等；(4)社會資本（文化資本），指：一個社會組織為共同利益而集體行動所突顯的特徵，如規範、信任和網絡形式。
- 2.綠色GDP是從GDP中同時扣除生產資本消耗及自然資本消耗，得到經環境因素調整的附加價值，為評量環境永續及國民福祉的總體指標。
- 3.根據聯合國「World Culture Report 2000」：金色GDP係衡量文化活動及人文價值對國民福利的效益。

（行政院經濟建設委員會，『新世紀第二期國家建設計畫（民國 94 至 97 年四年計畫暨民國 104 年展望）』—上篇〔築夢：發展願景、目標與策略〕—第三章：挑戰目標釐訂）