Wrap Up of Day 2

Penporn Janekarnkij

Suwanna Praneetvatakul

Economic Concept underlying Valuation

- Value and benefit
  - Value is the contribution of an action or object to user-specified goals, objectives or conditions.
    - Value in exchange (market price), value in use (utility), value of importance (appreciation or emotional value)
    - Ecosystem valuation: economics (exchange value): antropocentric view, ecology (importance) and sociology (moral)
  - Benefit: linkage between environment and economy (consumption (utility) & production (supply) of G&S from ecosystem
    - Benefit derived from G&S to be used by producers (direct input), consumers (direct consumption)---> Use value
    - Benefit derived from not using G&S---> Non-use value
    - Benefit of G&S in terms of net of associated cost --> Net benefit
    - Net benefit received from G&S by people --> value of the environment
    - Net benefit for producer: profit, net revenue/return, producer surplus
    - Net benefit for consumer: utility welfare, WTP, consumer surplus
  - Net value = total benefit – total cost ($/year)
  - Average value = total value / total unit ($/unit)
  - Marginal value = change in value / change in quantity ($/unit) -->reflect scarcity of resources
- Economic system and the environment
  - Change in env. Impact on income, health, other type of resources --> change in people's welfare -- > measure the value of the environment (discrete change)

Economic Concepts Underlying Valuation (cont.)

- Change in environment => change in welfare = environmental value = change in social surplus
- Consumer welfare measurement:
  - The area under the marginal WTP curve = total benefit.
  - Net benefit = total benefit - total user cost
  - Consumer surplus (CS) = net benefit
- Producer welfare measurement:
  - Producer surplus (PS) = net benefit
- Change in env. => change in quantity demand => change in CS
- Change in env. => change in quantity supply => change in PS
- Scale up from individual to population=> value of NR to individual => value of NR to the society/target group

Cost-Benefit Analysis

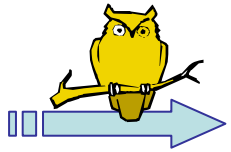
- CBA is a comparison between costs and benefits of an activity.
- Application of CBA: feasibility, EIA, SEA
- Feasibility study: technical, financial, economic, social and environment
- NPV, BCR, IRR

Market Based Value

- Direct Value (on site value): extractive and non-extractive use;

$$\text{Net} = \text{Sum}(P_i Q_i - C_i)$$

- Indirect value:
  - Change in productivity
  - Replacement cost
  - Shadow project
  - Cost of illness

Envi. change  **Benefit/cost changes**

Example

Water quality ↓ ⇒ Ag.output ↓ ⇒ revenue ↓

⇒ cost ↑

W. quality ↓ ⇒ health ↓ ⇒ treatment ⇒ expenses↑

W. quality ↓ ⇒ health ↓ ⇒ prevention ⇒ expenses

Example

Damage occurred → Envi. cost → Improvement activities → Real cost paid

Improvement activities → Potential benefit ??

Damage potentially occurred → *Protection activities* → Real cost paid

Protection activities → Potential benefit ??

Different Methods in Market Value Approach