Millennium Ecosystem Assessment

A.H.Zakri
Institute of Advanced Studies
United Nations University

S&T and Sustainable Development

- The impacts on human and ecological well-being of technological systems for energy, manufacturing, and agriculture are on rise
- Those same systems are required to meet the needs of growing populations as well as the needs of communities aspiring to reduce poverty or secure higher standards of living

Problem:

- Human demand for ecosystem goods and services is growing dramatically
- We have made, and are making, changes to ecosystems of unprecedented magnitude

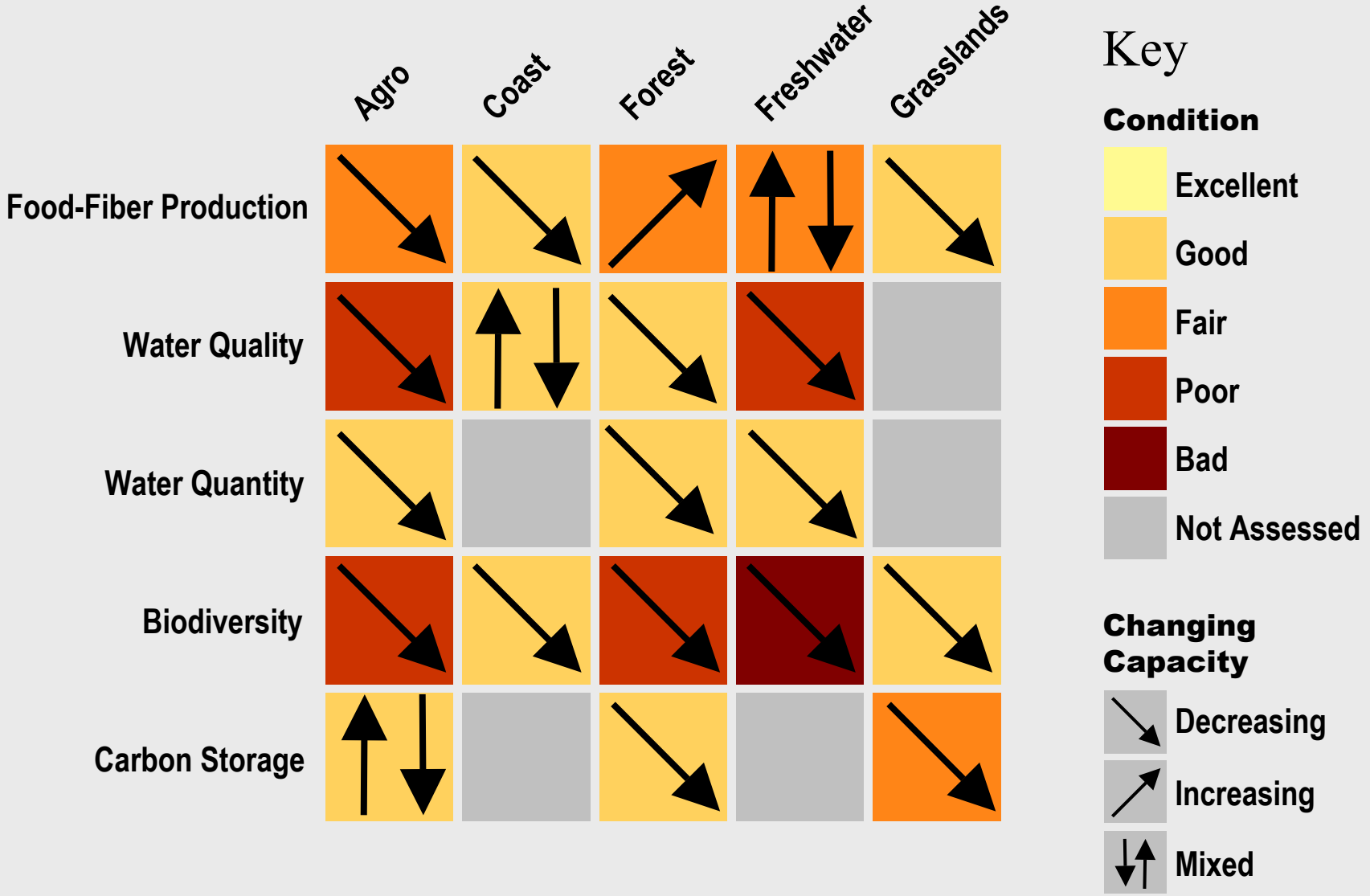
Essential that wise choices are made in the use and conservation of these systems.

Food production must increase to meet the needs of additional 3 billion people in the next 30 years

One third of the world's population is now subject to water scarcity. Population facing water scarcity will double over the next 30 years.

Biodiversity underlies all other goods and services and provides "goods" in its own right. An estimated 10-15% of the world's species will be committed to extinction over next 30 years.

Environmental Scorecard



Ecosystem Services:

The benefits people obtain from ecosystems

Provisioning

Goods produced or provided by ecosystems

- food
- fresh water
- fuel wood
- fiber
- biochemicals
- genetic resources

Regulating

Benefits obtained from regulation of ecosystem processes

- climate regulation
- disease regulation
- flood regulation
- detoxification

Cultural

Non-material benefits obtained from ecosystems

- spiritual
- recreational
- aesthetic
- inspirational
- educational
- communal
- symbolic

Supporting

Services necessary for production of other ecosystem services.

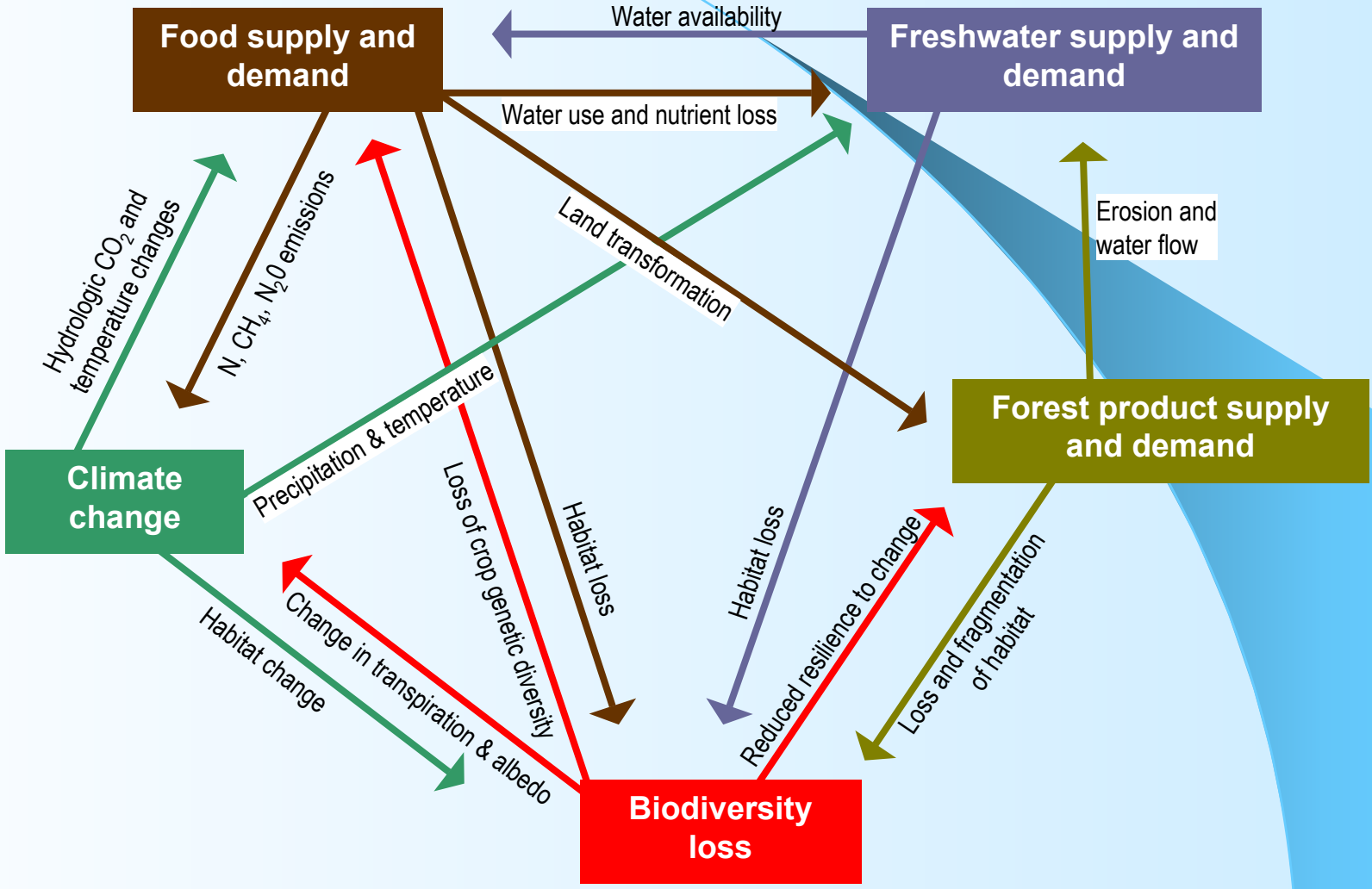
- Soil formation
- Nutrient cycling
- Primary production

Millennium Ecosystem Assessment

A 4-year international scientific assessment

- Designed to meet a portion of the assessment needs of the CBD, CCD, Ramsar Wetlands Convention and other partners
- Focused on ecosystem goods and services, the consequences of changes in ecosystems on human well being, and consequences on other life on earth
- Undertaken at multiple scales (local to global)

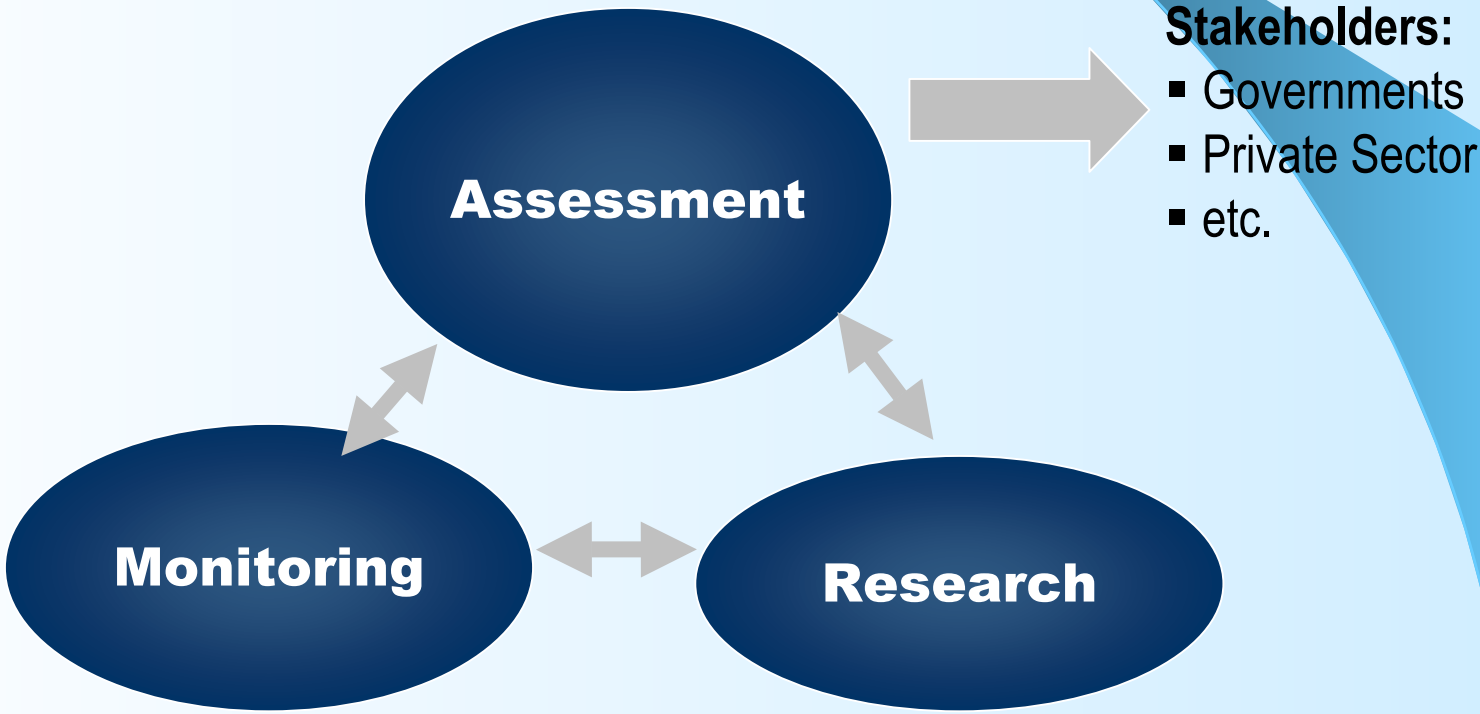
Integrated assessment enables examination of trade-offs among services



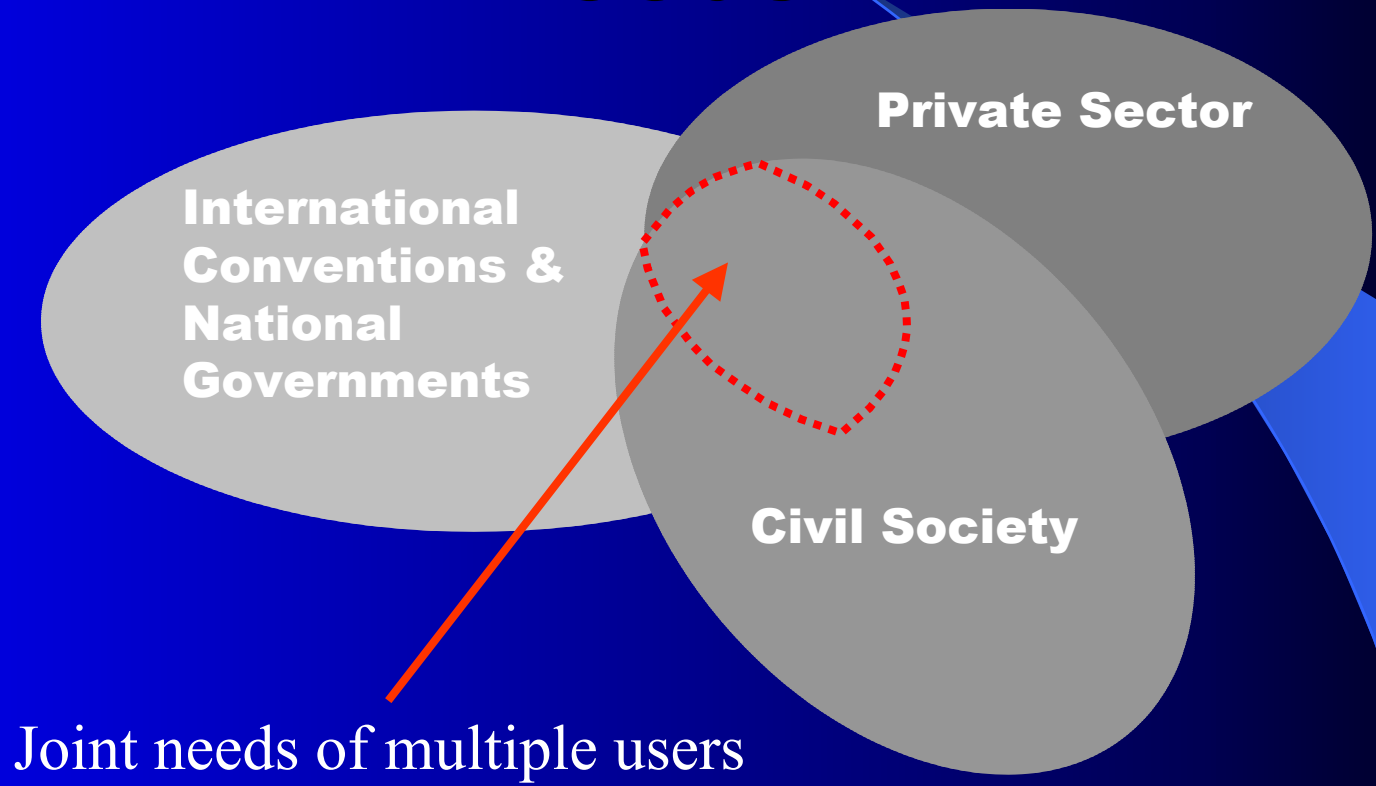
Source: Ayensu et al. 1999. Science 286:685-686.

Assessments

– **Assessment:** A social process to bring the findings of science to bear on the needs of decision-makers



Assessment responds to user needs



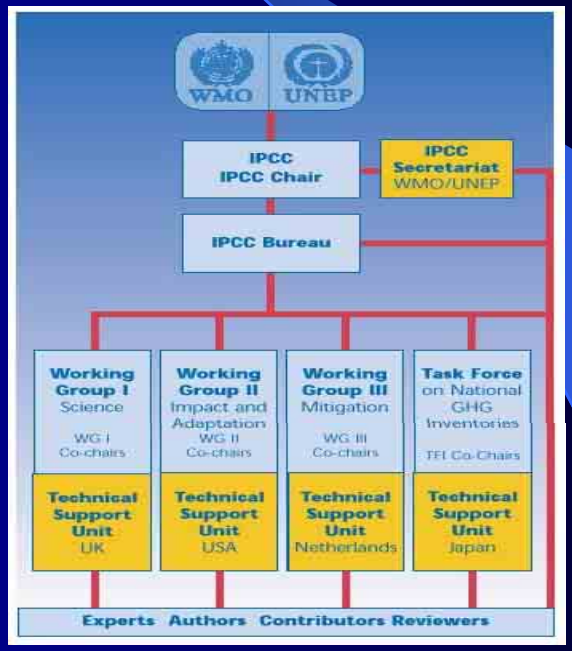
Goal:

Create a mechanism to increase the amount, quality, and credibility of policy-relevant scientific research findings concerning ecosystems & human well-being used by decision-makers, particularly those involved in the ecosystem-related conventions.

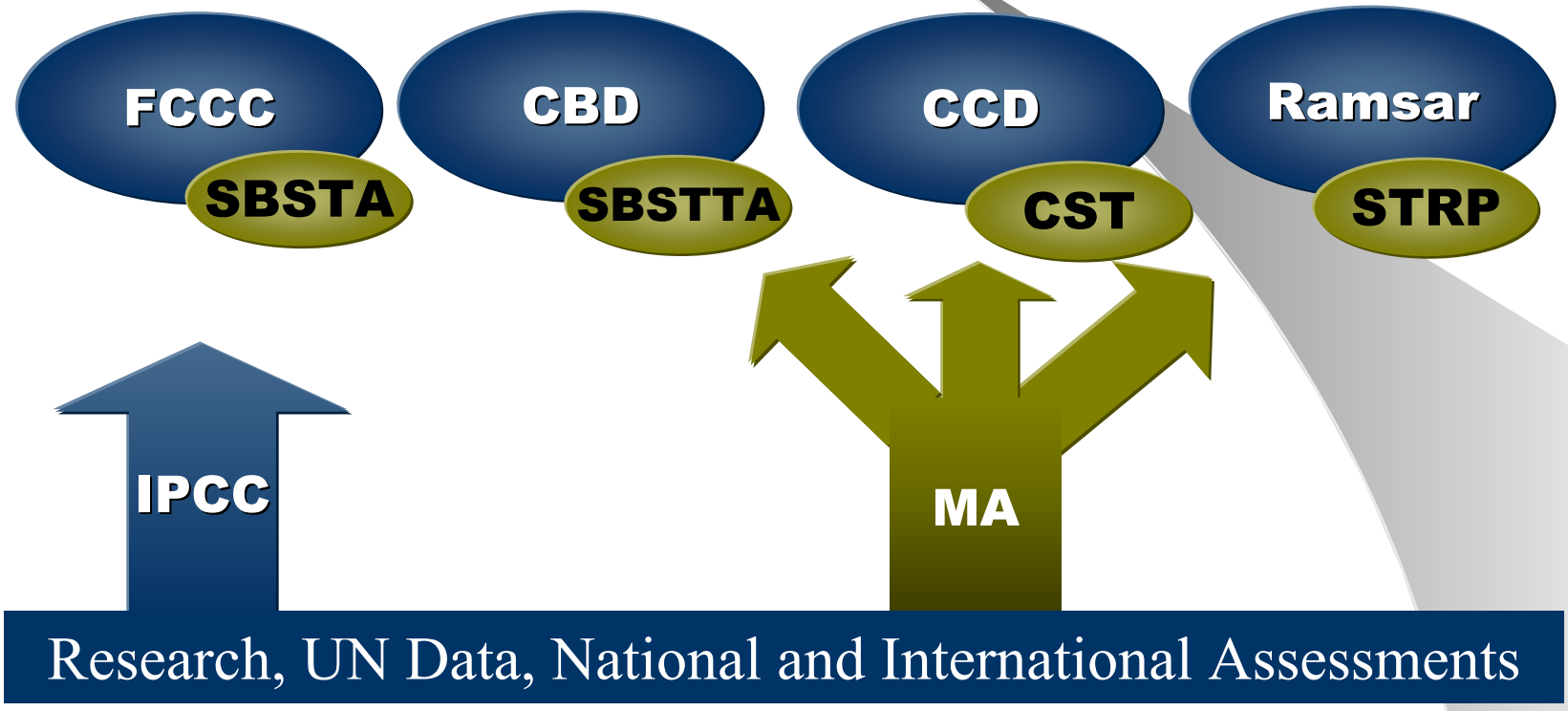
Models:

Intergovernmental Panel on Climate Change (IPCC) & Ozone Assessment

- scientific credibility
- political legitimacy
- focus on user needs



Multiple Users Among Conventions



Authorizing Environment

- Convention on Biological Diversity
  - COP authorization for Secretariat and SBSTTA Chair representation on Board
  - Invitations to MA for specific assessment inputs
- Convention to Combat Desertification
  - MA "was fully supported by CST and the Parties recommended continuation of the activities of the Millennium Assessment in collaboration with the CCD Secretariat"
- Ramsar Wetlands Convention
  - "The Standing Committee endorsed … participation in the development

Additional Audiences

- International organizations
- Private sector
  - Individual companies
  - WBCSD
  - “intermediaries”
  - trade organizations
- National & sub-national government ministries
- Local communities & civil society
- Media

The MA will focus on:





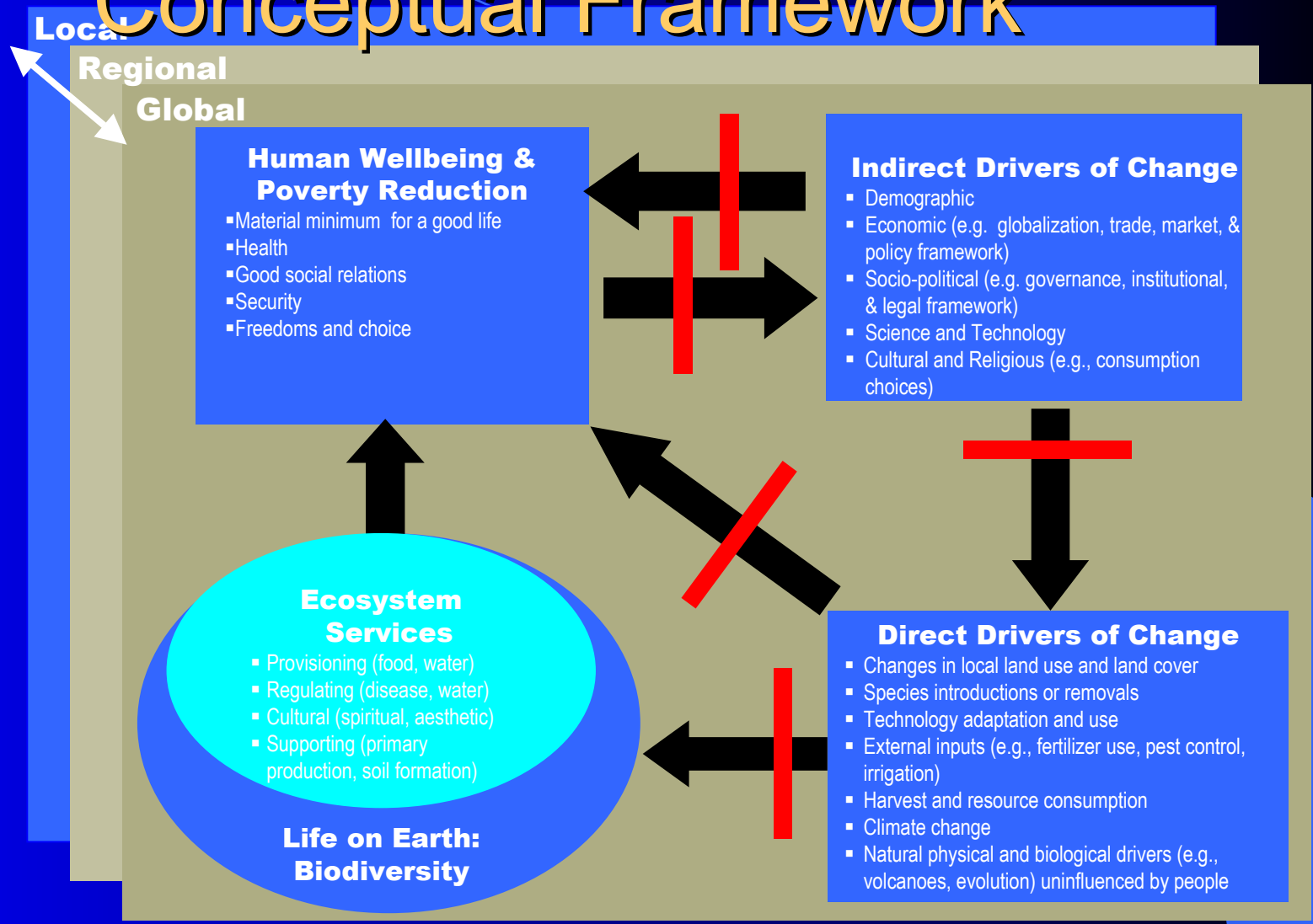
Ecosystem services (the conditions and processes supported by biodiversity through which ecosystems sustain and fulfil human life, including through the provision of goods)

- **Provisioning:** e.g. Food, Water, Fiber, Fuel, Other biological products
- **Supporting:** e.g. Biodiversity, Pollination, Waste Treatment
- **Cultural:** e.g. Cultural, Aesthetic, Social relations

The consequences of changes in ecosystems for **human well being**

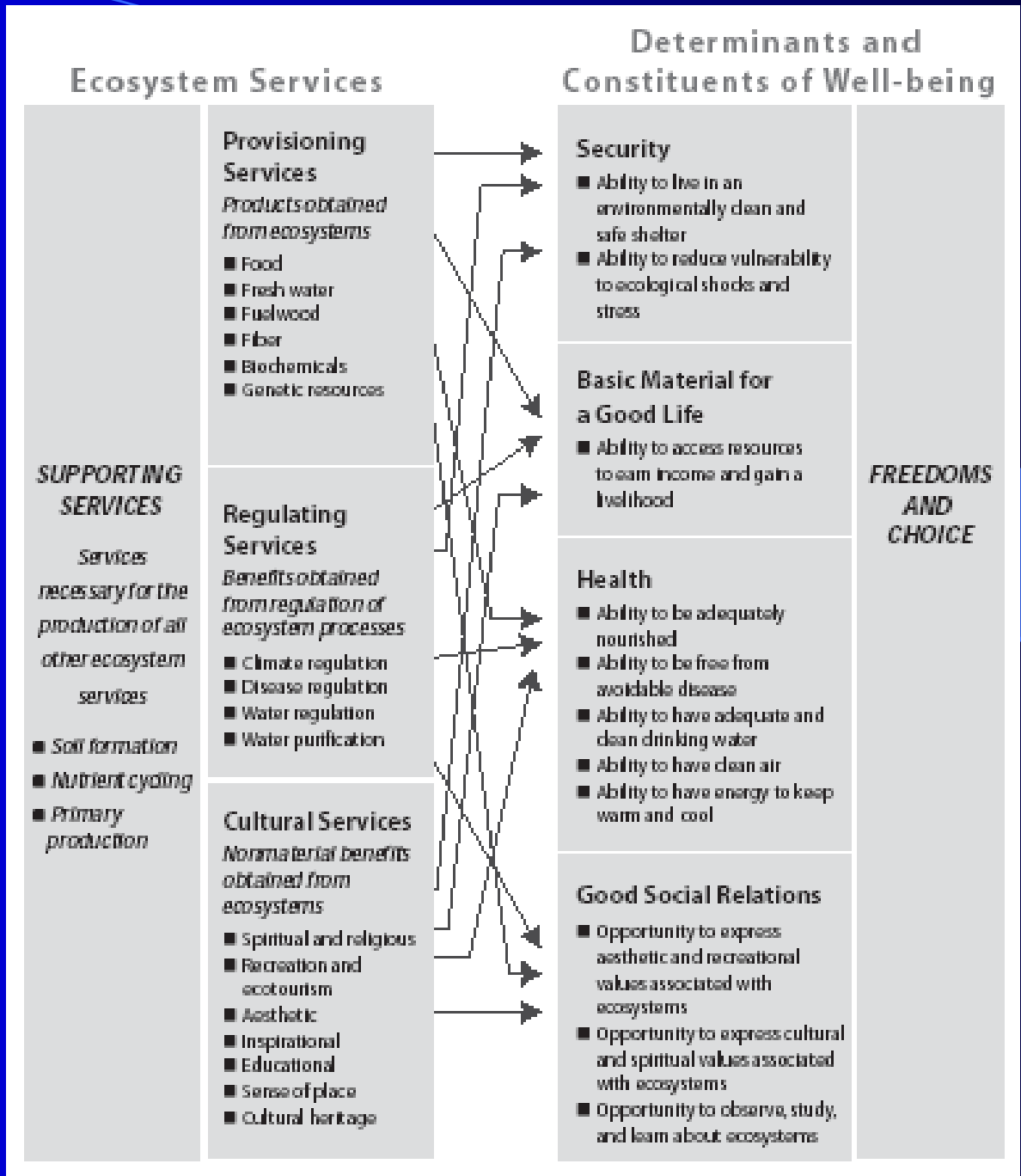
The consequences of changes in ecosystems for **other life on earth**

Conceptual Framework

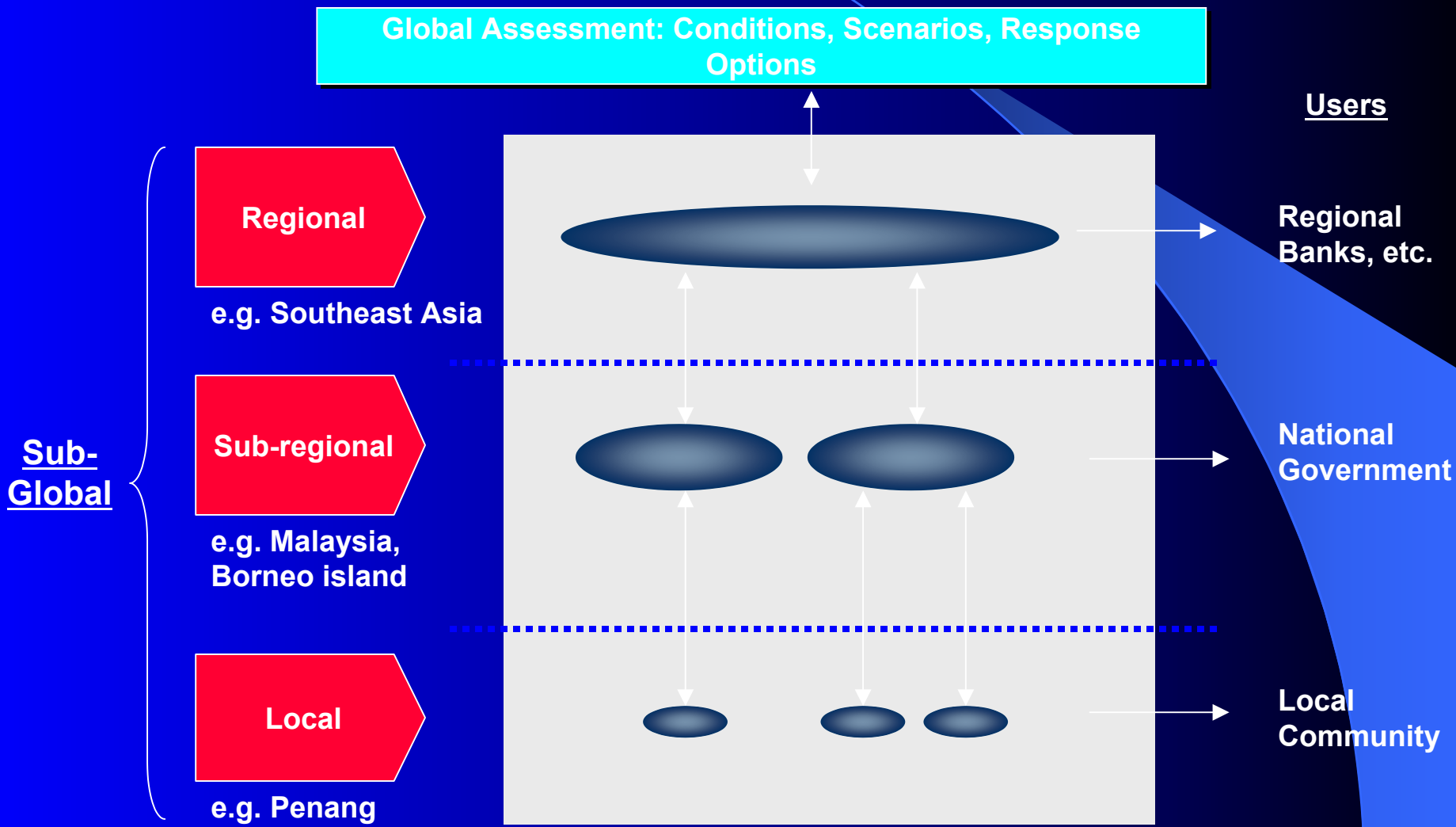


= Strategies and Interventions

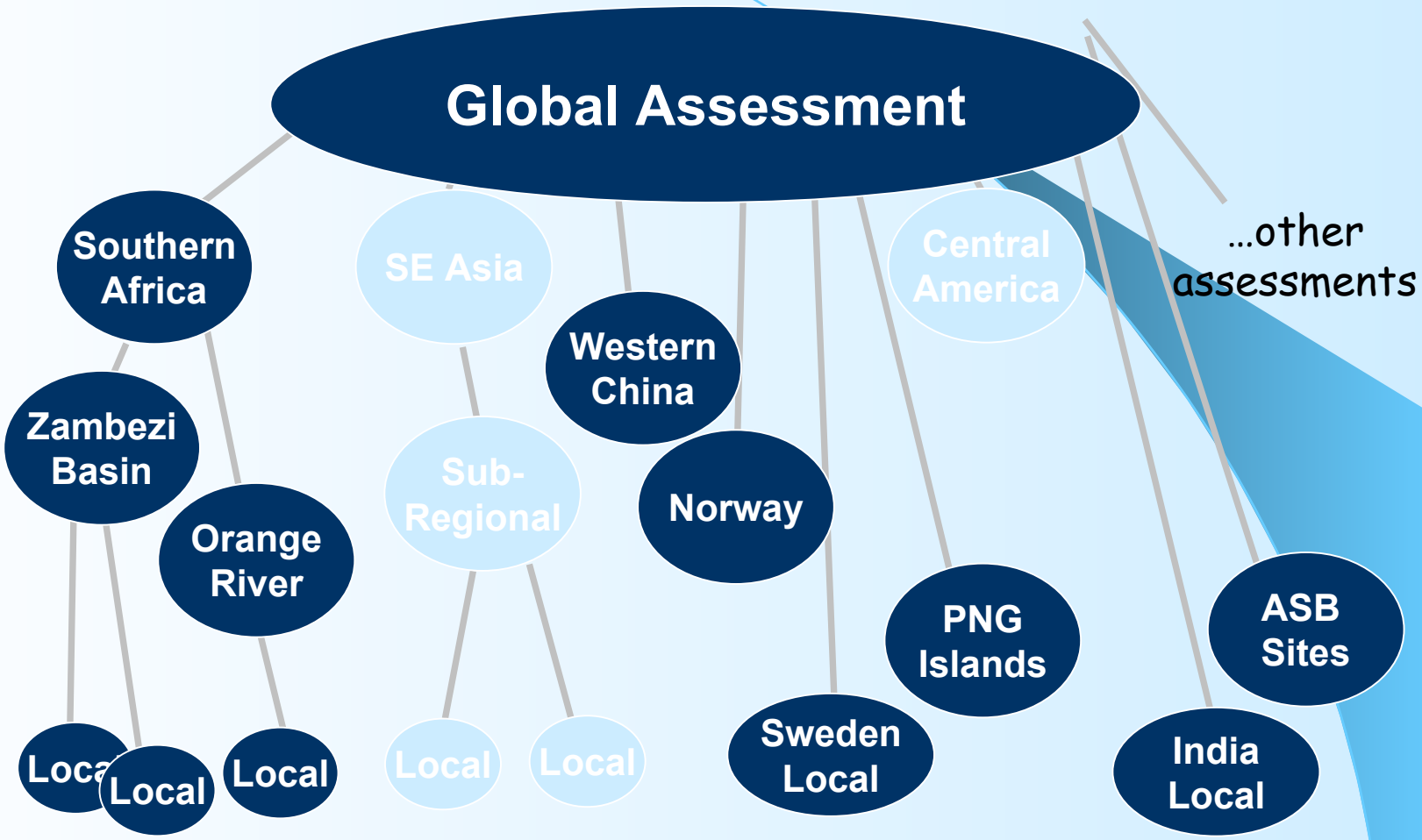
Design


Ecosystem Services
Determinants and Constituents of Well-being
SUPPORTING SERVICES
Services necessary for the production of all other ecosystem services
Soil formation
Nutrient cycling
Primary production
Provisioning Services
Products obtained from ecosystems
Food
Fresh water
Fuelwood
Fiber
Biochemicals
Genetic resources
Regulating Services
Benefits obtained from regulation of ecosystem processes
Climate regulation
Disease regulation
Water regulation
Water purification
Cultural Services
Nonmaterial benefits obtained from ecosystems
Spiritual and religious
Recreation and ecotourism
Aesthetic
Inspirational
Educational
Sense of place
Cultural heritage
Security
Ability to live in an environmentally clean and safe shelter
Ability to reduce vulnerability to ecological shocks and stress
Basic Material for a Good Life
Ability to access resources to earn income and gain a livelihood
Health
Ability to be adequately nourished
Ability to be free from avoidable disease
Ability to have adequate and clean drinking water
Ability to have clean air
Ability to have energy to keep warm and cool
Good Social Relations
Opportunity to express aesthetic and recreational values associated with ecosystems
Opportunity to express cultural and spiritual values associated with ecosystems
Opportunity to observe, study, and learn about ecosystems
FREEDOMS AND CHOICE

The MA is a multi-scale assessment, with multiple layers of nesting



Sub-Global Assessments



Assessment Outputs

- Conceptual Framework (2003)
- Assessment Reports (2004)
  - Sub-global Assessment
  - Condition/Trends Assessment
  - Scenario Assessment
  - Response Options Assessment
  - Summary Volume (SPMs of 4 reports)
- Synthesis Reports
  - Biodiversity (2004)
  - Desertification (2005)
  - Wetlands (2005)
  - Private Sector (2005)
  - Human Well-being (2005)
- Other Products
  - Radio, documentaries, Internet
  - Partnerships to enable distribution to broader audience

The MA should help decision-makers:

Identify options that can better achieve core human development and sustainability goals

Better understand the trade-offs involved—across sectors and stakeholders—in decisions concerning the environment

Align response options with the level of governance where they can be most effective

New MA Report:

Ecosystems and Human Well-being