

# Ecosystem Services-Human Well-being Understanding Trade-Offs

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# Finding #1

- *Many people have benefited over the last century from the conversion of natural ecosystems to human-dominated ecosystems and from the exploitation of biodiversity.*
- *At the same time, however, these gains have been achieved at growing costs in the form of losses in biodiversity, degradation of many ecosystem services, and the exacerbation of poverty for some groups of people.*

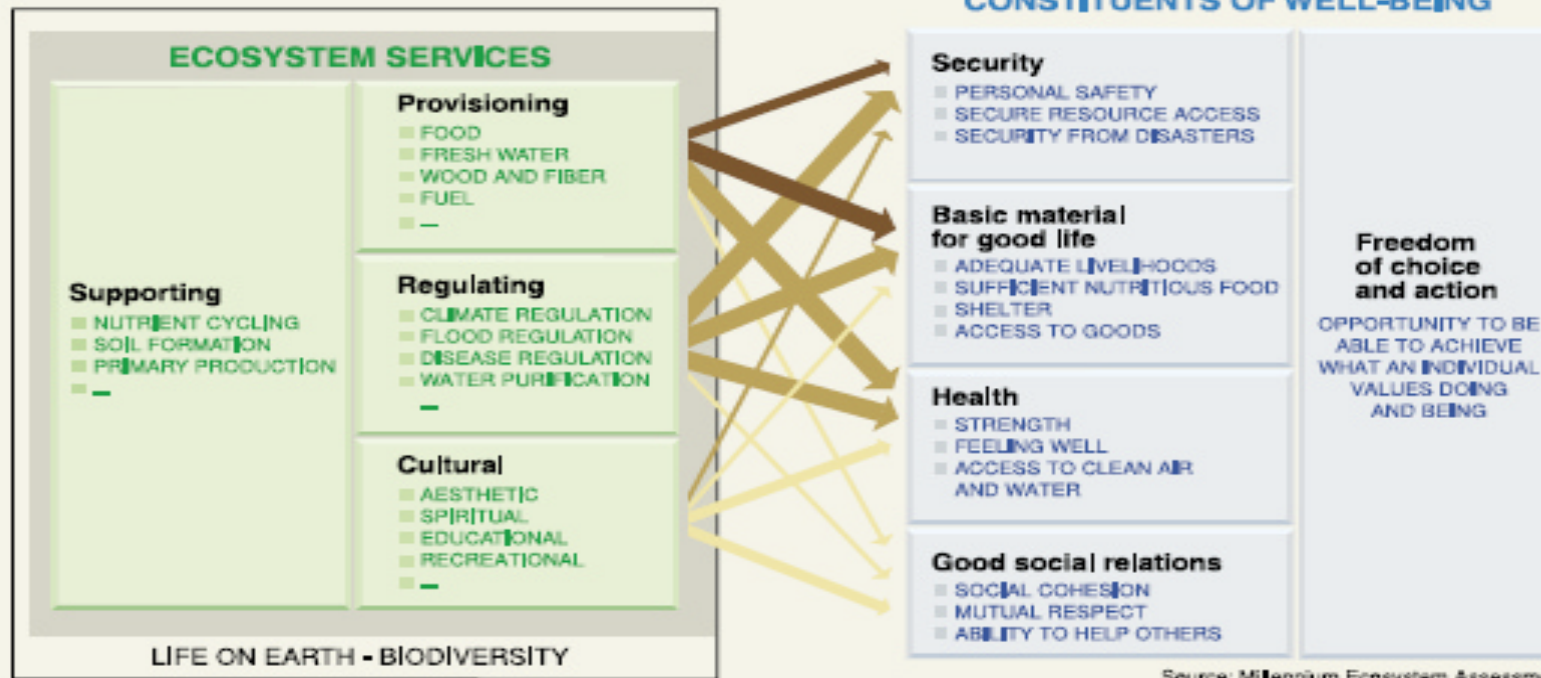


## Finding #2

- The changes that have been made to ecosystems have contributed to substantial net gains in human well-being and economic development
  - Since 1960, while population doubled and economic activity increased 6-fold, food production increased 2 ½ times, food price has declined, water use doubled, wood harvest for pulp tripled, hydropower doubled.
- But these gains have been achieved at growing costs that, unless addressed, will substantially diminish the benefits that future generations obtain from ecosystems

# Ecosystem services and human well-being

## LINKAGES BETWEEN ECOSYSTEM SERVICES AND HUMAN WELL-BEING



Source: Millennium Ecosystem Assessment

ARROW'S COLOR  
Potential for mediation by socioeconomic factors

- Low
- Medium
- High

ARROW'S WIDTH  
Intensity of linkages between ecosystem services and human well-being

- Weak
- Medium
- Strong

# Trade-offs and Inter-Linkages

## Inter-Linkages among ecosystem services

- Changes in one service may cause changes in other services

## Inter-Linkages among Constituents/determinants of well-being

- Preference functions and weights across constituents/determinants which will tell degree of dependency on ecosystem services

# Understanding Trade-offs

Trade-offs are made by humans when faced with constraints and choices. There are two main levels of trade-offs.

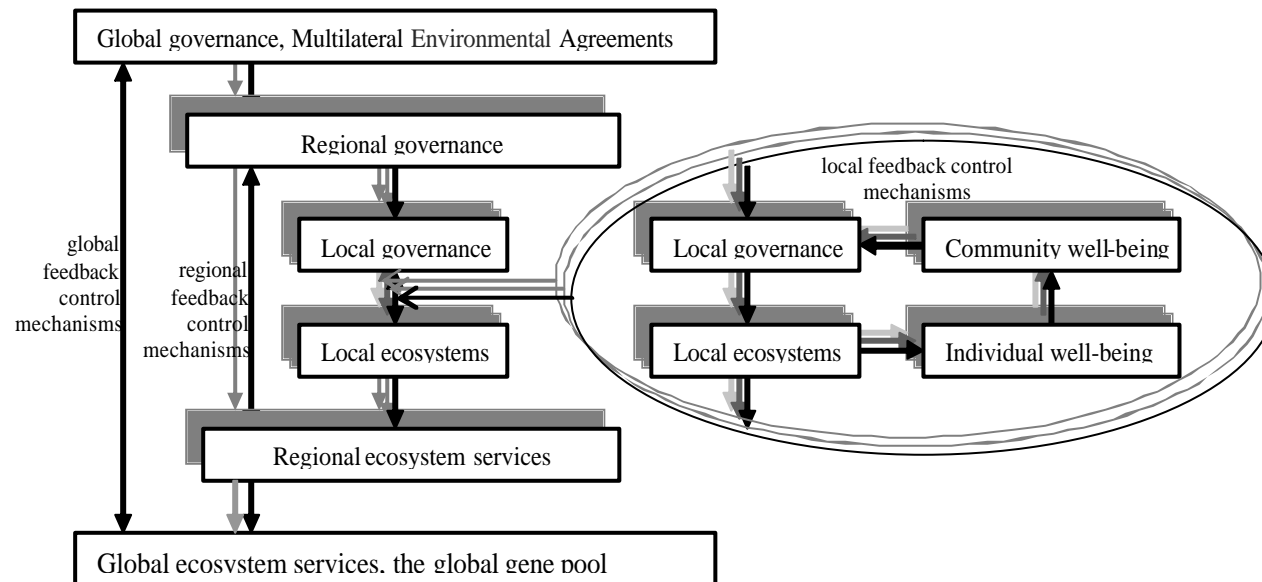
- At the Individual Level
- At the Societal Level

# Making Trade-offs

Information used when making trade-off decisions

- At the Individual Level
  - Prices
  - Knowledge and information
- At the Societal Level
  - Economic Growth
  - Poverty Reduction
  - Moral Obligations (Equity)

# Governance of Ecosystem Services and Well-Being



# Key points to Consider in Trade-Off Analysis

- Trade-offs between ecosystem services and well-being differ across individuals – context specific
- Trade-offs between ecosystem services and well-being differ between individuals and society – Individual benefits versus societal costs.
- Trade-offs can take place across space
- Trade-offs can take place across time

# Challenges for Trade-off Analysis

## Challenge One

To observe and measure the changes in well-being caused by changes in ecosystem services.

## Challenge Two

To establish governance structures which are responsive to the different changes in well-being across different stakeholders caused by changes in ecosystem services especially vulnerable and socially excluded groups



# Key Communication Points at COP

## 9

Part of the explanation for declining ecosystem services is the mismatch in the social, spatial and temporal scales at which the impacts of environmental change occur and at which decisions are made.

Effective environmental governance implies that these scales be matched and that there are structures of governance and feedback control mechanisms – prices, regulations, access restrictions, harvest moratoria etc – that operate at the appropriate scale.



# Research Agenda

- Developing a common metric for evaluating changes in well-being.
- A better understanding of values of ecosystem services and their role in preference functions
- Better understanding of the mis-match between ecological scales and governance levels.