



# Millennium Ecosystem Assessment

MA  
MA

## Methodology Methodological threads

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**Joint Research Centre**

The Millennium Ecosystem Assessment: implications for Belgium

SCOPE-Belgian Royal Academies; Brussels 27.10.2006

[www.millenniumassessment.org](http://www.millenniumassessment.org) | Strengthening Capacity to Manage Ecosystems Sustainably for Human Well-Being

***MA is not based on a formal methodology***

***The Conceptual Framework drives the approach***

# 4 components

***Human well-being***

***Ecosystem Services***

***Indirect drivers***

***Direct drivers***



# Millennium Ecosystem Assessment

## A single overarching issue:

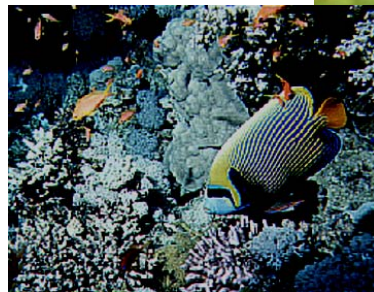
**Assessing the capacity of the world's ecosystems to continue ensuring human well-being and reduce poverty**

**The conceptual framework **places human well being as central focus of assessment**; all components lead to that point**

# Two Key Features of the MA

**Integrated Assessment**

**Multi-Scale Assessment**



# Defining Features

## **Demand-driven**

- Providing information requested by governments, business, civil society

## **Assessment of current state of knowledge**

- A critical evaluation of information concerning the consequences of ecosystem changes for human well-being
- Intended to be used to guide decisions on complex public issues

## **Authoritative information**

- Clarifies where there is broad consensus within the scientific community and where issues remain unresolved

## **Policy relevant not policy prescriptive**



# Millennium Ecosystem Assessment

**Integration of sound knowledge (working groups, interactions, feedbacks)**

**“From disconnected information to integrated assessment”**

# Largest assessment of the health of Earth's ecosystems

## Experts and Review Process

- Prepared by 1360 experts from 95 countries
- 80-person independent board of review editors
- Review comments from 850 experts and governments

## Governance

- Called for by UN Secretary General in 2000
- Authorized by governments through 4 conventions
- Partnership of UN agencies, conventions, business, non-governmental organizations with a multi-stakeholder board of directors



# Key design features of the MA

**Political legitimacy**

*Authorized by four conventions and UN  
("soft-authorization")*

**Scientific credibility**

*Follows IPCC procedures  
(expert and review process)*

**Utility**

*Focus strongly shaped by audience  
(Strong sub-global features)*



# Millennium Ecosystem Assessment

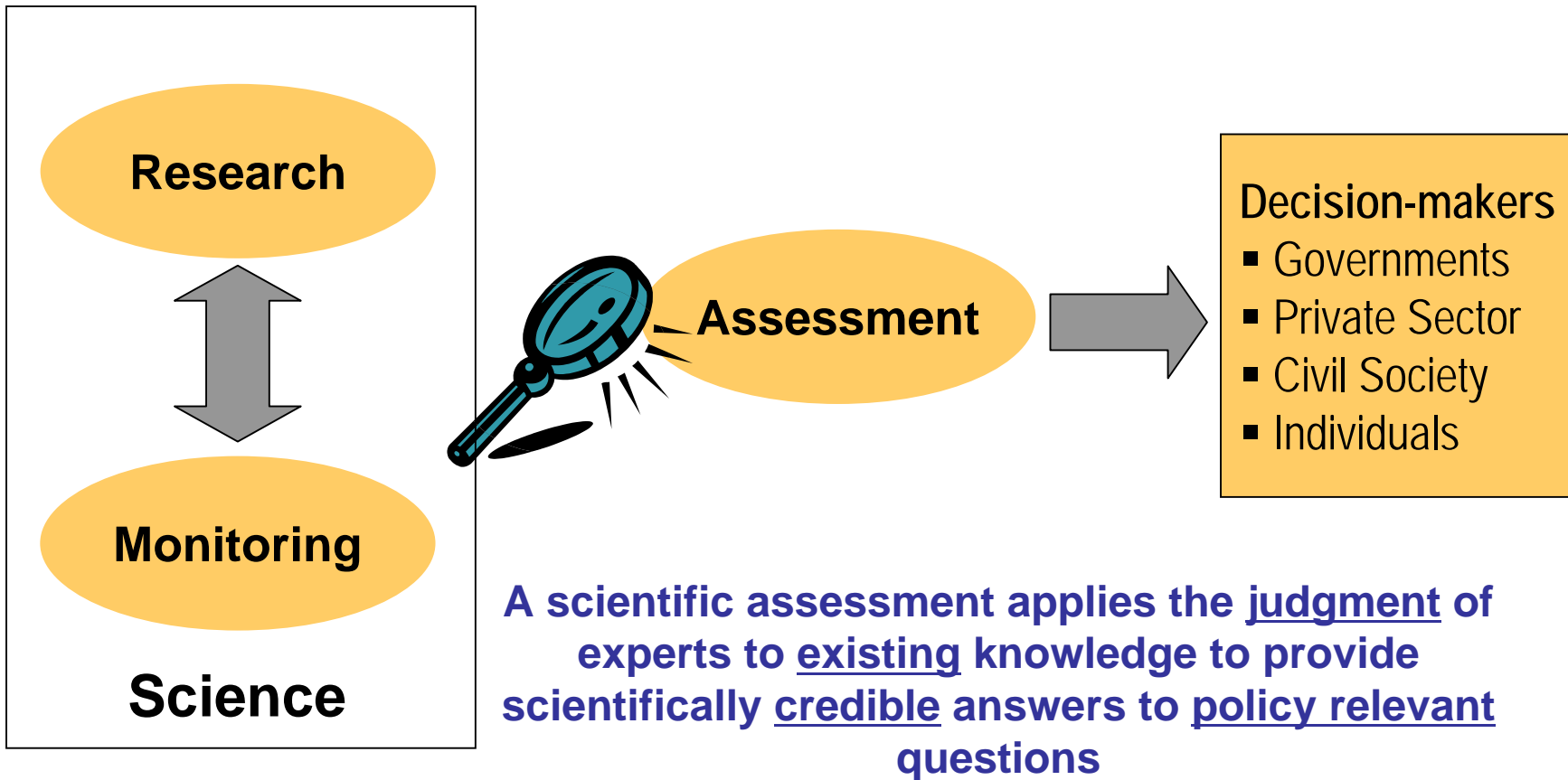
## **Note:**

**Environmental Impact Assessment: the object of study is man's impact on the environment.**

**In MA the object of study is capacity of ecosystems to satisfy needs and ensure well-being.**

# Science Assessment

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



A scientific assessment applies the judgment of experts to existing knowledge to provide scientifically credible answers to policy relevant questions

## A standard approach: Core Questions ex: in Ecosystem Conditions

1. What is the rate and scale of ecosystem change?
2. What are the consequences of ecosystem change for the services provided by ecosystems and for human-well being?
3. How might ecosystems and their services change over the next 50 years?
4. What options exist to conserve ecosystems and enhance their contributions to human well-being?

# 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

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**Multi-Scale Assessment**





# Millennium Ecosystem Assessment

## scale matters !

- No single ideal scale for multipurpose ecosystem assessment
- Interactions take place at multiple scales (scale domain)
- Choice of scale is not “politically” neutral
- Multiscale approach helps in identifying dynamics of the system – emergent information
- Range of scale allows to the identification of key governance processes
- Scale determines conclusion ....assessments need to be explicit



# Millennium Ecosystem Assessment

**scale matters !**

**Time horizon**

**-50 years....MA Assessment 2005.....+50 years**

|  
**conditions**

|  
**scenarios**

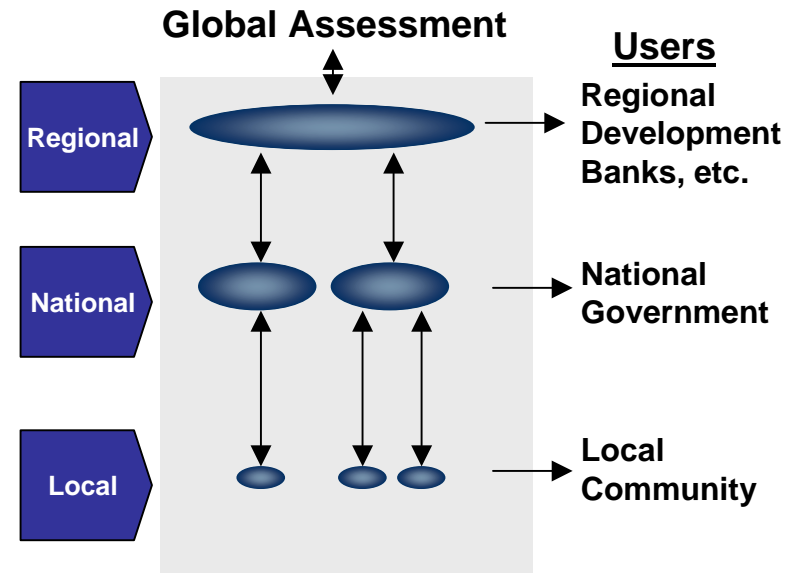


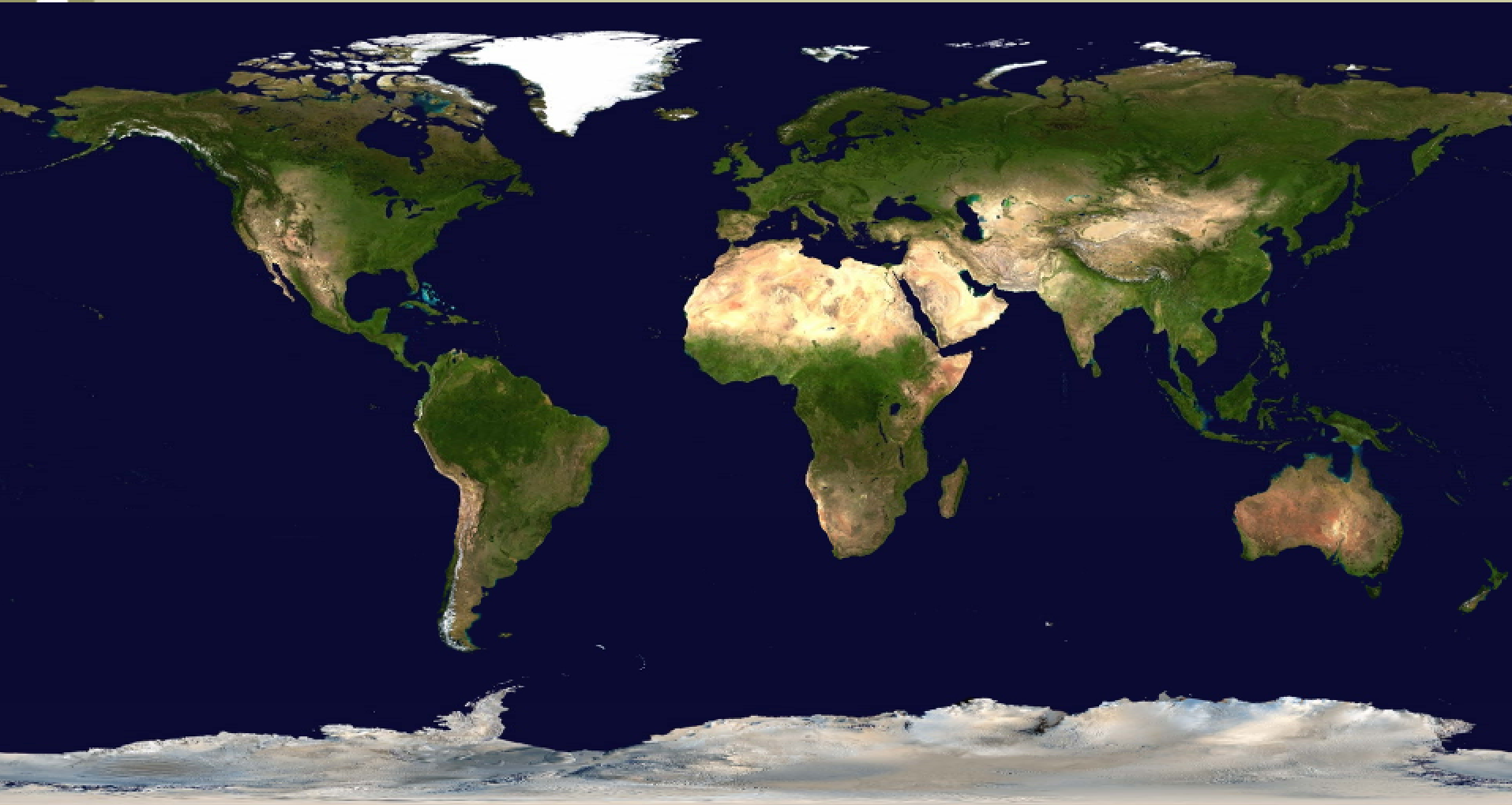
# Why a Multi-Scale Assessment?

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





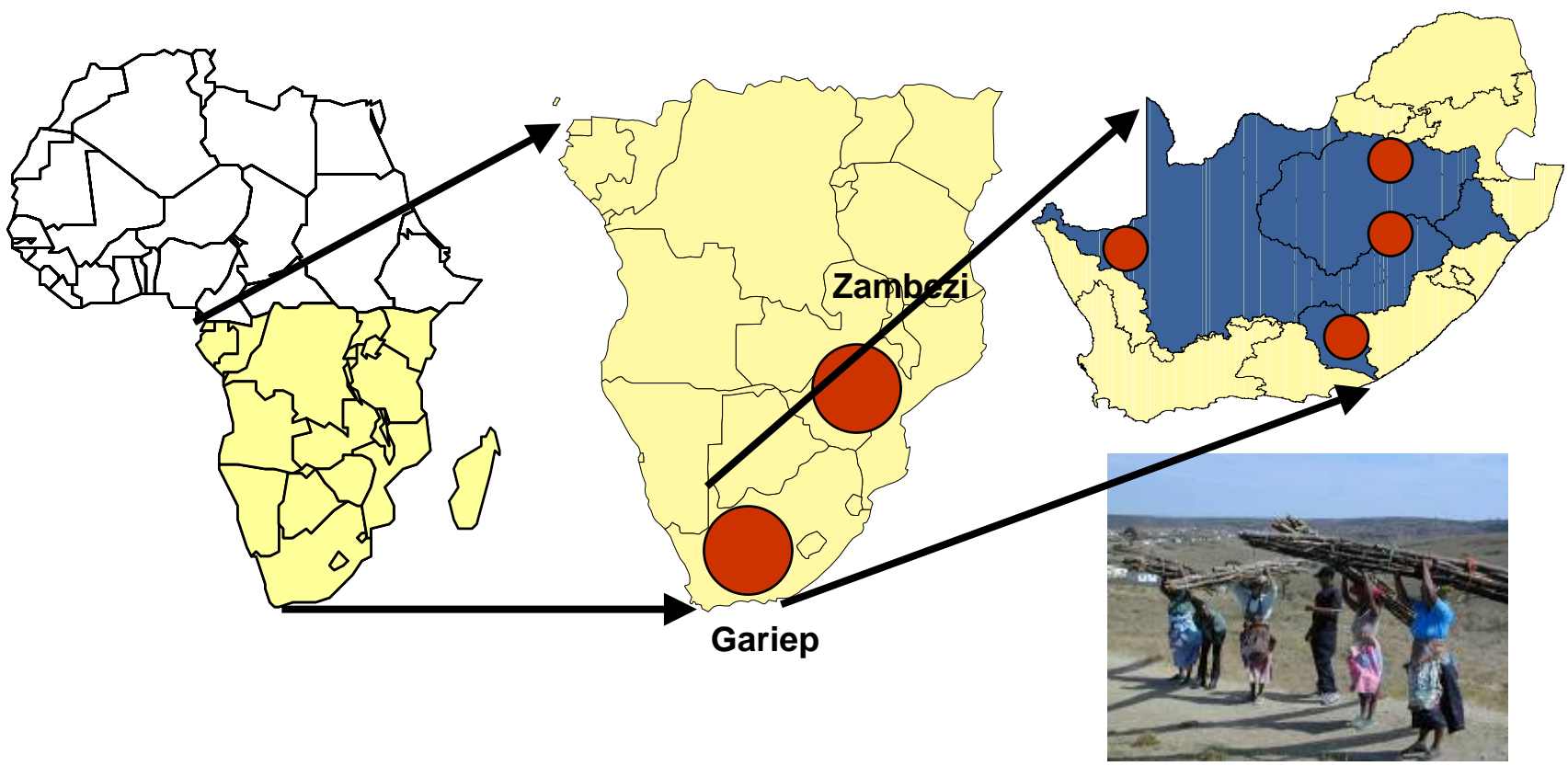


# Southern Africa Millennium Assessment

SADC region

Drainage basins

Local assessments



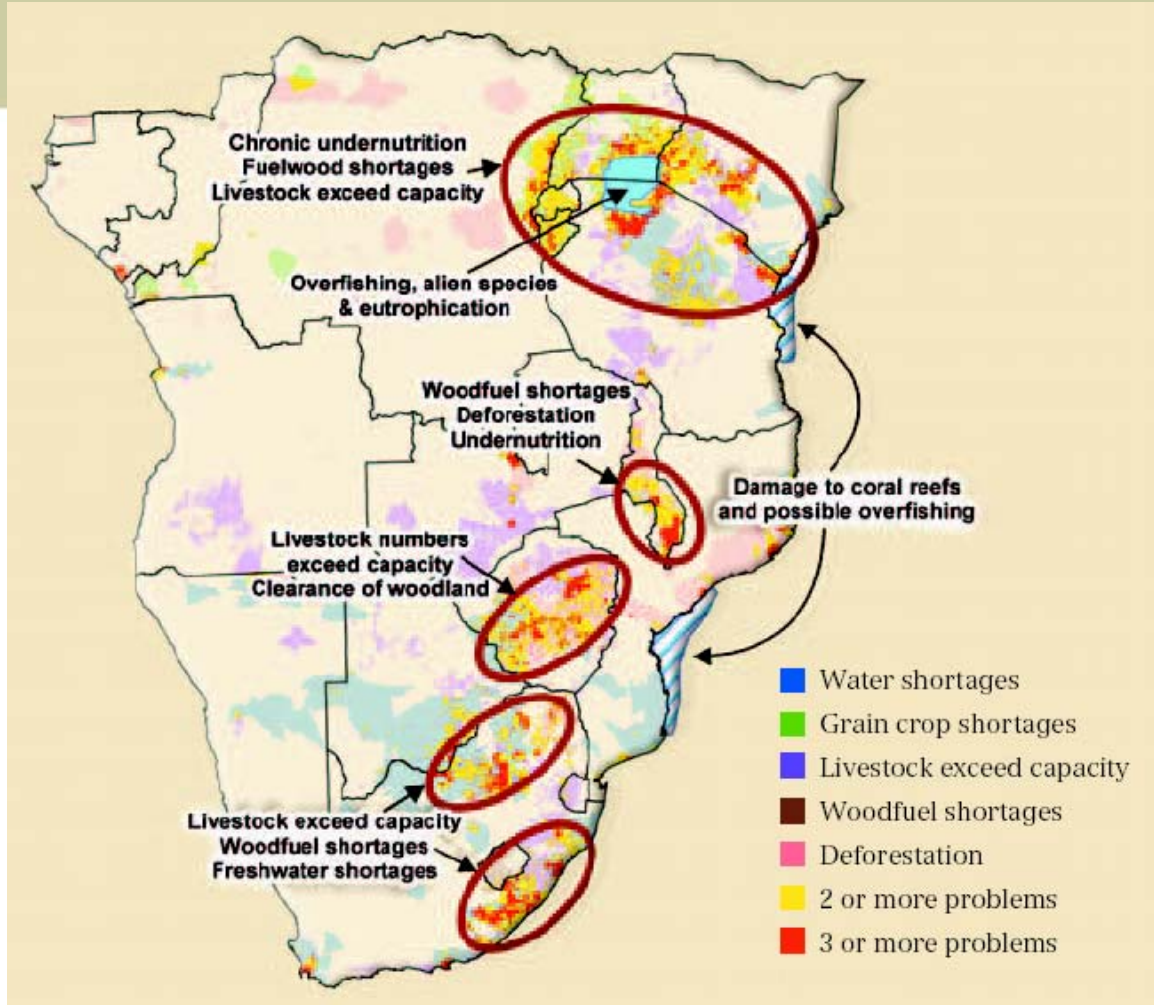
# MA Approach: Communication of Results

**Saliency**

**Clarity**

**Geographically explicit**

# Millennium Ecosystem Assessment



# Millennium Ecosystem Assessment

Value  
(per hectare)

\$4000



**Private Net Present Value per hectare**

**1987**

**Mangrove: \$9,100 to \$3,600**

**Shrimp Farm: \$20,400 to \$200**

**Mangrove Conversion**

Timber and Non-timber products (\$90)

Less subsidies (-\$1,700)

Pollution Costs (-\$230)

Restoration (-\$8,240)

0

Mangrove

Shrimp Farm

Source: Millennium Ecosystem Assessment; Sathirathai and Barbier 2001

# The Balance Sheet

Enhanced	Degraded	Mixed
Crops	Capture fisheries	Timber
Livestock	Wild foods	Fiber
Aquaculture	Wood fuel	Water regulation
Carbon sequestration	Genetic resources	Disease regulation
	Biochemicals	Recreation & ecotourism
	Fresh Water	
	Air quality regulation	
	Regional & local climate regulation	
	Erosion regulation	
	Water purification	
	Pest regulation	
	Pollination	
	Natural Hazard regulation	
	Spiritual & religious	
	Aesthetic values	

**Bottom Line: 60% of Ecosystem Services are Degraded**



# menacé : l'alerte de l'ONU

LA DÉGRADATION des milieux naturels, sous l'effet du développement économique, menace ce développement lui-même et le progrès qu'il permet pour la condition humaine. C'est la conclusion principale de l'étude menée par plus de 1 300 scientifiques, réunis par l'ONU dans le cadre du programme du Millénaire et chargés d'évaluer l'état des écosystèmes sur toute la surface de la Terre. « L'activité humaine exerce une telle pression sur les fonctions naturelles de la planète que la capacité des écosystèmes à répondre aux demandes des générations futures ne peut plus être considérée comme acquise », estime le comité directeur du projet, lancé par Kofi Annan en juin 2001. Selon cette étude, « environ 60 % des écosystèmes permettant la vie sur Terre ont été dégradés ». Cette dégradation pèse principalement sur les zones rurales des pays pauvres.



► 1 300 experts ont dressé un état alarmant des milieux naturels

► 60 % des écosystèmes permettant la vie sur Terre sont dégradés

► Cette détérioration hypothèque les perspectives de développement

Lire pages 2 et 3 et notre éditorial page 16

“...hmmpf... an ecosystem? what's that exactly?”

Front page *Le Monde* April 5, 2005