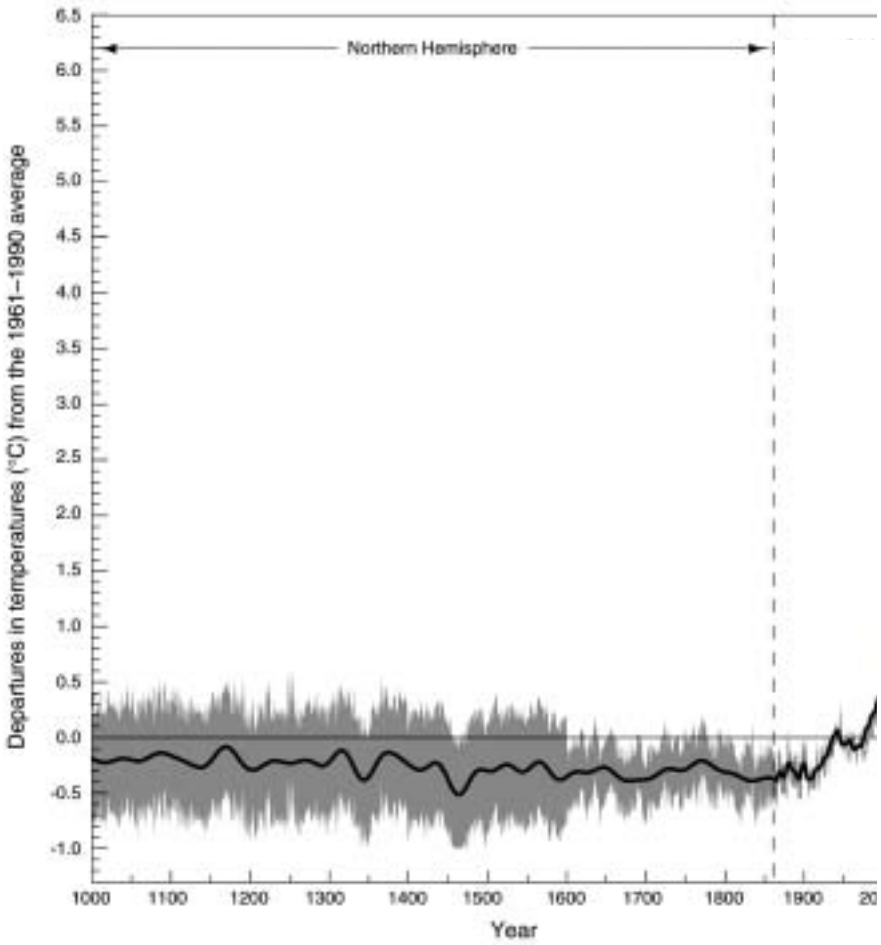
Millennium Ecosystem Assessment

Overview

The goal of the Millennium Ecosystem Assessment

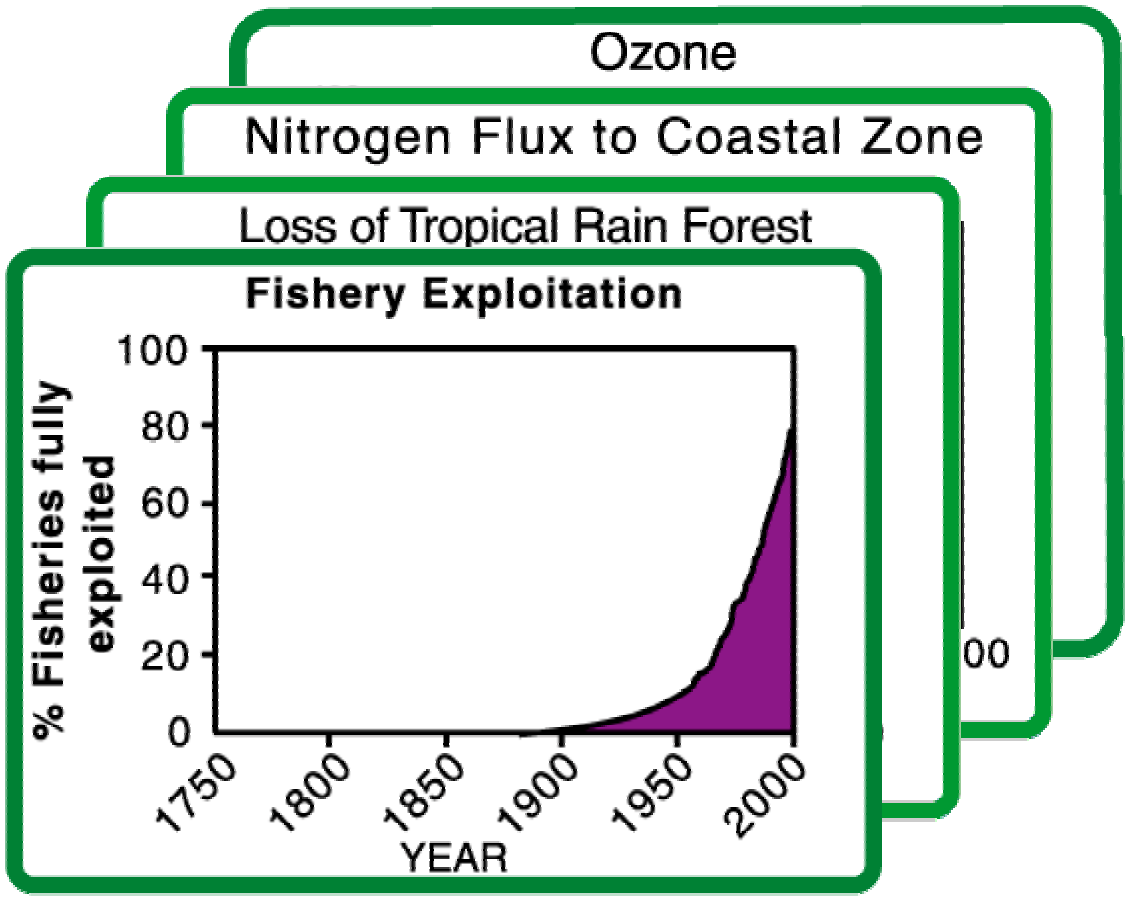
“to establish the scientific basis for actions needed to enhance the contribution of ecosystems to human well-being without undermining their long-term productivity”

Rapid Global Change: Climate



- 1000 to 1861, N. Hemisphere, proxy data;
- 1861 to 2000 Global, Instrumental;
- 2000 to 2100, SRES projections

Millennium Ecosystem Assessment



Source: International Geosphere Biosphere Programme (IGBP)

Growing Demand For Ecosystem Services

Food

Production must increase to meet needs of additional 3 billion people over the next 30 years

Water

One-third of the population now subject to water scarcity. Number will double over the next 30 years

Wood

Wood demand (fuel, timber) will double in next 50 years

Millennium Ecosystem Assessment

Ecosystem Services

The benefits people obtain from ecosystems

Provisioning	Regulating	Cultural
Goods produced or provided by ecosystems • food • fresh water • fuel wood • genetic resources	Benefits obtained from regulation of ecosystem processes • climate regulation • disease regulation • flood regulation	Non-material benefits from ecosystems • spiritual • recreational • aesthetic • inspirational • educational

Supporting

Services necessary for production of other ecosystem services

• Soil formation
• Nutrient cycling
• Primary production

Millennium Ecosystem Assessment

- Seeks to substantially increase the information available for resources managers and policymakers to better manage the environment.

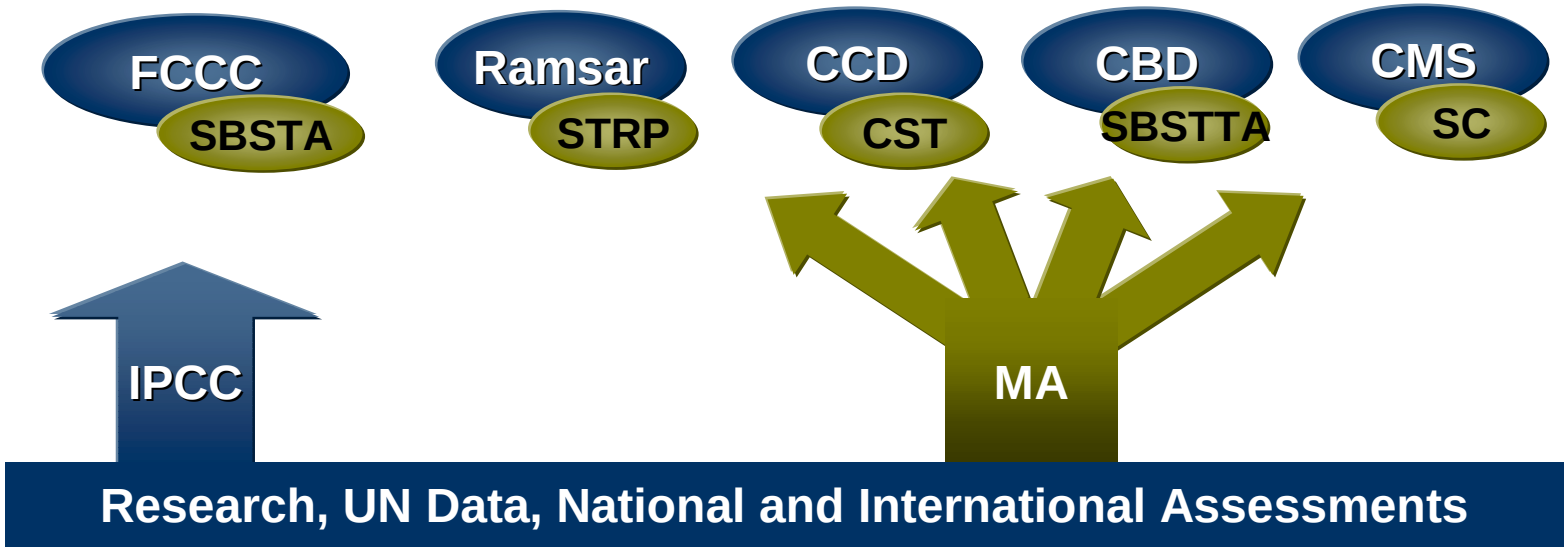
- Established in response to:
  - The growing challenge of balancing multiple demands on the environment, (e.g. Food, Water, Biodiversity, etc.)
  - The vast scale of the changes now being made in global ecosystems (e.g, Land cover, nitrogen flows, climate change etc.)

Millennium Ecosystem Assessment

- An international scientific assessment of the consequences of ecosystem changes for human well-being
- Launched in 2001, reports due in 2005
- Providing information requested by:
  - Convention on Biological Diversity (CBD)
  - Convention to Combat Desertification (CCD)
  - Ramsar Convention on Wetlands
  - Convention on Migratory Species (CMS)
  - other partners including the private sector and civil society
- With the goals of:
  - stimulating and guiding action
  - building capacity

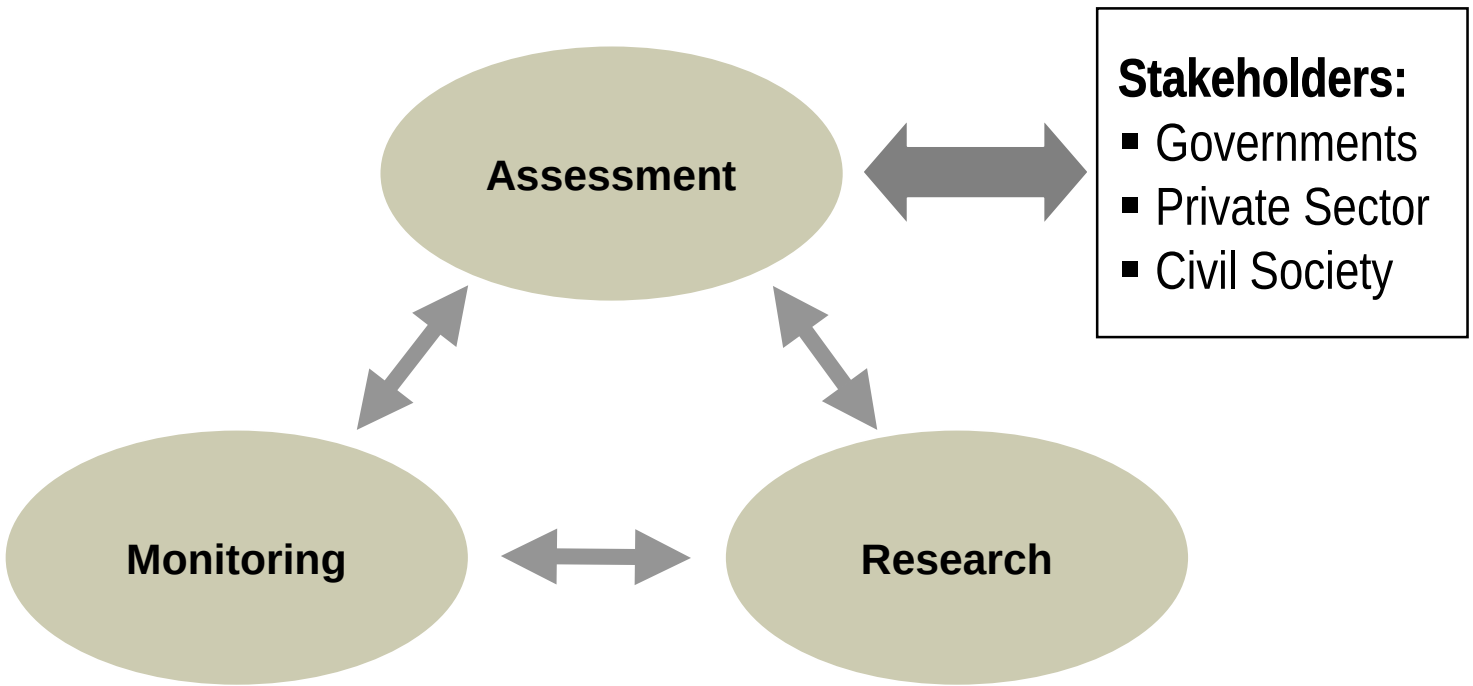
Key design features of the MA

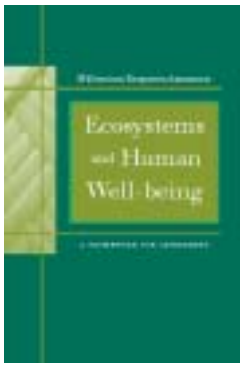
	MA	
Political legitimacy	☑	*Authorized by four conventions and UN*
Scientific credibility	☑	*Follows IPCC procedures*
Utility	☑	*Focus strongly shaped by audience* *Strong sub-global features*



Science Assessment:

- A social process to bring the findings of science to bear on the needs of decision-makers





Science Assessment

- Authoritative
- Policy relevant, not policy prescriptive
- Stakeholders have “ownership” in process and findings
- Reflect ‘consensus’ of science (while identifying areas of scientific disagreement)

Who established the assessment?

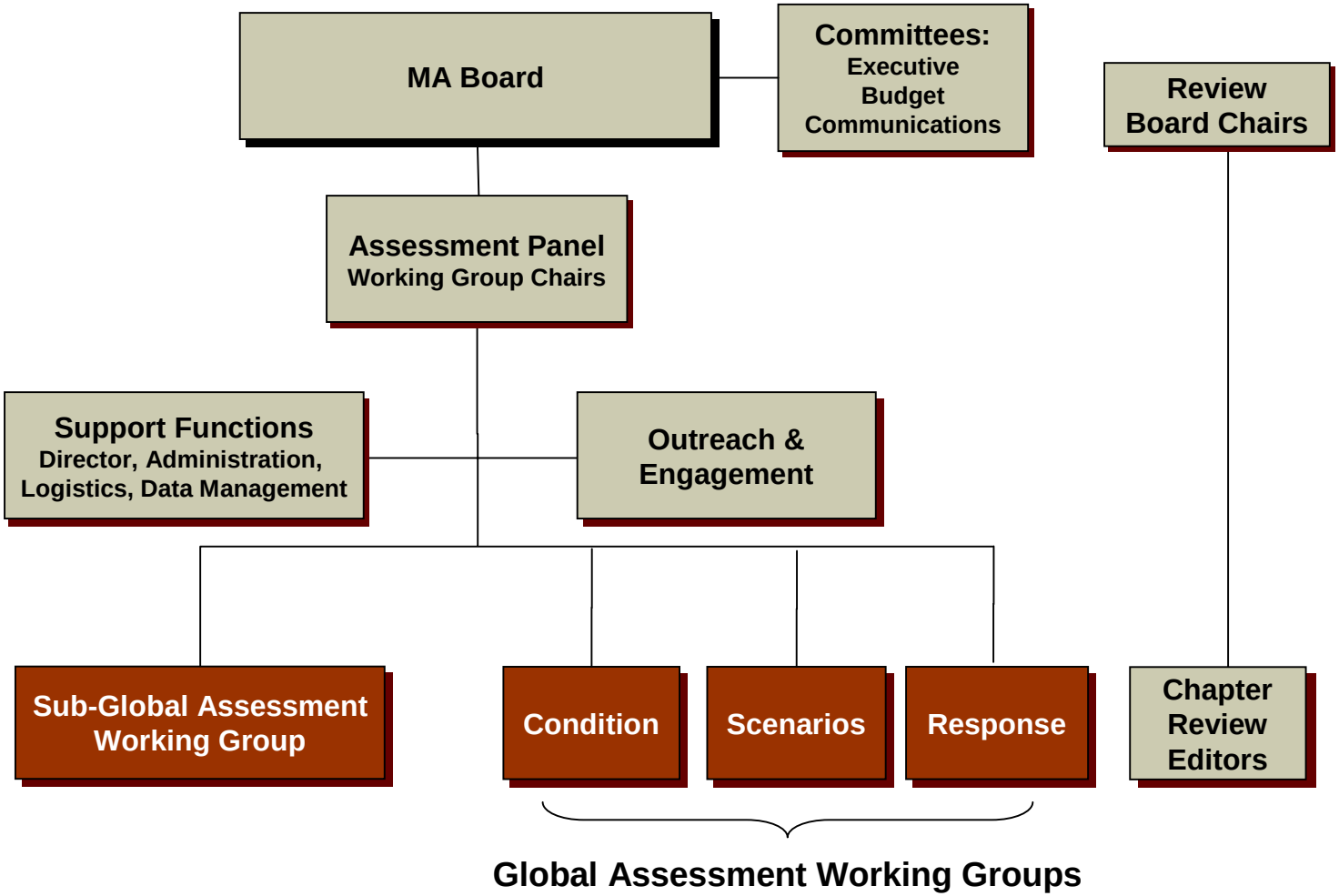
- UN Secretary General Kofi Annan called for the Millennium Ecosystem Assessment in his 2000 Report to the UN General assembly
- Parties to four conventions took decisions establishing the MA as one source of assessment input.
  - Convention on Biological Diversity
  - Convention to Combat Desertification
  - Convention on Wetlands (Ramsar)
  - Convention on Migratory Species
- UN Secretary General launched the MA in June 2001

Who governs the assessment?

Board represents "Users" of the MA findings

- Conventions
  - CBD, UNCCD, UNFCCC, Ramsar, CMS
- UN Agencies
  - UNEP, UNDP, FAO, WHO, UNESCO
- Donors
  - GEF, UN Foundation
- International science organizations
  - CGIAR, ICSU, IUCN
- At large representation
  - Private sector
  - NGOs
  - Scientists
  - indigenous people

Organizational Structure



Who is conducting the assessment?

Technical work overseen by a 13-member Assessment Panel

Co-chairs:

Hal Mooney (USA), Angela Cropper (Trinidad)

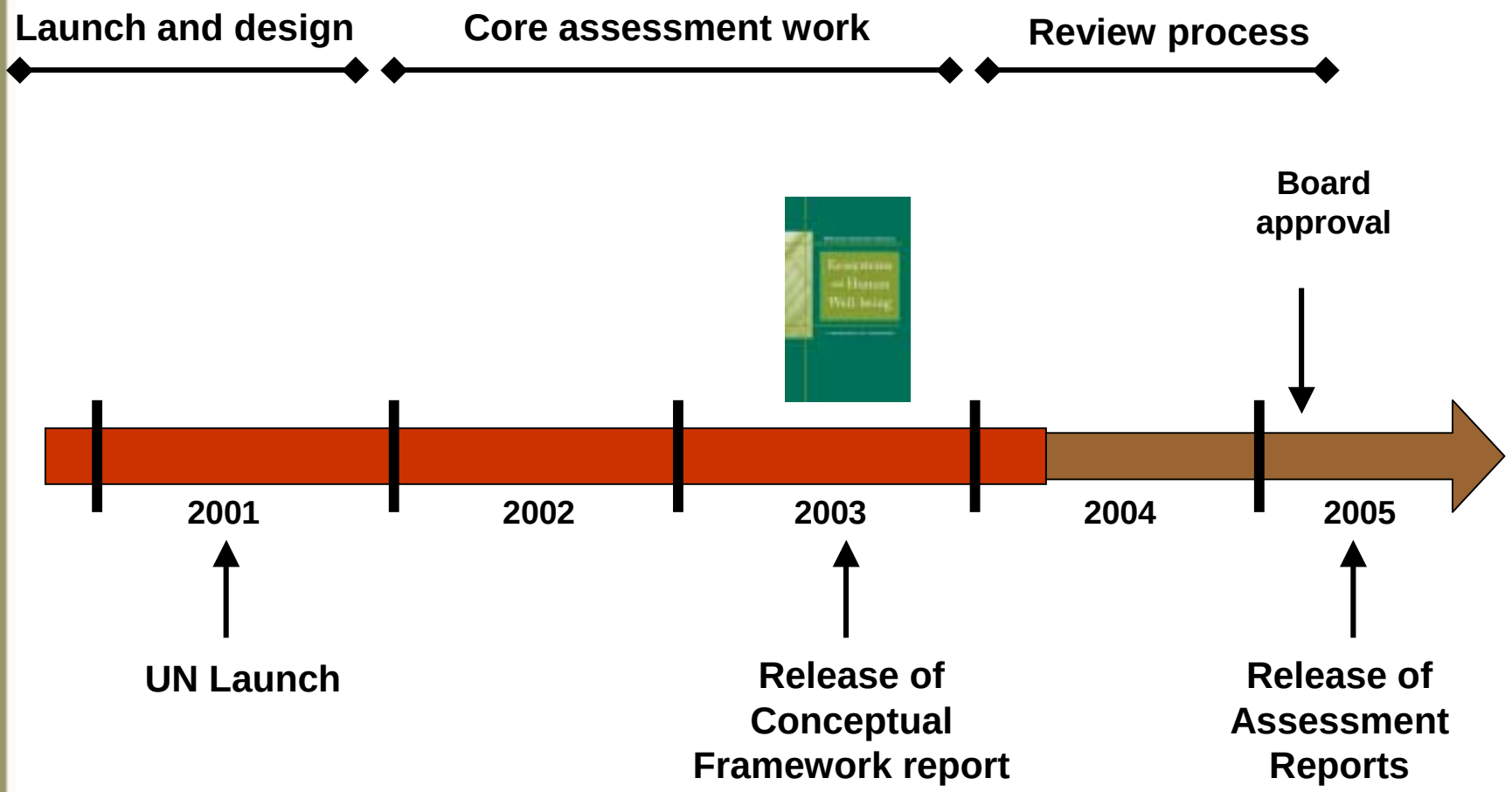
Members:

- Bob Scholes (South Africa)
- Rashid Hassan (South Africa)
- Prabhu Pingali (FAO, Rome)
- Steve Carpenter (USA)
- Rik Leemans (Netherlands)
- Kanchan Chopra (India)
- Cristian Samper (USA)
- Doris Capistrano (Indonesia)
- Bob May (UK)
- Partha Dasgupta (UK)
- Zhao Shidong (China)

Who is conducting the assessment?

- More than 700 Coordinating Lead Authors, Lead Authors, and Chapter Review Editors from ~90 countries
  - ½ natural scientists; ½ social scientists
- Hundreds of additional experts involved in sub-global assessments
- Expect more than 1000 expert reviewers

Timeline


Launch and design
Core assessment work
Review process
Board approval
2001
2002
2003
2004
2005
UN Launch
Release of Conceptual Framework report
Release of Assessment Reports

Assessment Focus: Ecosystem Services

The benefits people obtain from ecosystems

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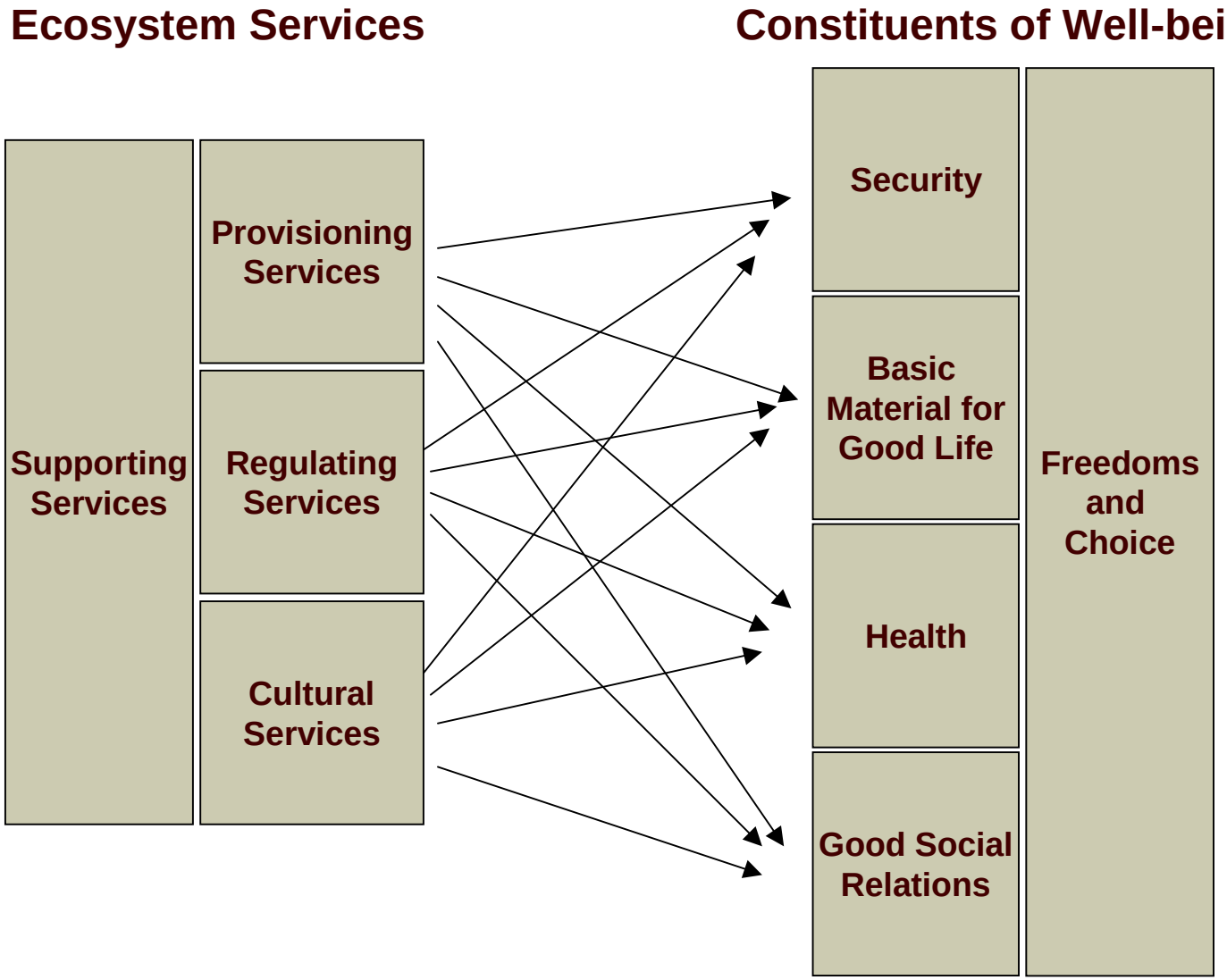
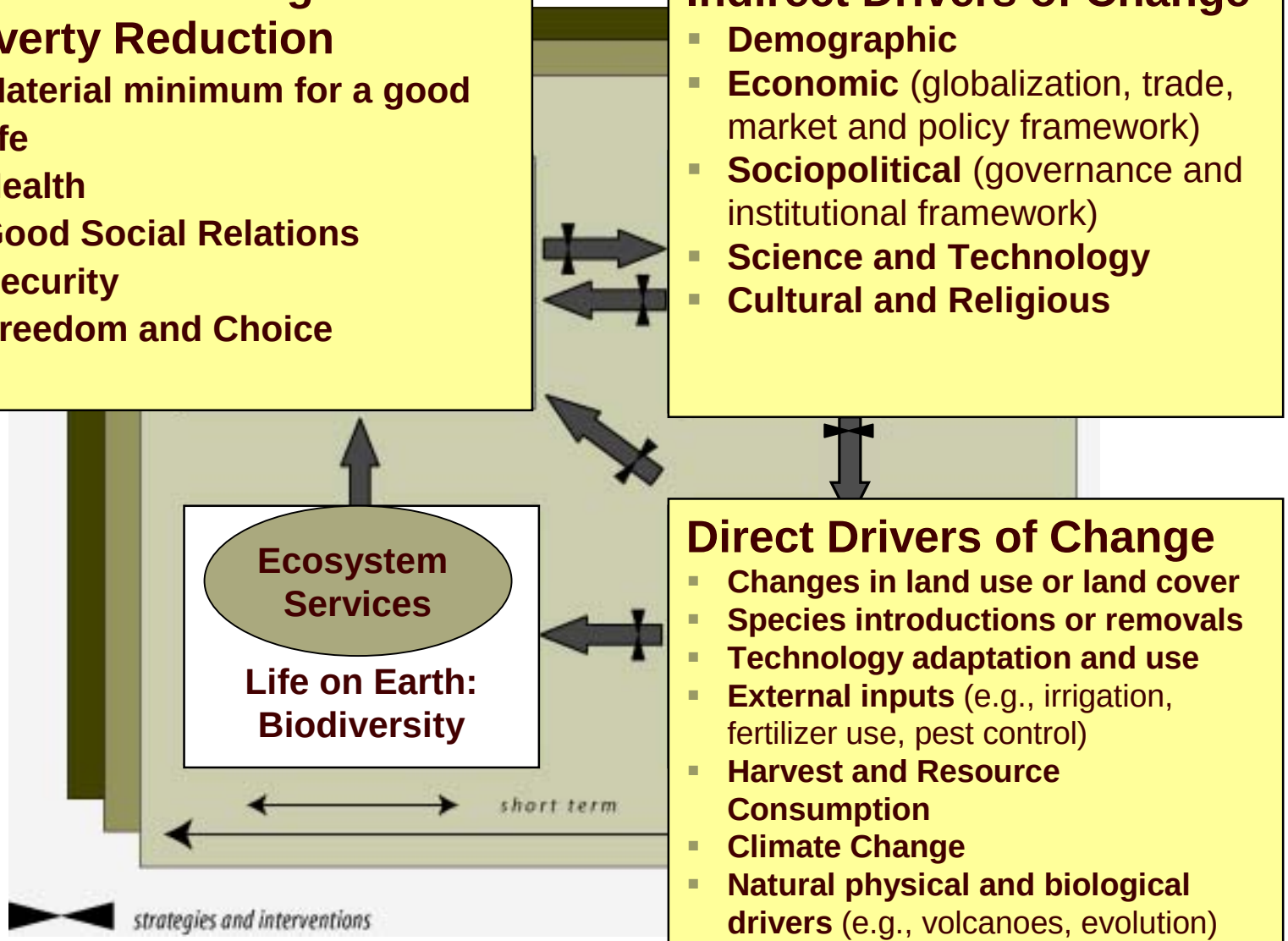
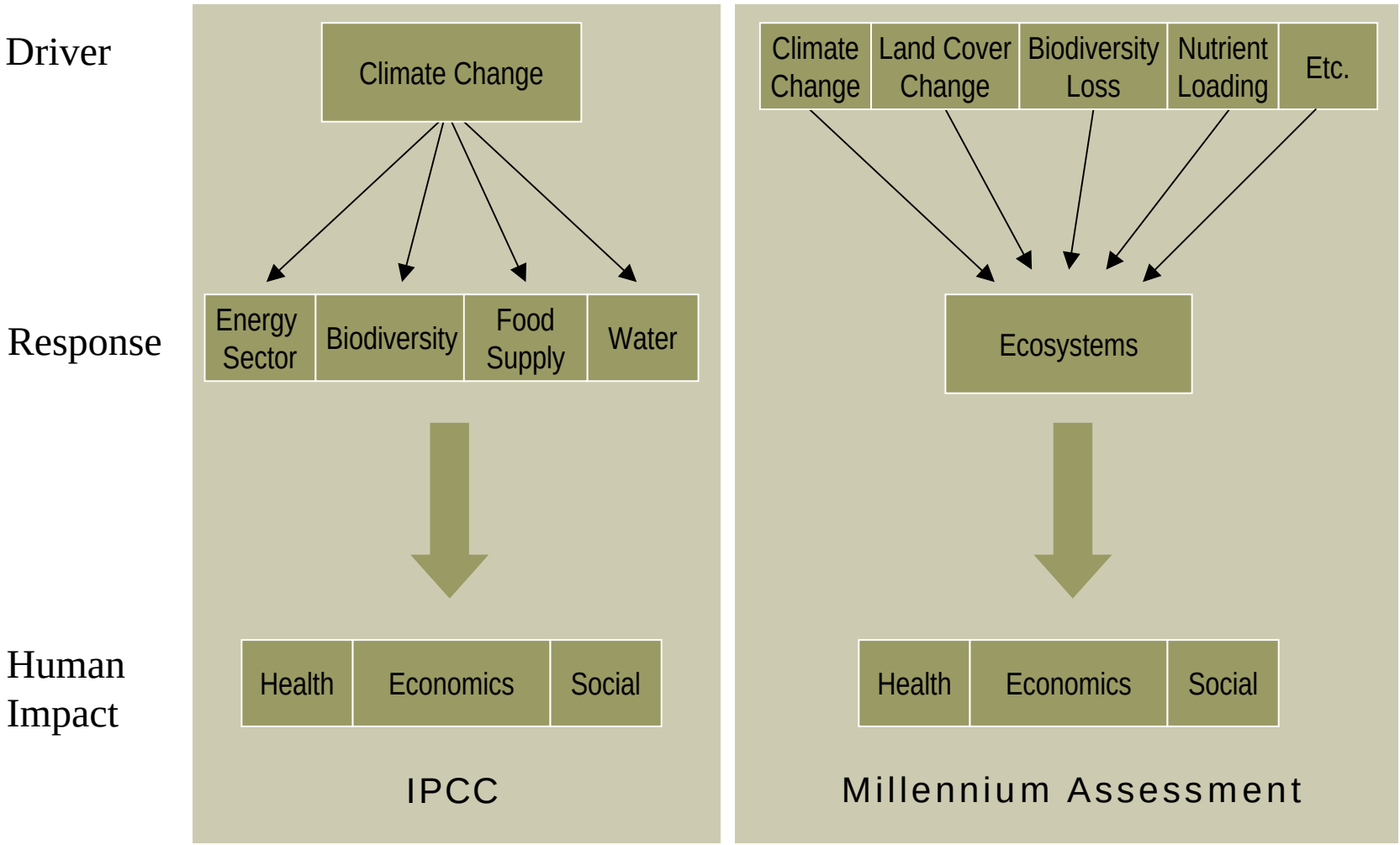
Consequences of Ecosystem Change for Human Well-being



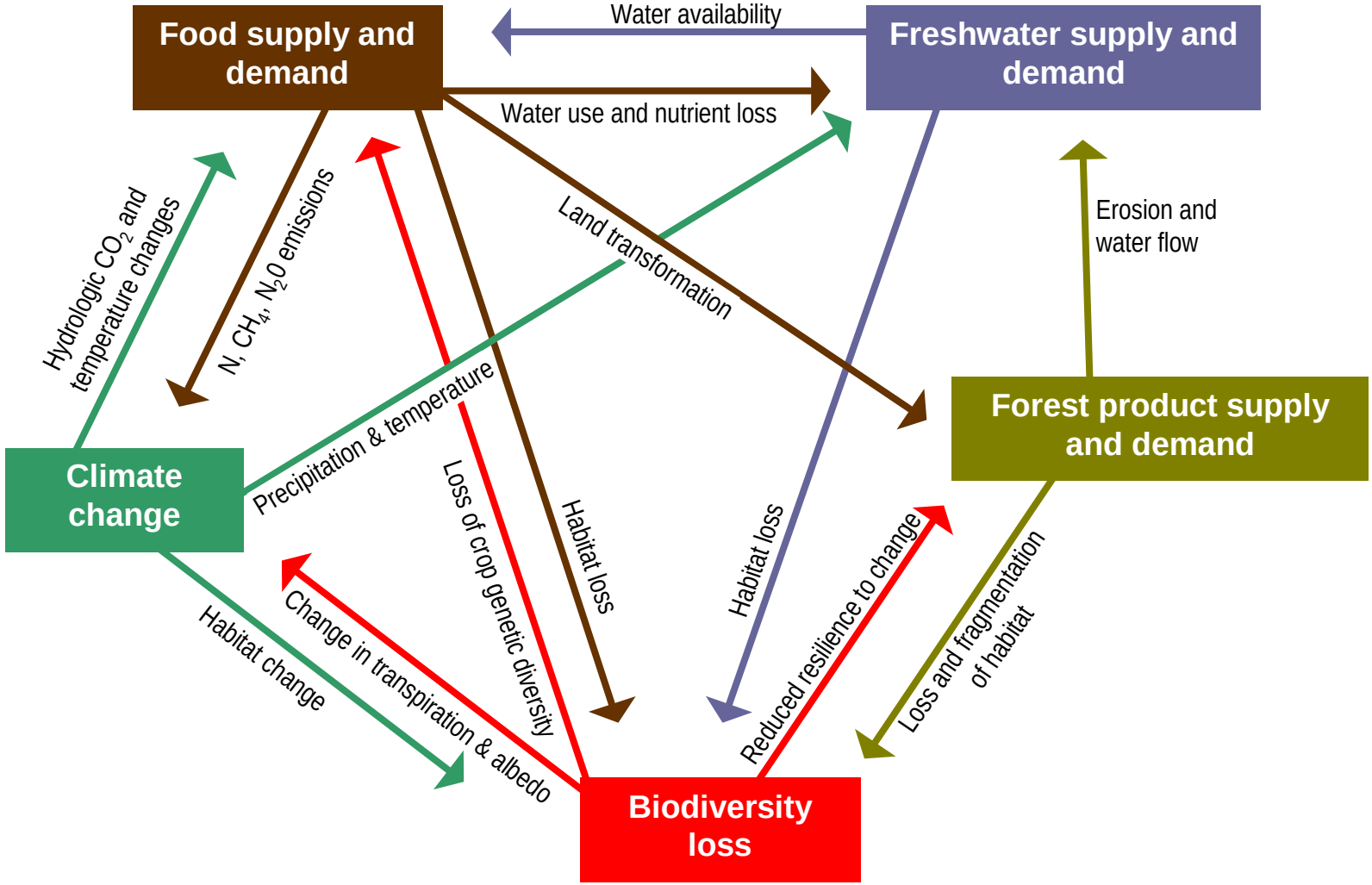
MA Framework



MA Examines Multiple Drivers as they Influence Ecosystems and Human Well-being



MA examines trade-offs among services



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

MA Working Groups

Condition Working Group

- What is the current condition and historical trends of ecosystems and their services?
- What have been the consequences of changes in ecosystems for human well-being?

Scenario Working Group

- Given plausible changes in primary drivers, what will be the consequences for ecosystems, their services, and human well-being?

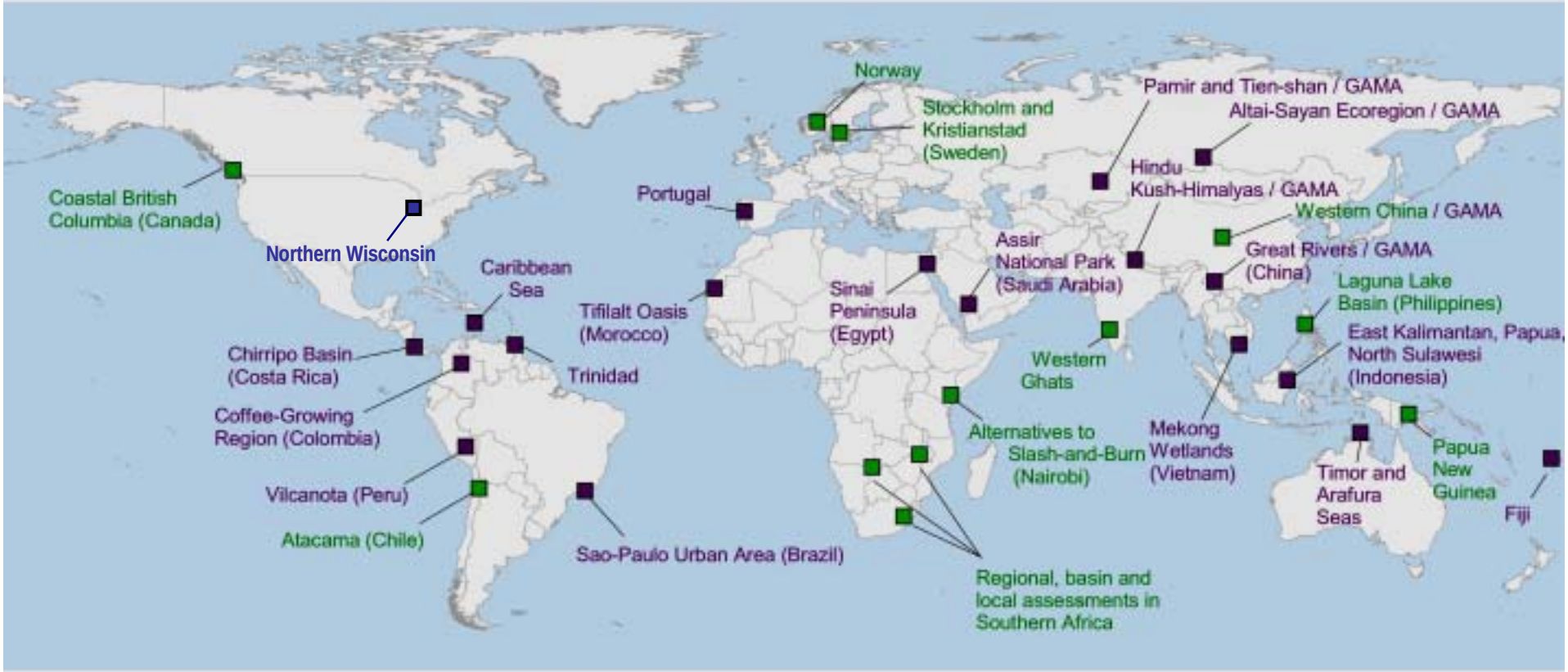
Responses Working Group

- What can we do to enhance well-being and conserve ecosystems?

Sub-Global Assessment Working Group

All of the above… at sub-global scales

Millennium Ecosystem Assessment Around the World



Sub-Global Assessments: Approved Assessments

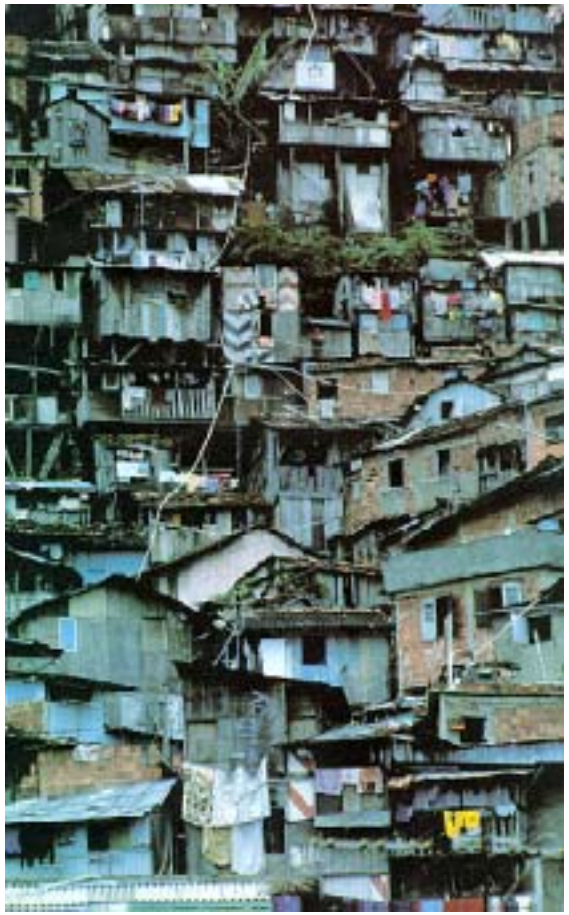
Africa (southern regions), Canada (Coastal British Columbia), Chile, China (western regions), India, Kenya, Norway, Papua New Guinea, Sweden

Sub-Global Assessments: Associated Assessments

Arafura and Timor Seas, Asia (central regions), Brazil, Caribbean Region, Colombia, Costa Rica, Egypt, Central Asia, GAMA (Great Asian Mountains Assessment), India, Indonesia, Peru, Philippines, Portugal, Trinidad, Vietnam

SAfMA-GM Gorongosa Marromeu

Sweden

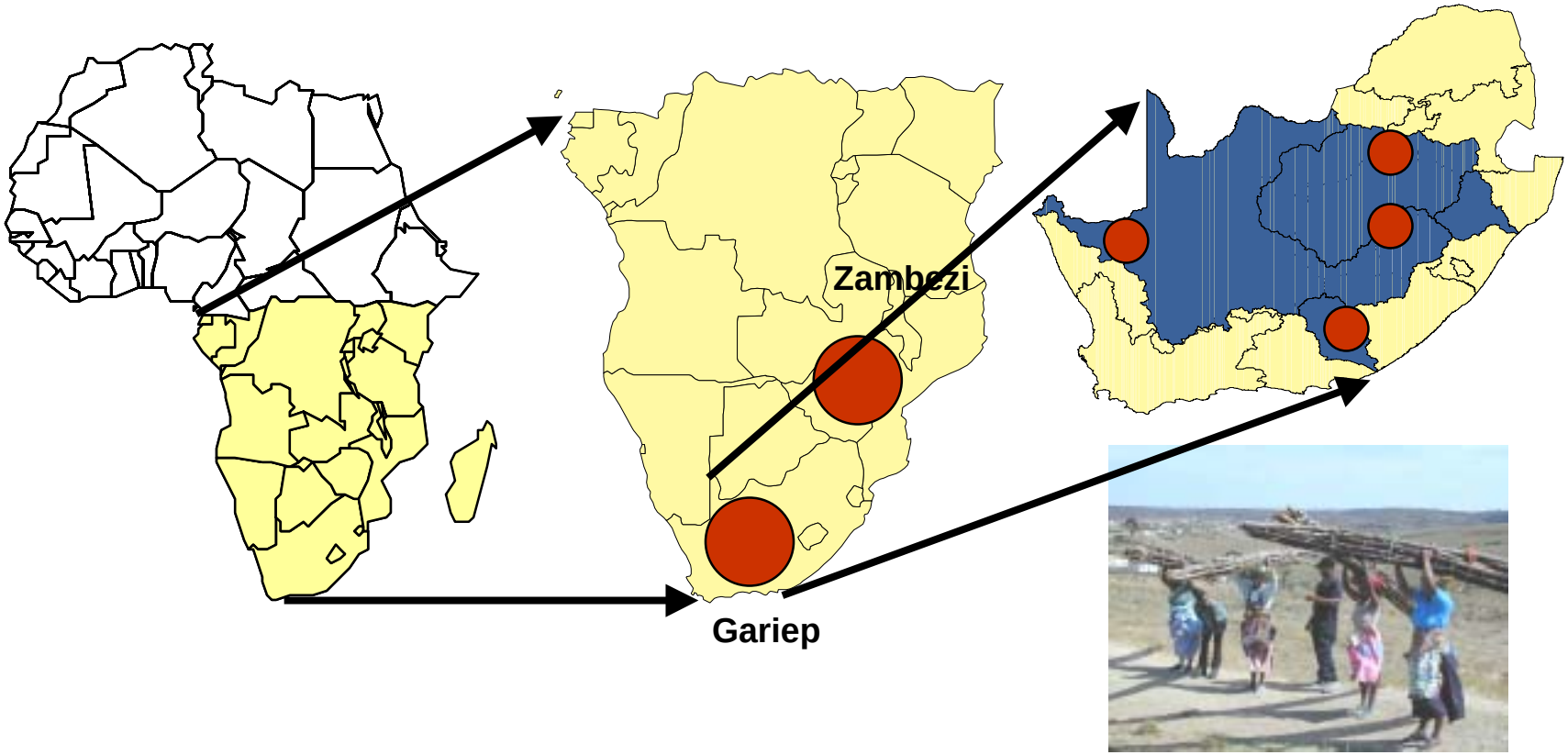


Urban Ecosystems:
Sao Paulo

MA is a Multi-scale Assessment

e.g., Southern Africa Millennium Assessment

SADC region | **3 drainage basins** | **Local assessments**



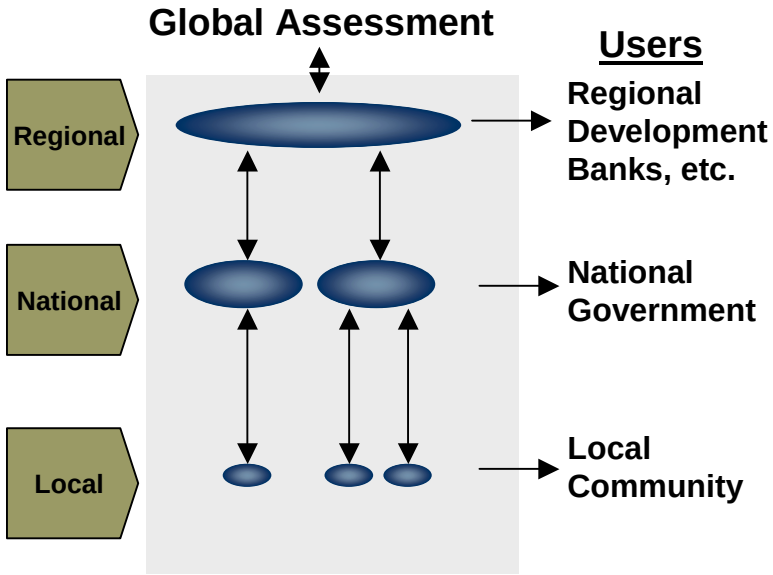
Source: Reyers, B., SAfMA Lessons Learned (Panama, June 2002)

Why a Multi-Scale Assessment?

Expect that findings at any scale of a multi-scale assessment will be improved by information and perspectives from other scales

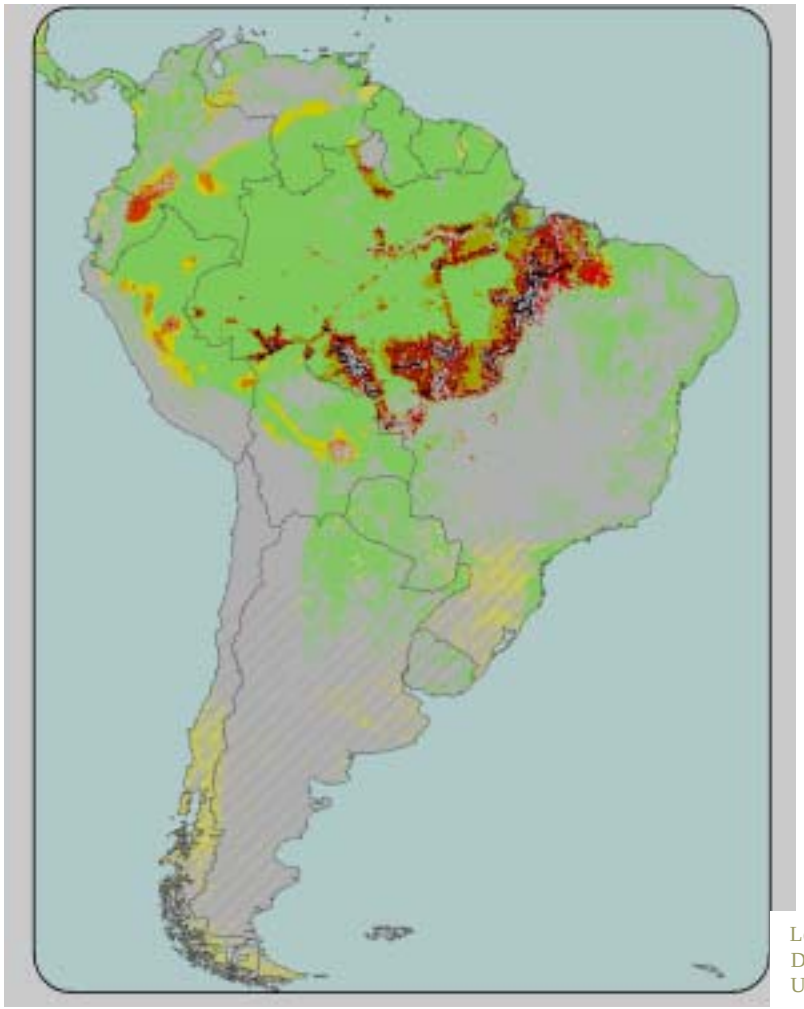
Rationale

- **Characteristic scale of processes**
- **Greater resolution at smaller scales**
- **Independent validation of conclusions**
- **Response options matched to the scale where decision-making takes place**



MA will provide:
Baseline information for 2000

Areas of Rapid Land Cover Change

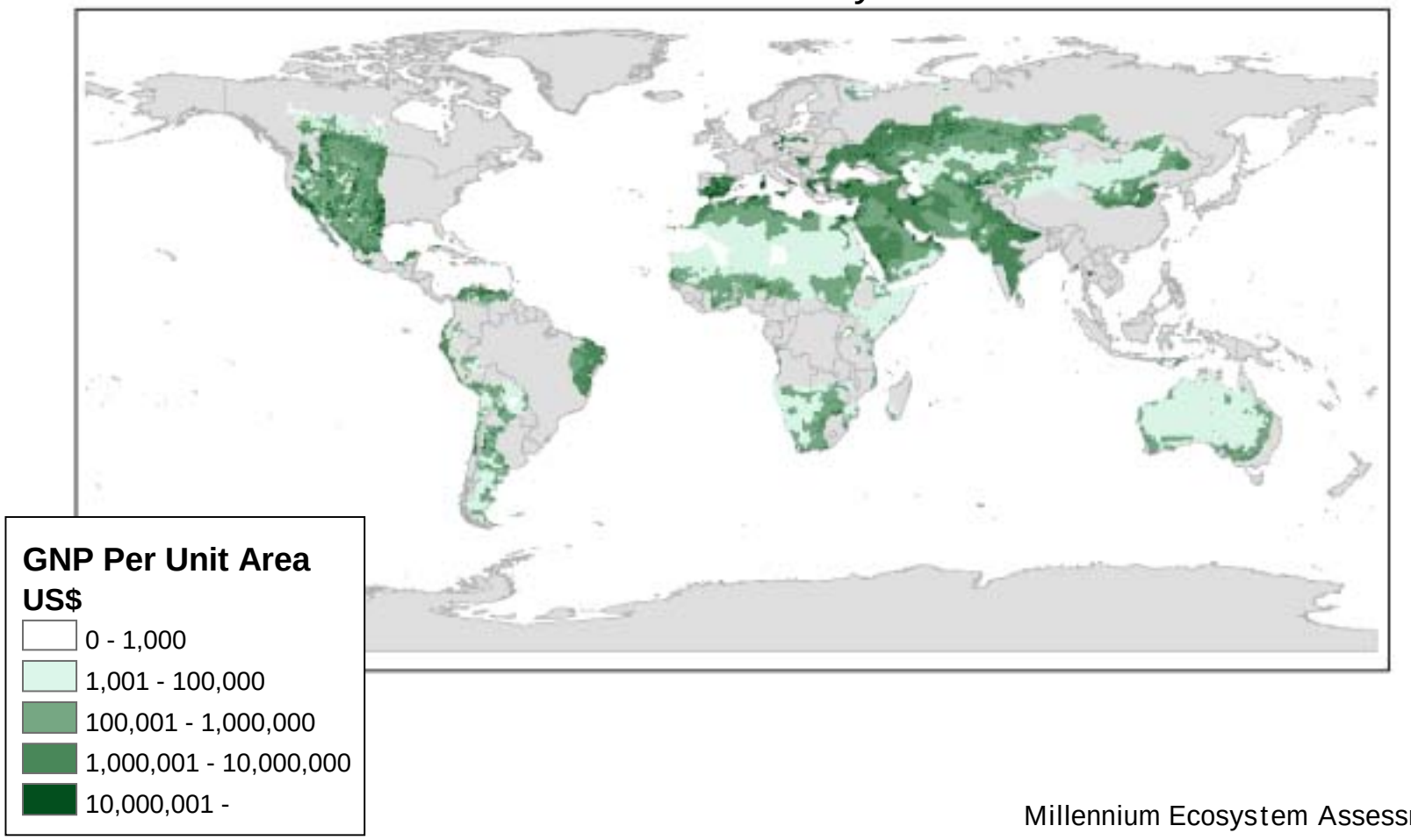


Led by Erika Lepers
Department of Geography
University of Louvain, Belgium

MA will provide:
Baseline information for 2000

GNP Per Unit Area in Drylands

16% of world total in drylands



Millennium Ecosystem Assessment

MA will:
Guide international priorities

- What are the highest priority areas to conserve for biodiversity? For Ecosystem services?
- What policies and actions concerning ecosystems can best contribute to the alleviation of poverty?

- Does the growing human contribution to nitrogen and phosphorous cycles deserve international policy attention?

MA will:
Inform national and private sector priorities and decisions

MA will help:

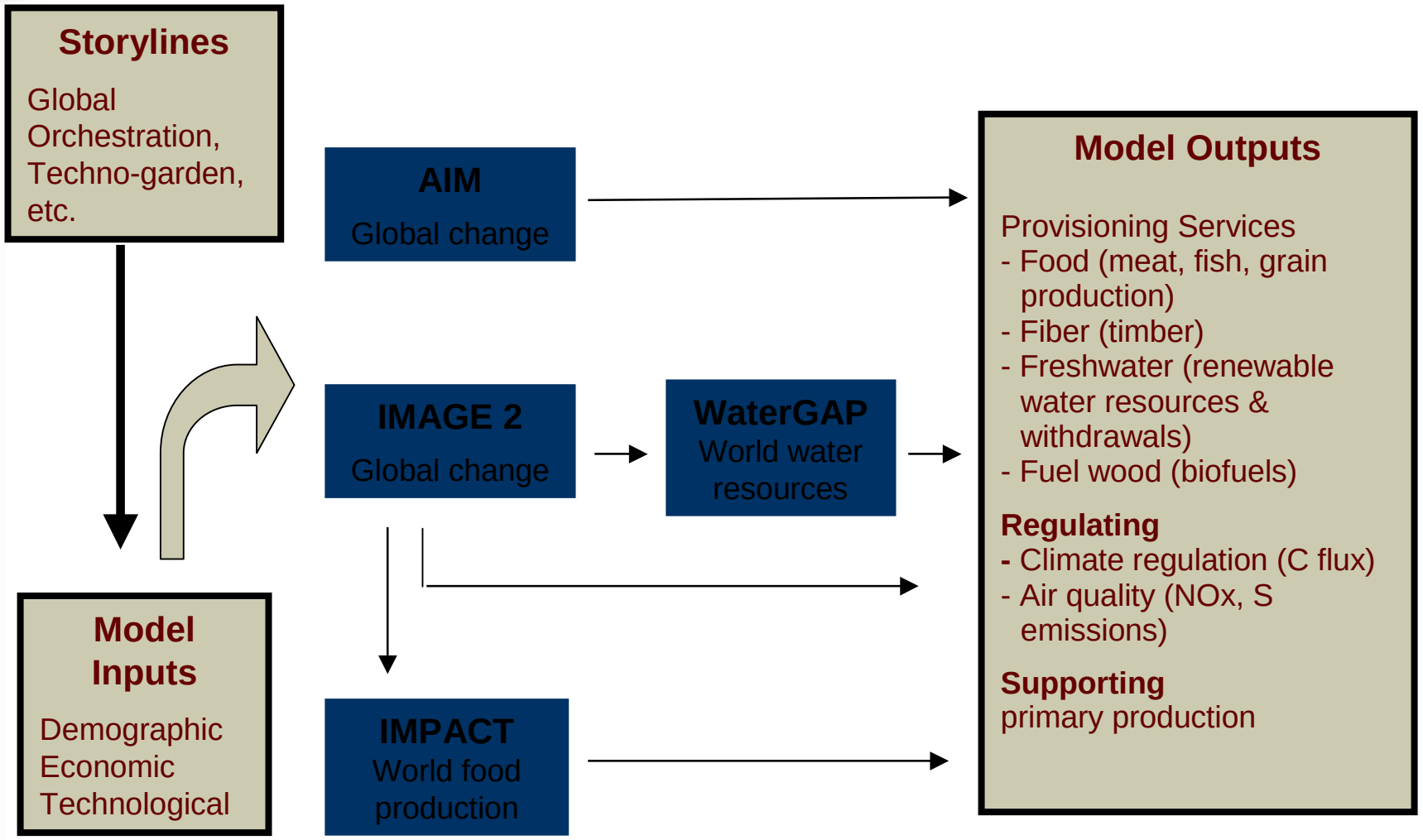
- Identify options to enhance development without undermining ecosystems
- Provide tools to evaluate the trade-offs involved in decisions concerning the environment
- Establish benchmarks
- Provide methodologies, e.g.
  - Ecosystem scenarios
  - Ecosystem service cost-benefit analyses
  - National and sub-national integrated ecosystem assessments

MA will provide: Foresight regarding consequences of decisions

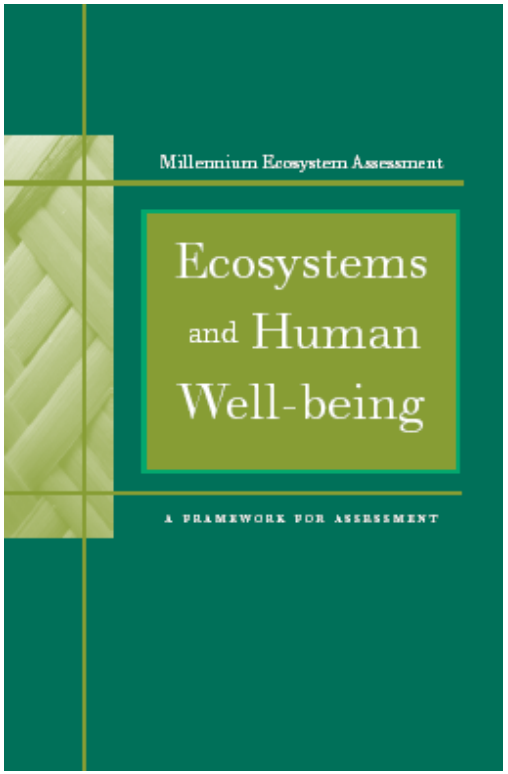
MA Scenarios:

- **Global Orchestration**
  - focus on macro-scale policy reform for environmental sustainability
- **Order from Strength**
  - retreat from global institutions, focus on national regulation and protectionism
- **Adapting Mosaic**
  - retreat from global institutions, focus on strengthened local institutions and local learning
- **Technogarden**
  - emphasis on development of technologies to substitute for ecosystem services

Approach to quantifying the MA scenarios



What will the MA publish?

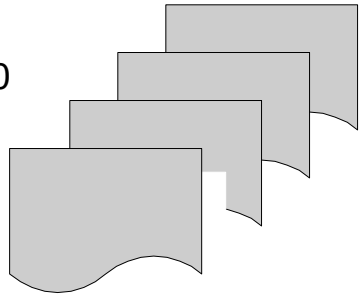


First MA Report

- Provides framework for linking ecosystems and development
- Presents methods and approaches for undertaking an integrated ecosystem assessment

What will the MA publish?

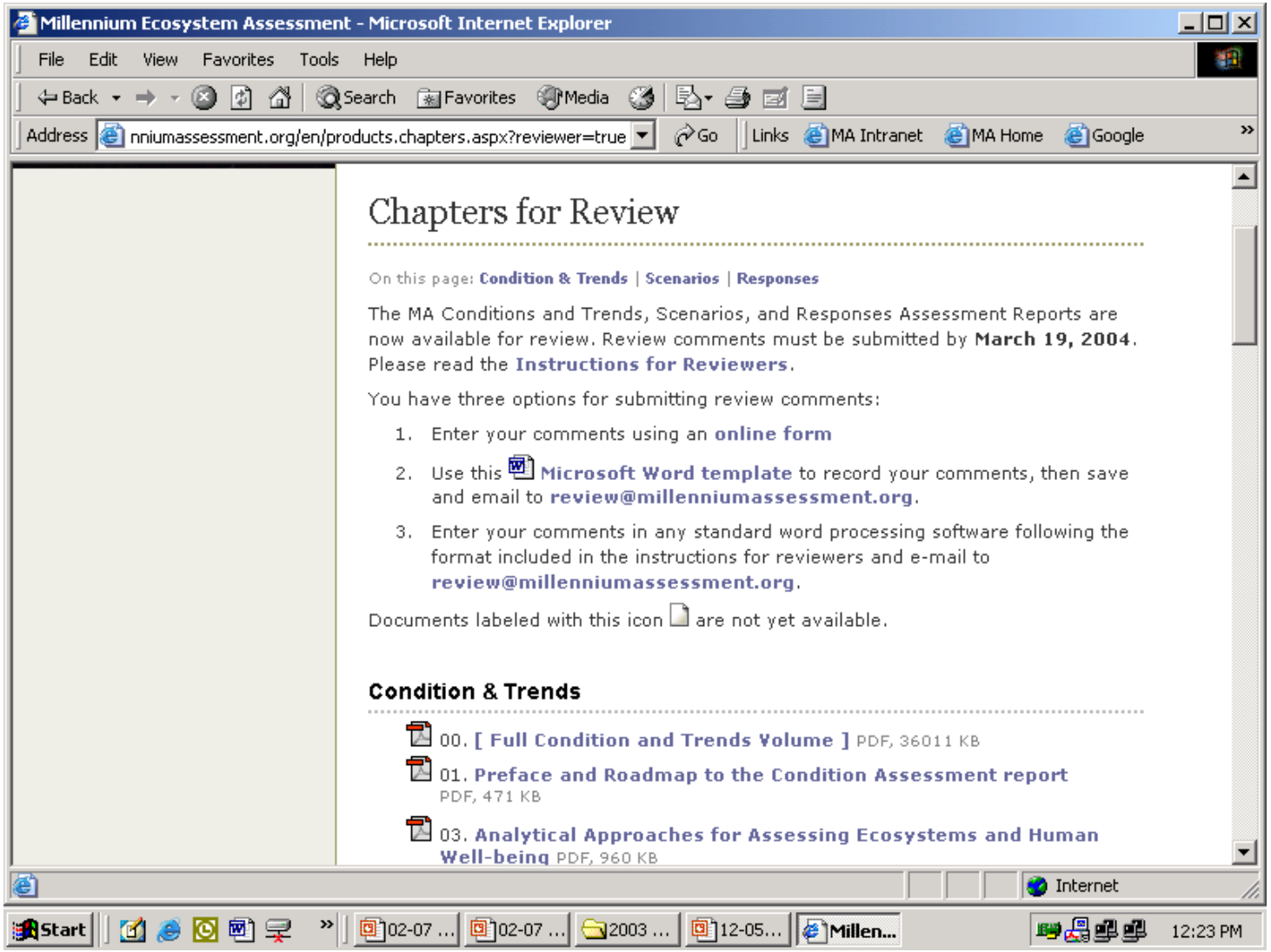
Assessment Reports
(300-800 pages with 30 page Summaries for Decision-Makers)



Government and Expert Review

- Two rounds of review by governments and experts
  - January 8 to March 19
  - June 7 to August 16
- Government review requests sent to National Focal Points of CBD, UNCCD, Ramsar, CMS, and UNFCCC
- 800 Experts also invited to submit review comments
- Anyone can register to access the drafts and provide comments.

Government and Expert Review



Government and Expert Review

- All comments will be addressed by authors
- Independent Review Board (85 experts; chaired by José Sarukhán and Anne Whyte) will examine responses and determine whether the comments have been adequately addressed by authors

MA Sponsors

Financial contributions (~ $17 million)

- Global Environment Facility
- United Nations Foundation
- Packard Foundation
- World Bank
- United Nations Environment Program
- Government of Norway
- Kingdom of Saudi Arabia
- NASA
- ICSU
- Swedish International Biodiversity Programme
- Christensen Fund
- Canadian International Development Agency
- Asia Pacific Network for Global Change Research
- Rockefeller Foundation

In-kind contributions (~ $6 million)

- Norway
- China
- India
- Japan
- Germany
- Netherlands
- United States (NASA, USGS, ORNL, USDA)
- European Commission
- FAO, UNDP, WHO, UNESCO, UNEP
- WorldFish Center, ICRAF
- Numerous other countries, NGOs, Universities and other institutions are supporting travel costs of experts

Visit the MA Website

www.millenniumassessment.org